

Musculoskeletal Program Clinical Appropriateness Guidelines

Joint Surgery

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Table of Contents

Description and Application of the Guidelines	4
General Clinical Guideline	5
Clinical Appropriateness Framework.....	5
Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions	5
Repeat Diagnostic Intervention	5
Repeat Therapeutic Intervention	6
History	6
Shoulder Arthroplasty.....	7
Description & Scope.....	7
General Requirements and Documentation	7
Indications and Criteria	9
Contraindications	10
Exclusions	10
Selected References	11
CPT Codes.....	11
History	11
Shoulder Arthroscopy and Open Procedures	12
Description.....	12
General requirements	12
Indications and Criteria	13
Selected References	18
CPT Codes.....	18
History	19
Hip Arthroplasty.....	20
Description & Scope.....	20
General Requirements and Documentation	20
Indications and Criteria	22
Contraindications	22
Selected References	22
CPT Codes.....	23
Appendix	23
History	24
Hip Arthroscopy	25
Description.....	25
General requirements	25
Indications	26
Exclusions	27
Selected References	27
CPT Codes.....	27
Appendix	28
History	28

Knee Arthroplasty.....	29
Description & Scope.....	29
General Requirements and Documentation	29
Indications and Criteria	31
Contraindications	32
Exclusions	32
Selected References	33
CPT Codes.....	33
Appendix	33
History	34
Knee Arthroscopy and Open Procedures	35
Description.....	35
General Requirements	35
Indications	36
Exclusions	38
Selected References	38
CPT Codes.....	39
Appendix	40
History	40
Meniscal Allograft Transplantation of the Knee.....	41
Description.....	41
Documentation Requirements.....	41
Criteria.....	42
Exclusions	42
Selected References	42
CPT Codes.....	42
History	43
Treatment of Osteochondral Defects	44
Description.....	44
Documentation Requirements.....	44
Patient selection criteria	45
Procedure-specific criteria	45
Contraindications	46
Exclusions	46
CPT Codes.....	47
History	47

Description and Application of the Guidelines

AIM's Clinical Appropriateness Guidelines (hereinafter "AIM's Clinical Appropriateness Guidelines" or the "Guidelines") are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. As used by AIM, the Guidelines establish objective and evidence-based, where possible, criteria for medical necessity determinations. In the process, multiple functions are accomplished:

- To establish criteria for when services are medically necessary
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To advocate for patient safety concerns
- To enhance the quality of healthcare
- To promote the most efficient and cost-effective use of services

AIM's guideline development process complies with applicable accreditation standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up to date clinical principles and best practices. Relevant citations are included in the "References" section attached to each Guideline. AIM reviews all of its Guidelines at least annually.

AIM makes its Guidelines publicly available on its website twenty-four hours a day, seven days a week. Copies of the AIM's Clinical Appropriateness Guidelines are also available upon oral or written request. Although the Guidelines are publicly-available, AIM considers the Guidelines to be important, proprietary information of AIM, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of AIM.

AIM applies objective and evidence-based criteria and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The AIM Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient's unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient's condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. Applicable federal and state coverage mandates take precedence over these clinical guidelines. If requested by a health plan, AIM will review requests based on health plan medical policy/guidelines in lieu of the AIM's Guidelines.

The Guidelines may also be used by the health plan or by AIM for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

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General Clinical Guideline

Clinical Appropriateness Framework

Critical to any finding of clinical appropriateness under the guidelines for a specific diagnostic or therapeutic intervention are the following elements:

- Prior to any intervention, it is essential that the clinician confirm the diagnosis or establish its pretest likelihood based on a complete evaluation of the patient. This includes a history and physical examination and, where applicable, a review of relevant laboratory studies, diagnostic testing, and response to prior therapeutic intervention.
- The anticipated benefit of the recommended intervention should outweigh any potential harms that may result (net benefit).
- Current literature and/or standards of medical practice should support that the recommended intervention offers the greatest net benefit among competing alternatives.
- Based on the clinical evaluation, current literature, and standards of medical practice, there exists a reasonable likelihood that the intervention will change management and/or lead to an improved outcome for the patient.

If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would supersede the requirements set forth above. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account.

Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions

Requests for multiple diagnostic or therapeutic interventions at the same time will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all interventions simultaneously. This is based on the fact that appropriateness of additional intervention is often dependent on the outcome of the initial intervention.

Additionally, either of the following may apply:

- Current literature and/or standards of medical practice support that one of the requested diagnostic or therapeutic interventions is more appropriate in the clinical situation presented; or
- One of the diagnostic or therapeutic interventions requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice.

Repeat Diagnostic Intervention

In general, repeated testing of the same anatomic location for the same indication should be limited to evaluation following an intervention, or when there is a change in clinical status such that additional testing is required to determine next steps in management. At times, it may be necessary to repeat a test using different techniques or protocols to clarify a finding or result of the original study.

Repeated testing for the same indication using the same or similar technology may be subject to additional review or require peer-to-peer conversation in the following scenarios:

- Repeated diagnostic testing at the same facility due to technical issues
- Repeated diagnostic testing requested at a different facility due to provider preference or quality concerns
- Repeated diagnostic testing of the same anatomic area based on persistent symptoms with no clinical change, treatment, or intervention since the previous study
- Repeated diagnostic testing of the same anatomic area by different providers for the same member over a short period of time

Repeat Therapeutic Intervention

In general, repeated therapeutic intervention in the same anatomic area is considered appropriate when the prior intervention proved effective or beneficial and the expected duration of relief has lapsed. A repeat intervention requested prior to the expected duration of relief is not appropriate unless it can be confirmed that the prior intervention was never administered.

History

Status	Date	Action
Revised	03/09/2019	Retitled Pretest Requirements to "Clinical Appropriateness Framework" to summarize the components of a decision to pursue diagnostic testing. To expand applicability beyond diagnostic imaging, retitled Ordering of Multiple Studies to "Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions" and replaced imaging-specific terms with "diagnostic or therapeutic intervention." Repeated Imaging split into two subsections, "repeat diagnostic intervention" and "repeat therapeutic intervention."
Reviewed	07/11/2018	Last Independent Multispecialty Physician Panel review
Revised	07/26/2016	Independent Multispecialty Physician Panel revised
Created	03/30/2005	Original effective date

Shoulder Arthroplasty

(Total/Partial/Revision Shoulder Replacement)

Description & Scope

Shoulder arthroplasty includes several procedures to replace components of the shoulder joint, in part or in total, with the goal of improving function and reducing pain. Prosthetic replacement of the humeral head and the glenoid (total arthroplasty) is most commonly performed for joint damage due to osteoarthritis. Total shoulder arthroplasty requires an intact medial glenoid to support the glenoid prosthesis.

Reverse shoulder arthroplasty is similar in that both components of the joint are replaced but ball and socket portions of the joint are reversed, allowing the deltoid muscle to assume partial function of the rotator cuff. This procedure is typically utilized when there is concomitant rotator cuff disease.

When the medial glenoid is damaged by erosions such that a glenoid prosthesis cannot be adequately supported, then hemiarthroplasty is typically the procedure of choice. Here, only the humeral head is replaced with an artificial component. This procedure requires that the glenoid fossa be relatively free of disease.

This document addresses shoulder arthroplasty when performed as an **elective, non-emergent** procedure and not as part of the care of a congenital condition, acute or traumatic event such as fracture (excluding fracture of implant and periprosthetic fracture).

General Requirements and Documentation

Documentation supporting medical necessity should be submitted at the time of the request and must include the following components:

Clinical notes describing:

- Symptom duration and severity
- Specific functional limitations related to symptoms
- Type and duration of all therapeutic measures provided. If conservative management is not appropriate, the reason must be clearly documented.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification

- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Reports of imaging studies obtained within the past twelve (12) months describing the degree of cartilage damage as determined by either or both of the following methods:

- X-ray report that utilizes or can be correlated with the **Kellgren-Lawrence** grading system of osteoarthritis
- MRI report from a radiologist that utilizes or can be correlated with the **modified Outerbridge** or similar classification system related to articular cartilage injury and osteoarthritis.

*(See **Appendix** for a description of these grading systems)*

The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure.

Imaging reports should be thorough and describe the presence or absence of subchondral cysts, subchondral sclerosis, periarticular osteophytes, joint subluxation, avascular necrosis or bone on bone articulations. The degree of joint space narrowing should also be noted.

Tobacco Cessation – Adherence to a tobacco-cessation program resulting in abstinence from tobacco for at least six (6) weeks prior to surgery is recommended. Documentation of nicotine-free status by laboratory testing (e.g., cotinine level or carboxyhemoglobin) is recommended. After six (6) weeks of tobacco cessation, labs should be performed with ample time afforded to submit this confirmation and complete the prior authorization process.

Diabetes – It is recommended that a patient with history of diabetes maintain hemoglobin A1C 8% or less prior to any joint replacement surgery.

Body Mass Index (BMI) – It is recommended that any patient with a BMI equal to or greater than 40 should attempt weight reduction prior to surgery.

Indications and Criteria

All of the following conditions must be present, regardless of the indication for which the procedure is being performed:

- Anticipated level of function should place limited demands on the shoulder joint
- Deltoid muscle must be intact
- Shoulder joint must be anatomically and structurally suited to receive selected implants (i.e., adequate bone stock to allow for firm fixation of implant)

Total shoulder arthroplasty or hemiarthroplasty may be considered medically necessary for either of the following indications:

- Malignancy involving the glenohumeral joint or surrounding soft tissue
- Advanced joint disease of the shoulder due to osteoarthritis, rheumatoid arthritis, avascular necrosis, or post-traumatic arthritis when all of the following requirements are met:
 - Limited range of motion or crepitus of the glenohumeral joint on physical examination
 - Pain and loss of function of at least six (6) months' duration that interferes with daily activities
 - Radiographic evidence of destructive degenerative joint disease as evidence by two (2) or more of the following:
 - irregular joint surfaces
 - glenoid sclerosis
 - osteophyte changes
 - flattened glenoid
 - cystic changes in the humeral head
 - joint space narrowing
 - Failure of conservative management of at least six (6) weeks' duration

Hemiarthroplasty may be considered as an option for either of the following indications:

- Proximal humerus fracture not amenable to internal fixation
- Advanced joint disease of the shoulder, when criteria are met for total shoulder arthroplasty and at least one of the following conditions is present:
 - Osteonecrosis of the humeral head without glenoid involvement
 - Advanced joint disease due to rotator cuff tear arthropathy
 - Glenoid bone stock inadequate to support a glenoid prosthesis

Reverse shoulder arthroplasty may be considered medically necessary for the following indications:

- Reconstruction after a tumor resection
- Glenohumeral osteoarthritis with irreparable rotator cuff tear
- Failed hemiarthroplasty
- Failed total shoulder arthroplasty with non-repairable rotator cuff
- Shoulder fracture that is not repairable or cannot be reconstructed with other techniques
- Advanced joint disease of the shoulder when criteria are met for total shoulder arthroplasty and the following condition is present:
 - Deficient rotator cuff and limited ability to actively flex the upper extremity to 90 degrees against gravity

Revision or replacement of shoulder prosthesis

Revision or replacement of a shoulder prosthesis may be considered medically necessary in any of the following conditions, when associated with pain and functional impairment:

- Aseptic loosening of one or more prosthetic components confirmed by imaging
- Fracture of one or more components of the prosthesis confirmed by imaging
- Periprosthetic infection confirmed by gram stain and culture
- Instability of the glenoid or humeral components
- Migration of the humeral head

Contraindications

(all arthroplasty procedures)

- Active infection of the joint
- Active systemic bacteremia
- Active skin infection (exception recurrent cutaneous staph infections) or open wound within the planned surgical site of the shoulder
- Rapidly progressive neurologic disease

Exclusions

(for total shoulder arthroplasty or hemiarthroplasty)

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Glenohumeral osteoarthritis with irreparable rotator cuff tear (see ***Reverse Arthroplasty indications***)
- Total shoulder arthroplasty or hemiarthroplasty under conditions which would result in excessive stress on the implant, including but not limited to Charcot joint and paralytic conditions of the shoulder

Selected References

1. American Academy of Orthopedic Surgeons, The treatment of glenohumeral joint osteoarthritis, (2009) Rosemont IL, 201 pgs.
2. Carter MJ, Mikuls TR, Nayak S, et al. Impact of total shoulder arthroplasty on generic and shoulder-specific health-related quality-of-life measures: a systematic literature review and meta-analysis. The Journal of bone and joint surgery American volume. 2012;94(17):e127.
3. Khan WS, Longo UG, Ahrens PM, et al. A systematic review of the reverse shoulder replacement in rotator cuff arthropathy, rotator cuff tears, and rheumatoid arthritis. Sports medicine and arthroscopy review. 2011;19(4):366-79.
4. Rasmussen JV. Outcome and risk of revision following shoulder replacement in patients with glenohumeral osteoarthritis. Acta orthopaedica Supplementum. 2014;85(355):1-23.
5. Singh JA, Sperling J, Buchbinder R, et al. Surgery for shoulder osteoarthritis. Cochrane Database Syst Rev. 2010(10):Cd008089.

CPT Codes

23470 Arthroplasty, glenohumeral joint; hemiarthroplasty

23472 Arthroplasty, glenohumeral joint; total shoulder (glenoid and proximal humeral replacement (e.g., total shoulder))

23473 Revision of total shoulder arthroplasty, including allograft when performed; humeral or glenoid component

23474 Revision of total shoulder arthroplasty, including allograft when performed; humeral and glenoid component

History

Status	Date	Action
Created	11/01/2017	Original effective date
Reviewed	07/17/2017	Last Independent Multispecialty Physician Panel review

Shoulder Arthroscopy and Open Procedures

Description

Arthroscopy is a surgical procedure in which a small fiberoptic camera is inserted into the joint through a small incision. In addition to allowing the surgeon to visualize the joint, arthroscopy may also be utilized for treatment of a variety of conditions involving the joint structures.

This document addresses shoulder arthroscopy and open procedures when performed as an **elective, non-emergent** procedure and not as part of the care of an acute fracture.

General requirements

The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure. In the majority of cases, a period of conservative management is appropriate prior to intervention.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Indications and Criteria

Rotator Cuff Repair

Note: For primary rotator cuff repair, adherence to a tobacco-cessation program resulting in abstinence from tobacco for at least six (6) weeks prior to surgery is recommended. Documentation of nicotine-free status by laboratory testing (e.g., cotinine level or carboxyhemoglobin) is recommended. After six (6) weeks of tobacco cessation, labs should be performed with ample time afforded to submit this confirmation and complete the prior authorization process.

Acute Full Thickness Tear

All of the following are required:

- Traumatic injury within the preceding three (3) months
- Shoulder pain ≥ 4 on the VAS scale exacerbated by movement
- Weakness of rotator cuff muscle(s) (less than grade 4/5 on manual muscle testing)
- Physical exam demonstrating a positive response to at least one of the following tests:
 - Neer Impingement Test
 - Drop Arm Test
 - Painful Arc Test Full/Empty Can Test
 - Weakness of external rotation
- Advanced imaging confirming a full thickness tear
- Failure of at least six (6) weeks of conservative management including non-operative cuff (MOON) protocol*

**Note: This requirement is waived in a young person with an acute traumatic tear.*

Chronic or Degenerative Full Thickness Tear

All of the following are required:

- Gradual onset of shoulder pain, without a significant traumatic event
- Pain ≥ 4 on the VAS scale which interferes with age-appropriate activities of daily living
- Weakness of rotator cuff muscle(s) (less than grade 4/5 on manual muscle testing)
- Physical exam demonstrating a positive response to at least one of the following tests:
 - Neer Impingement Test
 - Drop Arm Test
 - Hawkins Kennedy Impingement Test
 - Painful Arc Test Full/Empty Can Test
 - Weakness of external rotation
- Recent advanced imaging confirming a degenerative full thickness tear
- Failure of at least six (6) weeks of conservative management, including non-operative cuff (MOON) protocol

Partial Thickness Tear

All of the following are required:

- Pain ≥ 4 on the VAS scale which interferes with age-appropriate activities of daily living
- Weakness of rotator cuff muscle(s) (less than grade 4/5 on manual muscle testing)
- Physical exam demonstrating a positive response to at least one of the following tests:
 - Neer Impingement Test
 - Drop Arm Test
 - Hawkins Kennedy Impingement Test
 - Painful Arc Test Full/Empty Can Test
- Recent advanced imaging confirming a partial thickness tear
- Symptoms present for at least three (3) months
- Failure of at least six (6) weeks of conservative management including non-operative cuff (MOON) protocol

Revision Rotator Cuff Repair

Note: For revision rotator cuff repair, adherence to a tobacco-cessation program resulting in abstinence from tobacco for at least six (6) weeks prior to surgery is required. Documentation of nicotine-free status by laboratory testing (e.g., cotinine level or carboxyhemoglobin) is required. After six (6) weeks of tobacco cessation, labs should be performed with ample time afforded to submit this confirmation and complete the prior authorization process.

All of the following are required:

- Documentation of nicotine-free status for at least six (6) weeks prior to surgery
- Shoulder pain ≥ 4 on the VAS scale exacerbated by movement
- Weakness of rotator cuff muscle(s) (less than grade 4/5 on manual muscle testing)
- Recent advanced imaging confirming a full thickness tear
- Failure of at least twelve (12) weeks of conservative management including non-operative rotator cuff (MOON) protocol

Revision rotator cuff repair is **contraindicated** when a massive tear is present, as evidenced by any of the following:

- Presence rotator cuff arthropathy defined as combination of arthritis and lack of rotator cuff
- Prior history of a revision surgery
- Active infection of the joint
- Active systemic bacteremia
- Active skin infection (exception recurrent cutaneous staph infections) or open wound within the planned surgical site of the shoulder
- Rapidly progressive neurological disease
- Wheelchair bound and/or assistive device dependent

Exclusions (all rotator cuff repair procedures)

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Treatment of asymptomatic, full thickness rotator cuff tear
- Active infection of the joint
- Active systemic bacteremia
- Active skin infection (exception recurrent cutaneous staph infections) or open wound within the planned surgical site of the shoulder
- Rapidly progressive neurological disease
- Deltoid or rotator cuff paralysis

Labral Tear (including Superior Labral Anterior-Posterior [SLAP] Tears)

All of the following are required:

- Shoulder pain ≥ 4 on the VAS scale which interferes with age-appropriate activities of daily living
- Symptoms aggravated by heavy lifting, pushing, and overhead motion
- Physical exam demonstrating a positive response to at least one of the following tests:
 - O'Brien (active compression)
 - Anterior slide
 - Biceps load (I and II)
 - Pain provocation
 - Crank Test
 - Jobe relocation
 - Forced shoulder abduction and elbow flexion
 - Resisted supination – external rotation
- MRI demonstrating a traumatic non-anatomic SLAP lesion consistent with subjective and objective findings
- Failure of at least twelve (12) weeks of conservative management

Subacromial Impingement Syndrome (without Rotator Cuff Tear)

Isolated subacromial decompression with or without acromioplasty may be considered medically necessary when all of the following criteria are met:

- Generalized shoulder pain (≥ 4 on the VAS scale) typically related to overhead activities
- Physical exam demonstrating a positive response to at least one of the following tests:
 - Neer Impingement Test
 - Drop Arm Test
 - Hawkins Kennedy Impingement Test
 - Painful Arc Test (pain appears between 90 and 120 degrees during active arm elevation, and it appears between 90 and 30 degrees during active arm depression)
 - Full/Empty Can Test
- Failure of at least six (6) months of conservative management

Arthroscopic Capsular Release for Adhesive Capsulitis

All of the following are required:

- History of trauma or post-operative contracture
- Shoulder pain ≥ 4 on the VAS scale which interferes with age-appropriate activities of daily living
- Reduced passive range of motion of the affected glenohumeral joint by at least 50% compared to unaffected shoulder
- Failure of at least twelve (12) weeks of conservative management

Manipulation under Anesthesia (MUA) for Adhesive Capsulitis

All of the following are required:

- Shoulder pain ≥ 4 on the VAS scale which interferes with age-appropriate activities of daily living
- Reduced passive range of motion of the affected glenohumeral joint by at least 50% compared to unaffected shoulder
- Failure of at least twelve (12) weeks of conservative management

Arthroscopic or Open Procedures for Chronic Shoulder Instability/Laxity

Capsulorrhaphy (Bankart procedure) may be considered medically necessary when all of the following criteria are met:

- History of a shoulder dislocation
- Positive apprehension/relocation test
- Shoulder pain and/or instability which interferes with age-appropriate activities of daily living
- MRI demonstrates at least one of the following:
 - Bankart/labral lesion
 - Hill Sachs lesion
 - Capsular tear
- Failure of at least twelve (12) weeks of conservative management (unless has multiple dislocations during management)*

**Early surgery may be considered for patients with large bone defects or patients under age 35.*

Acromioclavicular Arthritis

Partial claviclectomy (includes Mumford procedure) may be considered medically necessary when all of the following criteria are met:

- Pain at the acromioclavicular (AC) joint aggravated by shoulder motion
- Positive Cross Arm Adduction Test
- Tenderness over the AC joint
- Imaging findings (x-ray or MRI) consistent with AC joint arthritis
 - Moderate to severe degenerative joint disease of the AC joint, distal clavicle edema, or osteolysis of the distal clavicle on MRI
 - Moderate to severe AC joint arthritis on x-ray
- Failure of at least twelve (12) weeks of conservative management

Tendinopathy of the Long Head of the Biceps

All of the following are required:

- Anterior shoulder pain, weakness
- Tenderness over the biceps groove
- Pain in the anterior shoulder during resisted supination of the forearm
- Positive Speed or Yergason Test
- MRI confirmation of biceps pathology

Selected References

1. American Academy of Orthopaedic Surgeons, Optimizing the management of rotator cuff problems guideline and evidence report, (2010) Rosemont IL, 325 pgs.
2. American Academy of Orthopedic Surgeons, The treatment of glenohumeral joint osteoarthritis, (2009) Rosemont IL, 201 pgs.
3. Cancienne JM, Brockmeier SF, Gulotta LV, et al. Ambulatory Total Shoulder Arthroplasty: A Comprehensive Analysis of Current Trends, Complications, Readmissions, and Costs. The Journal of bone and joint surgery American volume. 2017;99(8):629-37.
4. Health Information and Quality Authority, Health Technology Assessment of Scheduled Procedures - Shoulder Arthroscopy, (2014) Dublin, 46 pgs.
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6. Itoi E. Rotator cuff tear: physical examination and conservative treatment. Journal of orthopaedic science : official journal of the Japanese Orthopaedic Association. 2013;18(2):197-204.
7. Li Y, Zhao L, Zhu L, et al. Internal fixation versus nonoperative treatment for displaced 3-part or 4-part proximal humeral fractures in elderly patients: a meta-analysis of randomized controlled trials. PLoS ONE. 2013;8(9):e75464.
8. Mao F, Zhang DH, Peng XC, et al. Comparison of Surgical versus Non-Surgical Treatment of Displaced 3- and 4-Part Fractures of the Proximal Humerus: A Meta-Analysis. Journal of investigative surgery : the official journal of the Academy of Surgical Research. 2015;28(4):215-24.
9. University of New South Wales HK, Clinical practice guidelines for the management of rotator cuff syndrome in the workplace, (2013) Port Macquarie Australia, 80.
10. Washington State Department of Labor and Industries, Shoulder Conditions Diagnosis and Treatment Guideline, (2013) Olympia WA, 28 pgs.

CPT Codes

- 23105 Arthrotomy; glenohumeral joint, with synovectomy, with or without biopsy
- 23107 Arthrotomy, glenohumeral joint, with joint exploration, with or without removal of loose or foreign body
- 23120 Claviclectomy; partial
- 23130 Acromioplasty or acromionectomy, partial, with or without coracoacromial ligament release
- 23410 Repair of ruptured musculotendinous cuff (e.g., rotator cuff) open; acute
- 23412 Repair of ruptured musculotendinous cuff (e.g., rotator cuff) open; chronic
- 23415 Coracoacromial ligament release, with or without acromioplasty
- 23420 Reconstruction of complete shoulder (rotator) cuff avulsion, chronic (includes acromioplasty)
- 23430 Tenodesis of long tendon of biceps
- 23440 Resection or transplantation of long tendon of biceps
- 23450 Capsulorrhaphy, anterior; Putti-Platt procedure or Magnuson-type operation
- 23455 Capsulorrhaphy, anterior; with labral repair (e.g., Bankart procedure)
- 23460 Capsulorrhaphy, anterior, any type; with bone block
- 23462 Capsulorrhaphy, anterior, any type; with coracoid process transfer
- 23465 Capsulorrhaphy, glenohumeral joint, posterior, with or without bone block
- 23466 Capsulorrhaphy, glenohumeral joint, any type multi-directional instability
- 23700 Manipulation under anesthesia, shoulder joint, including application of fixation apparatus (dislocation excluded)
- 29805 Arthroscopy, shoulder, diagnostic, with or without synovial biopsy (separate procedure)
- 29806 Arthroscopy, shoulder, surgical; capsulorrhaphy
- 29807 Arthroscopy, shoulder, surgical; repair of SLAP lesion
- 29819 Arthroscopy, shoulder, surgical; with removal of loose body or foreign body

- 29820 Arthroscopy, shoulder, surgical; synovectomy, partial
- 29821 Arthroscopy, shoulder, surgical; synovectomy, complete
- 29822 Arthroscopy, shoulder, surgical; debridement, limited
- 29823 Arthroscopy, shoulder, surgical; debridement, extensive
- 29824 Arthroscopy, shoulder, surgical; distal claviclectomy including distal articular surface
- 29825 Arthroscopy, shoulder, surgical; with lysis and resection of adhesions, with or without manipulation
- 29826 Arthroscopy, shoulder, surgical; decompression of subacromial space with partial acromioplasty, with coracoacromial ligament (i.e., arch) release, when performed (list separately in addition to code for primary procedure)
- 29827 Arthroscopy, shoulder, surgical; with rotator cuff repair
- 29828 Arthroscopy, shoulder, surgical; biceps tenodesis

History

Status	Date	Action
Revised	01/01/2019	Added code 23700
Created	11/01/2017	Original effective date
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Hip Arthroplasty

(Total/Partial/Revision Hip Replacement)

Description & Scope

Total hip arthroplasty (THA), also referred to as total hip replacement (THR), involves removal of the femoral head and acetabulum and placement of a prosthesis anchored to the bone. Numerous implants composed of various biomaterials have been approved by the U.S. Food and Drug Administration (FDA) for use in hip arthroplasty. The goal of the procedure is long-term pain relief and restoration of function.

Degenerative joint disease, or osteoarthritis, is the most common condition leading to the need for THA. Other conditions that may also cause significant hip joint damage include neoplasm, femoral fracture, avascular necrosis (osteonecrosis), inflammatory arthritis (e.g., rheumatoid arthritis) and developmental hip dysplasia.

This document addresses hip arthroplasty when performed as an **elective, non-emergent** procedure and not as part of the care of an acute fracture (excluding fracture of implant and periprosthetic fracture).

General Requirements and Documentation

Documentation supporting medical necessity should be submitted at the time of the request and must include the following components:

Clinical notes describing:

- Symptom duration and severity
- Specific functional limitations related to symptoms
- Type and duration of all therapeutic measures provided. If conservative management is not appropriate, the reason must be clearly documented.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Reports of imaging studies obtained within the past twelve (12) months describing the degree of cartilage damage as determined by either or both of the following methods:

- X-ray report that utilizes or can be correlated with the **Kellgren-Lawrence** grading system of osteoarthritis
- MRI report from a radiologist that utilizes or can be correlated with the **modified Outerbridge** or similar classification system related to articular cartilage injury and osteoarthritis.

*(See **Appendix** for a description of these grading systems)*

The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure.

Imaging reports should be thorough and describe the presence or absence of subchondral cysts, subchondral sclerosis, periarticular osteophytes, joint subluxation, avascular necrosis or bone on bone articulations. The degree of joint space narrowing should also be noted.

Tobacco Cessation – Adherence to a tobacco-cessation program resulting in abstinence from tobacco for at least six (6) weeks prior to surgery is recommended. Documentation of nicotine-free status by laboratory testing (e.g., cotinine level or carboxyhemoglobin) is recommended. After six (6) weeks of tobacco cessation, labs should be performed with ample time afforded to submit this confirmation and complete the prior authorization process.

Diabetes – It is recommended that a patient with history of diabetes maintain hemoglobin A1C 8% or less prior to any joint replacement surgery.

Body Mass Index (BMI) – It is strongly recommended that any patient with a BMI equal to or greater than 40 should attempt weight reduction prior to surgery.

Indications and Criteria

Primary THA may be considered medically necessary for any of the following indications:

- Primary and secondary tumors of the proximal femur
- Failed previous hip fracture fixation
- Avascular necrosis (osteonecrosis) with unresponsive severe pain
- Joint damage or destruction due to osteoarthritis, inflammatory disease or other chronic condition when all of the following requirements have been met:
 - Imaging evidence of significant joint destruction and cartilage loss, defined as **Tönnis** grade 3, **modified Outerbridge** grade III – IV, or **Kellgren-Lawrence** grade 3 – 4
 - Limited range of motion, antalgic gait and disabling pain of at least three (3) months' duration
 - Pain with passive internal or external rotation
 - Failure of at least three (3) months of non-surgical conservative management
 - Functional limitation secondary to hip pathology which interferes with the ability to carry out age-appropriate daily activities

Revision THA may be considered **medically necessary** when at least one of the following conditions is present:

- Adverse local tissue or systemic reaction to previous metal implant
- Component instability, loosening, fracture of implant or other mechanical failure (for example, recurrent or irreducible dislocation, periprosthetic fracture)
- Previous removal of prosthesis due to infection or catastrophic failure
- Progressive and substantial bone loss
- Recurrent disabling pain or significant functional disability that persists despite at least three (3) months of conservative management in conjunction with either of the following:
 - Antalgic gait
 - Abnormal findings confirmed by plain radiography or imaging studies such as implant malposition or impingement

Contraindications

Total hip arthroplasty is **contraindicated** when any of the following are present:

- Presence of a skin infection at the surgical site
- Presence of a systemic infection
- Rapidly progressive neurological disease
- Neuropathic joint

Selected References

1. American Academy of Orthopaedic Surgeons, Management of Osteoarthritis of the hip - evidence-based clinical practice guideline, (2017) Rosemont IL, 850.
2. Arbab D, Konig DP. Atraumatic Femoral Head Necrosis in Adults. Dtsch Arztebl Int. 2016;113(3):31-8.

3. Department of Veterans Affairs DoDN-SMoHaKOWG, VA/DoD clinical practice guideline for the non-surgical management of hip and knee osteoarthritis., (2014) Washington DC, 126.
4. Goyal N, Chen AF, Padgett SE, et al. Otto Aufranc Award: A Multicenter, Randomized Study of Outpatient versus Inpatient Total Hip Arthroplasty. Clinical orthopaedics and related research. 2017;475(2):364-72.
5. Hage A, Siekmann H, Delank KS. Periprosthetic femoral fracture - an interdisciplinary challenge. Dtsch Arztebl Int. 2014;111(39):658-64.
6. Kort NP, Bemelmans YF, van der Kuy PH, et al. Patient selection criteria for outpatient joint arthroplasty. Knee Surg Sports Traumatol Arthrosc. 2016.
7. National Institute for Health and Care Excellence, Hip fracture: management, (2011)
8. Nelson AE, Allen KD, Golightly YM, et al. A systematic review of recommendations and guidelines for the management of osteoarthritis: The chronic osteoarthritis management initiative of the U.S. bone and joint initiative. Seminars in arthritis and rheumatism. 2014;43(6):701-12.
9. Nelson SJ, Webb ML, Lukasiewicz AM, et al. Is Outpatient Total Hip Arthroplasty Safe? The Journal of arthroplasty. 2017;32(5):1439-42.
10. Oliver D, Griffiths R, Roche J, et al. Hip fracture. BMJ clinical evidence. 2010;2010.
11. Scottish Intercollegiate Guidelines Network, Management of hip fracture in older people: A national clinical guideline, (2009)

CPT Codes

- 27125 Hemiarthroplasty, hip, partial (eg, femoral stem prosthesis, bipolar arthroplasty)
- 27130 Arthroplasty, acetabular and proximal femoral prosthetic replacement (total hip arthroplasty), with or without autograft or allograft
- 27132 Conversion of previous hip surgery to total hip arthroplasty, with or without autograft or allograft
- 27134 Revision of total hip arthroplasty; both components, with or without autograft or allograft
- 27137 Revision of total hip arthroplasty; acetabular component only, with or without autograft or allograft
- 27138 Revision of total hip arthroplasty; femoral component only, with or without allograft

Appendix

Kellgren-Lawrence grading system for radiographic assessment of cartilage damage

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

Modified Outerbridge grading system for magnetic resonance imaging (MRI) assessment of cartilage damage

Grade	Description
0	Normal
I	Signal intensity alterations with an intact surface of the articular cartilage compared with the surrounding normal cartilage
II	Partial-thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 centimeters (cm) in diameter
III	Fissuring to the level of subchondral bone in an area with a diameter more than 1.5 cm
IV	Exposed subchondral bone head

Tönnis grading system of osteoarthritis by radiographic changes

Grade	Description
0	No signs of osteoarthritis
1	Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity
2	Moderate: Small cysts, moderate narrowing of the joint space, and moderate loss of head sphericity
3	Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

History

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Hip Arthroscopy

Description

Hip arthroscopy is most often utilized in diagnosing and treating conditions of the joint space which impede normal function and result in pain and disability. A more recent application of this procedure is treatment of femoroacetabular impingement syndrome (FAIS), a condition of the hip in which the acetabular rim of the pelvis articulates abnormally with the femoral head. Over time, contact may result in damage to joint cartilage, potentially leading to degenerative joint disease.

Surgical treatment of FAIS may involve an open approach, arthroscopic surgery, or a combination of the two. Components of FAIS surgery include the following:

- Capsular plication
- Capsular repair
- Labral reconstruction
- Iliotibial band windowing
- Trochanteric bursectomy
- Abductor muscle repair
- Iliopsoas tenotomy

This document addresses hip arthroscopy when performed as an **elective, non-emergent** procedure and not as part of the care of an acute fracture.

General requirements

The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure.

Conservative management

In the majority of cases, a period of conservative management is appropriate prior to any intervention. This should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Indications

Synovectomy/Biopsy/Removal of Loose or Foreign Body

Any combination of these procedures may be considered medically necessary when either of the following requirements are met:

- Radiographic evidence of acute, post-traumatic, intra-articular foreign body or displaced fracture fragment
- Hip pain associated with grinding, catching, locking or popping, and all of the following:
 - Failure of least three (3) months of conservative management
 - Exam findings confirming pain with limited range of motion
 - Imaging (x-ray, CT or MRI) which shows synovial proliferation, calcifications, nodularity, inflammation, pannus, or loose body

Arthroscopic Treatment of FAIS

All of the following are required:

- Moderate to severe hip pain (primarily in the groin) worsened by flexion activities (e.g., squatting or prolonged sitting) that interferes with activities of daily living, which is not explained by another diagnosis.
- Positive impingement sign on clinical examination, defined as pain elicited with 90 degrees of flexion and internal rotation and adduction of the femur, or extension and external rotation)
- Imaging studies (radiographs, MRI or 3D computed tomography) suggesting a diagnosis of FAIS, including cam impingement and/or pincer impingement as evidenced by one or more of the following:
 - pistol-grip deformity
 - femoral head-neck offset with an alpha angle greater than 50 degrees
 - positive posterior wall sign
 - acetabular retroversion (over coverage with crossover sign)
 - coxa profunda or protrusion
 - damage of the acetabular rim
- Failure of conservative management for a duration of at least three (3) months, including avoidance of hip stretching or any activity that elicits or aggravates symptoms
- Minimal degenerative changes of the hip joint, defined as **Tönnis** grade 1 or less

Exclusions

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Shaving or debridement of articular cartilage (chondroplasty), and/or abrasion arthroplasty when not performed in conjunction with FAIS repair
- The use of capsular plication as the sole treatment of FAIS
- Capsular plication, capsular repair, labral reconstruction, iliotibial band windowing, trochanteric bursectomy, abductor muscle repair, and/or iliopsoas tenotomy, when performed at the time of any FAIS surgery, would be considered a component of and incidental to the FAIS procedure.
- Treatment of FAIS in a patient greater than 50 years of age

Selected References

1. Bedi A, Kelly BT. Femoroacetabular impingement. *The Journal of bone and joint surgery American volume*. 2013;95(1):82-92.
2. DeSa D, Phillips M, Philippon MJ, et al. Ligamentum teres injuries of the hip: a systematic review examining surgical indications, treatment options, and outcomes. *Arthroscopy*. 2014;30(12):1634-41.
3. Kroger EW, Griesser MJ, Kolovich GP, et al. Efficacy of surgery for internal snapping hip. *International journal of sports medicine*. 2013;34(10):851-5.
4. Lustenberger DP, Ng VY, Best TM, et al. Efficacy of treatment of trochanteric bursitis: a systematic review. *Clin J Sport Med*. 2011;21(5):447-53.
5. Nelson SJ, Webb ML, Lukasiewicz AM, et al. Is Outpatient Total Hip Arthroplasty Safe? *The Journal of arthroplasty*. 2017;32(5):1439-42.
6. Oliver D, Griffiths R, Roche J, et al. Hip fracture. *BMJ clinical evidence*. 2010;2010.
7. Saadat E, Martin SD, Thornhill TS, et al. Factors Associated With the Failure of Surgical Treatment for Femoroacetabular Impingement: Review of the Literature. *Am J Sports Med*. 2014;42(6):1487-95.

CPT Codes

- 29860 Arthroscopy, hip, diagnostic with or without synovial biopsy (separate procedure)
- 29861 Arthroscopy, hip, surgical; with removal of loose body or foreign body
- 29862 Arthroscopy, hip, surgical; with debridement/shaving of articular cartilage (chondroplasty), abrasion arthroplasty, and/or resection of labrum
- 29863 Arthroscopy, hip, surgical; with synovectomy
- 29914 Arthroscopy, hip, surgical; with femoroplasty (i.e., treatment of cam lesion)
- 29915 Arthroscopy, hip, surgical; with acetabuloplasty (i.e., treatment of pincer lesion)
- 29916 Arthroscopy, hip, surgical; with labral repair [when repair of the labral tear is associated with FAIS]

Appendix

Tönnis grading system of osteoarthritis by radiographic changes

Grade	Description
0	No signs of osteoarthritis
1	Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity
2	Moderate: Small cysts, moderate narrowing of the joint space, and moderate loss of head sphericity
3	Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

History

Status	Date	Action
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Knee Arthroplasty

(Total/Partial/Revision Knee Replacement)

Description & Scope

Total knee arthroplasty (TKA), also referred to as total knee replacement (TKR), involves removal of diseased articular surfaces of the knee, followed by resurfacing with metal and polyethylene prosthetic components. Numerous implants composed of various biomaterials have been approved by the U.S. Food and Drug Administration (FDA) for use in TKA procedures. The goal of the procedure is long-term pain relief and restoration of function.

This guideline addresses TKA, revision TKA, and unicompartmental knee arthroplasty (UKA) performed as **elective, non-emergent** procedures and not as part of the care of a congenital condition, acute or traumatic event such as fracture (excluding periprosthetic fracture).

General Requirements and Documentation

Documentation supporting medical necessity should be submitted at the time of the request and must include the following components:

Clinical notes describing:

- Symptom duration and severity
- Specific functional limitations related to symptoms
- Type and duration of all therapeutic measures provided. If conservative management is not appropriate, the reason must be clearly documented.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Knee joint unloader brace
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Reports of imaging studies obtained within the past twelve (12) months describing the degree of cartilage damage as determined by either or both of the following methods:

- X-ray report that utilizes or can be correlated with the **Kellgren-Lawrence** grading system of osteoarthritis
- MRI report from a radiologist that utilizes or can be correlated with the **modified Outerbridge** or similar classification system related to articular cartilage injury and osteoarthritis.

*(See **Appendix** for a description of these grading systems)*

The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure.

Imaging reports should be thorough and describe the presence or absence of subchondral cysts, subchondral sclerosis, periarticular osteophytes, joint subluxation, avascular necrosis or bone on bone articulations. The degree of joint space narrowing should also be noted.

Tobacco Cessation – Adherence to a tobacco-cessation program resulting in abstinence from tobacco for at least six (6) weeks prior to surgery is recommended. Documentation of nicotine-free status by laboratory testing (e.g., cotinine level or carboxyhemoglobin) is recommended. After six (6) weeks of tobacco cessation, labs should be performed with ample time afforded to submit this confirmation and complete the prior authorization process.

Diabetes – It is recommended that a patient with history of diabetes maintain hemoglobin A1C 8% or less prior to any joint replacement surgery.

Body Mass Index (BMI) – It is strongly recommended that any patient with a BMI equal to or greater than 40 should attempt weight reduction prior to surgery.

Indications and Criteria

Elective total knee arthroplasty may be considered medically necessary for either of the following indications:

- Primary or metastatic tumor with limb salvage surgery
- Joint damage or destruction due to osteoarthritis, inflammatory disease or other chronic conditions when all of the following requirements have been met:
 - Imaging evidence of significant joint destruction and cartilage loss, defined as **modified Outerbridge** grade III – IV or **Kellgren-Lawrence** grade 3 – 4
 - Knee arc of motion greater than 50 degrees
 - Failure of at least three (3) months of non-surgical conservative therapy
 - Functional limitation secondary to knee pathology which interferes with the ability to carry out age-appropriate daily activities

Elective Unicompartmental Knee Arthroplasty (UKA)/Partial Knee Replacement (PKA) may be considered medically necessary when all of the following requirements are met:

- Osteoarthritis isolated to the medial or lateral knee compartment with no degenerative changes in the opposite compartment
- Intact anterior cruciate ligament (ACL)
- Less than 15 degrees of correctable varus deformity in both knees

Unicompartmental Knee Arthroplasty is contraindicated when any of the following conditions are present:

- Inflammatory arthritis
- ACL deficiency
- Flexion contracture greater than 15 degrees
- Fixed varus deformity greater than 10 degrees
- Fixed valgus deformity greater than 15 degrees
- Flexion less than 110 degrees
- Previous meniscectomy in other compartment

Revision of Prior Knee Arthroplasty is considered medically necessary when one or more of the following conditions are present:

- Component instability, loosening, or other mechanical failure (for example, dislocation of the patella or periprosthetic fracture)
- Previous removal of knee prosthesis due to infection or catastrophic failure
- Progressive and substantial bone loss
- Recurrent disabling pain or significant functional disability that persists despite at least three (3) months of conservative therapy in conjunction with either of the following:
 - Antalgic gait
 - Abnormal findings confirmed by plain radiography or imaging studies such as implant malposition or impingement

Contraindications

(all procedures listed)

- Skin infection at the surgical site
- Systemic infection
- Rapidly progressive neurologic disease
- Extensor mechanism deficiency, not amendable to surgical correction
- Neuropathic joint
- Intraarticular corticosteroid injection in the joint being replaced within the past six (6) weeks

Exclusions

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Bi-uncompartmental knee arthroplasty
- Knee replacement procedures customized to the individual, including any of the following:
 - Customized templates, and/or instrumentation
 - Customized knee implant
- Focal resurfacing of a single knee joint defect
- Uncompartmental free-floating (un-fixed) interpositional device

Selected References

1. American Academy of Orthopaedic Surgeons, Surgical Management of Osteoarthritis of the Knee, (2015) Rosemont IL, 661 pgs.
2. Davis AM, MacKay C. Osteoarthritis year in review: outcome of rehabilitation. Osteoarthritis and cartilage. 2013;21(10):1414-24.
3. Department of Veterans Affairs DoDN-SMoHaKOWG, VA/DoD clinical practice guideline for the non-surgical management of hip and knee osteoarthritis., (2014) Washington DC, 126.
4. Nelson AE, Allen KD, Golightly YM, et al. A systematic review of recommendations and guidelines for the management of osteoarthritis: The chronic osteoarthritis management initiative of the U.S. bone and joint initiative. Seminars in arthritis and rheumatism. 2014;43(6):701-12.

CPT Codes

- 27438 Arthroplasty, patella; with prosthesis
- 27440 Arthroplasty, knee; tibial plateau
- 27441 Arthroplasty, knee, tibial plateau; with debridement and partial synovectomy
- 27442 Arthroplasty, femoral condyles or tibial plateau(s), knee
- 27443 Arthroplasty, femoral condyles or tibial plateau(s), knee; with debridement and partial synovectomy
- 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

Appendix

Kellgren-Lawrence grading system for radiographic assessment of cartilage damage

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

Modified Outerbridge grading system for magnetic resonance imaging (MRI) assessment of cartilage damage

Grade	Description
0	Normal
I	Signal intensity alterations with an intact surface of the articular cartilage compared with the surrounding normal cartilage
II	Partial-thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 centimeters (cm) in diameter
III	Fissuring to the level of subchondral bone in an area with a diameter more than 1.5 cm
IV	Exposed subchondral bone head

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Knee Arthroscopy and Open Procedures

Description

Knee arthroscopy is a surgical procedure in which a fiberoptic camera is inserted into the knee joint through a small incision. In addition to allowing the surgeon to visualize the joint, arthroscopy may also be utilized for treatment of a variety of conditions involving the joint structures.

This document addresses knee arthroscopy when performed as an **elective, non-emergent** procedure and not as part of the care of an acute fracture.

General Requirements

The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure. In the majority of cases, a period of conservative management is appropriate prior to intervention.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Bracing
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Indications

Diagnosis of intraarticular joint pathology when at least one of the following is present:

- Functional impairment (locked knee or knee giving way)
- Confirmed loose or foreign body in joint with mechanical symptoms

Repair or excision of torn meniscus

- Acute meniscal tear without imaging findings of osteoarthritis, when all of the following requirements are met:
 - Moderate to severe pain associated with functional limitation, which interferes with the ability to carry out age-appropriate daily activities
 - Symptoms of catching, locking, or instability
 - Physical exam findings of at least two (2) of the following:
 - Joint swelling or effusion
 - Positive McMurray or Apley Test
 - Joint line tenderness
 - Reduced range of motion
 - Imaging confirms an acute meniscal tear (e.g., bucket handle tear, posterior horn tear, complex tear, or displaced meniscal fragment)
- Meniscal tear with osteoarthritis (no greater than **Kellgren-Lawrence** grade 1 – 2, or **modified Outerbridge** grade I – III) when all of the following are present:
 - Injury followed by acute onset of knee swelling
 - Persistent symptoms of catching, locking, or instability
 - Imaging demonstrating a bucket handle tear, posterior horn tear, complex tear, or displaced meniscal fragment
 - X-ray findings of less than 50% joint space reduction on Rosenberg or skier's view (posteroanterior [PA] bent knee weight-bearing view)

Repair of osteochondral defect

(see *Treatment of Osteochondral Defects guideline*)

Debridement/drainage/lavage for any of the following conditions:

- Rheumatoid arthritis with failure of medical management (DMARDs)
- Septic joint or osteomyelitis
- Septic prosthetic joint
- Postoperative arthrofibrosis, with limited range of motion and failure of at least eight (8) weeks of conservative treatment

Anterior cruciate ligament (ACL) reconstruction

Both of the following are required:

- A diagnosis of ACL tear as established by either of the following:
 - Exam findings of a positive anterior drawer sign, pivot shift test or Lachman test
 - Report of CT or MRI which demonstrates an ACL tear
- At least one of the following scenarios is present:
 - ACL tear occurring in conjunction with a meniscal tear or ligamentous injury (i.e., medial or posterior collateral ligament, posterior cruciate ligament, or posterolateral corner ligamentous injury)
 - The patient is involved in a physically demanding occupation (e.g., firefighter, law enforcement, construction), or regularly engages in activities which include cutting, jumping, and/or pivoting (e.g., skiing, basketball, football)
 - Two (2) weeks of conservative care has been tried and failed (e.g., PT, activity modification, oral analgesics)

Posterior cruciate ligament (PCL) repair or reconstruction

Both of the following are required:

- A diagnosis of PCL tear as established by either of the following:
 - Exam findings of a positive posterior drawer sign, reversed pivot shift test, or posterior sag sign
 - CT or MRI performed within the past twelve (12) months demonstrating a PCL tear
- Associated ligamentous injuries (i.e., injury to posterolateral corner of the knee, medial collateral ligament tear, ACL tear, avulsion fracture of fibular head or avulsion of the tibia distal to the lateral plateau)

Patellar compression syndrome (chondromalacia patella)

Lateral retinacular release may be medically necessary when at least one of the following is present:

- Positive patella glide test
- Positive patella tilt test
- Lateral femoral trochlear or lateral patella facet cartilage lesion confirmed by imaging within the past twelve (12) months, when symptoms are consistent with an a cartilage defect and have not responded to at least eight (8) weeks of conservative therapy

Excision of popliteal cyst

- Posterior knee pain ≥ 4 on the VAS scale of at least eight (8) weeks' duration

Synovectomy in any of the following conditions:

- Rheumatoid arthritis or other chronic inflammatory arthropathies with failure of conservative management
- Hemophilic joint disease
- Localized pigmented villonodular synovitis

Exclusions

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Arthroscopic debridement or lavage for isolated primary diagnosis of osteoarthritis of the knee
- Meniscal tear in chronic degenerative knee joint in the absence of mechanical symptoms such as locking or giving way

Selected References

1. American Academy of Orthopaedic Surgeons, Surgical Management of Osteoarthritis of the Knee, (2015) Rosemont IL, 661 pgs.
2. American Academy of Orthopaedic Surgeons, Appropriate use criteria for the treatment of anterior cruciate ligament injuries, (2015) Rosemont IL, 35 pgs.
3. Beaufils P, Hulet C, Dhenain M, et al. Clinical practice guidelines for the management of meniscal lesions and isolated lesions of the anterior cruciate ligament of the knee in adults. Orthopaedics & traumatology, surgery & research : OTSR. 2009;95(6):437-42.
4. Health Quality Ontario. Arthroscopic Debridement of the Knee: An Evidence Update. Ont Health Technol Assess Ser. 2014;14(13):1-43.
5. Katz JN, Wright J, Spindler KP, et al. Predictors and Outcomes of Crossover to Surgery from Physical Therapy for Meniscal Tear and Osteoarthritis: A Randomized Trial Comparing Physical Therapy and Surgery. J Bone Joint Surg Am. 2016;98(22):1890-6.
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CPT Codes

- 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
- 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
- 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
- 29870 Arthroscopy, knee, diagnostic, with or without synovial biopsy (separate procedure)
- 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 (e.g., plica or shelf resection) (separate procedure)
- 29876 Arthroscopy, knee, surgical; synovectomy, major, 2 or more compartments (e.g., 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
- G0289 Arthroscopy, knee, surgical, for removal of loose body, foreign body, debridement/shaving of articular cartilage (chondroplasty) at the time of other surgical knee arthroscopy in a different compartment of the same knee

Appendix

Kellgren-Lawrence Grading System for determining the extent of cartilage damage, based on x-ray imaging

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

Modified Outerbridge classification system for determining the extent of cartilage damage, based on magnetic resonance imaging (MRI)

Grade	Description
0	Normal
I	Signal intensity alterations with an intact surface of the articular cartilage compared with the surrounding normal cartilage
II	Partial-thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 centimeters (cm) in diameter
III	Fissuring to the level of subchondral bone in an area with a diameter more than 1.5 cm
IV	Exposed subchondral bone head

History

Status	Date	Action
Revised	01/01/2019	Added code G0289
Created	11/01/2017	Original effective date
Reviewed	07/17/2017	Last Independent Multispecialty Physician Panel review

Meniscal Allograft Transplantation of the Knee

Description

Meniscal allograft transplantation of the knee is a surgical procedure used to restore normal meniscal function by replacing a damaged or absent meniscus with donor cadaver allograft cartilage. It is an option for a subset of patients who have pain or disability attributed to insufficient cushioning and lubrication of the joint.

A significant subset of these patients have undergone one or more procedures to remove portions of the meniscus due to tears or other injury. The goal of the procedure is reduction in pain, prevention of degenerative changes to the cartilage and subchondral bone, and restoration of the mechanical properties of the knee joint.

Documentation Requirements

Operative report of a prior arthroscopic procedure and/or magnetic resonance imaging (MRI) of the knee performed within the past twelve (12) months – The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Bracing
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Criteria

Meniscal allograft transplantation of the knee may be considered medically necessary as a treatment for individuals with significant partial (more than 50%) or complete loss of the meniscus, as documented by previous operative reports, MRI, or diagnostic arthroscopy, when all of the following criteria are met:

- Age 55 or younger and skeletally mature
- Knee pain refractory to conservative treatment
- Ligamentous stability either prior to surgery or achieved concurrently with meniscal transplantation
- Normal alignment without varus or valgus deformities
- Mild to moderate articular damage (Outerbridge grade II or less)

Exclusions

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Treatment for asymptomatic individuals with partial or complete loss of the meniscus.

Selected References

1. American Academy of Orthopaedic Surgeons, Appropriate use criteria for the treatment of anterior cruciate ligament injuries, (2015) Rosemont IL, 35 pgs.
2. Beaufils P, Hulet C, Dhenain M, et al. Clinical practice guidelines for the management of meniscal lesions and isolated lesions of the anterior cruciate ligament of the knee in adults. Orthopaedics & traumatology, surgery & research : OTSR. 2009;95(6):437-42.

CPT Codes

29868 Arthroscopy, knee, surgical; meniscal transplantation (includes arthrotomy for meniscal insertion), medial or lateral

History

Status	Date	Action
Created	11/01/2017	Original effective date
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Treatment of Osteochondral Defects

Description

Articular cartilage lesions in weight-bearing joints often fail to heal spontaneously and may be associated with pain, loss of function and long-term complications such as osteoarthritis. A number of surgical techniques have been developed to treat these lesions, but an established therapy with long term efficacy remains elusive.

The most widely utilized are bone marrow stimulation techniques to induce an influx of mesenchymal stem cells into the defect. Other techniques involve transplantation of osteochondral tissue from non-weight bearing sites, autologous chondrocyte transplant, and use of synthetic bone filler material or scaffolds.

This document addresses treatment of osteochondral defects of the knee, ankle and other joints using the following procedures or devices:

- Autologous chondrocyte transplant (ACT)
- Minced cartilage repair
- Osteochondral allograft
- Osteochondral autograft (OATS/mosaicplasty)
- Resorbable synthetic bone filler materials
- Microfracture

Documentation Requirements

Operative report of a prior arthroscopic procedure and/or MRI of the knee performed within the past twelve (12) months – The provider shall submit a detailed and specific imaging report that correlates with clinical findings of the requested procedure. In the absence of the detailed report, the provider will be required to submit a report from an independent radiologist. The results of all imaging studies should correlate with the clinical findings in support of the requested procedure.

Conservative management offered by the provider or other health professionals for this condition(s) should include a combination of strategies to reduce inflammation, alleviate pain, and improve function, including two (2) or more of the following:

- Ice or heat
- Activity modification
- Bracing
- Physician-supervised therapeutic exercise program or physical therapy
- Prescription strength anti-inflammatory medications and analgesics
- Corticosteroid injection

Documentation of compliance with a plan of therapy that includes elements from these areas is required where conservative management is appropriate.

Reporting of symptom severity

Severity of pain and its impact on function is a key factor in determining the need for intervention. For purposes of this guideline, significant pain and functional impairment refers to pain ≥ 4 on the VAS scale associated with inability to perform at least two (2) age-appropriate daily activities.

Patient selection criteria

Candidates for procedures included in this document must meet all of the following requirements:

- Skeletal maturity as documented by closure of growth plates
- Disabling localized knee pain for at least three (3) months, which has failed to respond to conservative treatment
- Body Mass Index (BMI) less than or equal to 35
- Absence of localized or systemic infection
- No history of cancer in the bones, cartilage, fat or muscle of the affected limb
- Willingness and ability to comply with post-operative weight-bearing restrictions and rehabilitation

Lesion and joint characteristics must include all of the following:

- The lesion must be discrete, single, and involve only one side of the joint.
- The lesion is largely contained with near normal surrounding articular cartilage and articulating cartilage.
- The joint space is normal, without evidence of inflammation or degenerative changes.
- The knee is stable, with functionally intact menisci and ligaments and normal alignment.

Corrective procedures, e.g., ligament or tendon repair, osteotomy for realignment, meniscal allograft transplant or repair, may be performed in combination with, or prior to, transplantation.

Procedure-specific criteria

Osteochondral allograft transplantation to treat cartilaginous defects of the knee may be considered medically necessary when both of the following criteria are met:

- Size of the cartilage defect is greater than or equal to 2 cm² in total area, as documented by MRI or arthroscopy
- Condition involves a focal, full thickness, (grade III or IV) isolated defect of the weight-bearing surface of the medial or lateral femoral condyles or trochlear region (trochlear groove of the femur)

Osteochondral autograft transplantation or microfracture, either osteochondral autograft transplant (OATS) or autologous mosaicplasty, to treat cartilaginous defects of the knee may be considered medically necessary when all of the following criteria are met:

- Size of the cartilage defect is between 1.0 cm and 2.5 cm² in total area, as documented by MRI or arthroscopy
- Condition involves a focal, full thickness, (grade III or IV) isolated defect of the knee involving the weight bearing surface of the medial or lateral femoral condyles or trochlear region (trochlear groove of the femur)
- Absence of “kissing” knee lesions (lesion must be single and involve only one side of the joint)

Autologous chondrocyte implantation (ACI) to treat cartilaginous defects of the knee may be considered medically necessary when all of the following criteria are met:

- There has been an inadequate response to prior surgical therapy to correct the defect
- Size of the cartilage defect is greater than or equal to 1.5 cm² in total area, as documented by MRI or arthroscopy
- Condition involves a focal, full thickness, (grade III or IV) isolated defect of the knee involving the weight bearing surface of the medial or lateral femoral condyles or trochlear region (trochlear groove of the femur)
- The defect involves only the cartilage and not the subchondral bone*

**Exception to this requirement: the treatment of osteochondritis dissecans (OCD) associated with a bony defect of 10 mm or less in depth, which has failed prior conservative treatment. OCD lesions associated with a bony lesion greater than 10 mm in depth must also undergo corrective bone grafting.*

Contraindications

(all procedures listed)

- Known allergy to gentamicin
- Known sensitivity to bovine cultures

Exclusions

Indications other than those addressed in this guideline are considered **not medically necessary**, including but not limited to the following:

- Use of non-autologous mosaicplasty using resorbable synthetic bone filler materials (including but not limited to plugs and granules) to repair osteochondral defects of the knee or ankle
- Use of minced articular cartilage (whether synthetic, allograft or autograft) to repair osteochondral defects of the knee or ankle

CPT Codes

27412 Autologous chondrocyte implantation, knee

27415 Osteochondral allograft, knee, open [when specified as osteochondral allograft]

27416 Osteochondral autograft(s), knee, open (e.g., mosaicplasty) includes harvesting of autograft[s]

29866 Arthroscopy, knee, surgical; osteochondral autograft(s) (e.g., mosaicplasty) (includes harvesting of the autograft)

29867 Arthroscopy, knee, surgical; osteochondral allograft (e.g., mosaicplasty)

29879 Arthroscopy, knee, surgical; abrasion arthroplasty (includes chondroplasty where necessary) or multiple drilling or microfracture

J7330 Autologous cultured chondrocytes, implant

S2112 Arthroscopy, knee, surgical for harvesting of cartilage (chondrocyte cells)

History

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