2017-2018 MAGELLAN1 CLINICAL GUIDELINES FOR MEDICAL NECESSITY REVIEW

MUSCULOSKELETAL AND SPINE SURGERY GUIDELINES

DEAN HEALTH PLAN

“National Imaging Associates, Inc. is a subsidiary of Magellan Healthcare, Inc.”

Guidelines for Clinical Review Determination

Preamble
NIA is committed to the philosophy of supporting safe and effective treatment for patients. The medical necessity criteria that follow are guidelines for the provision of diagnostic imaging. These criteria are designed to guide both providers and reviewers to the most appropriate diagnostic tests based on a patient's unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice will 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.

Guideline Development Process
These medical necessity criteria were developed by NIA for the purpose of making clinical review determinations for requests for diagnostic tests. The developers of the criteria sets included representatives from the disciplines of radiology, internal medicine, nursing, and cardiology. They were developed following a literature search pertaining to established clinical guidelines and accepted diagnostic imaging practices.

All inquiries should be directed to:
National Imaging Associates, Inc.
6950 Columbia Gateway Drive
Columbia, MD 21046
Attn: NIA Associate Chief Medical Officer
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>MUSCULOSKELETAL &amp; SURGERY GUIDELINES</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>22600/63001 – Cervical Spinal Surgery</td>
<td>4</td>
</tr>
<tr>
<td>22612/63030 – Lumbar Spinal Surgery</td>
<td>20</td>
</tr>
<tr>
<td>27132 – Hip Arthroplasty</td>
<td>32</td>
</tr>
<tr>
<td>27130 – Hip Arthroscopy</td>
<td>41</td>
</tr>
<tr>
<td>27446 – Knee Arthroplasty</td>
<td>48</td>
</tr>
<tr>
<td>27332 – Knee Arthroscopy</td>
<td>57</td>
</tr>
<tr>
<td>23474 – Shoulder Arthroplasty</td>
<td>74</td>
</tr>
<tr>
<td>23415 – Shoulder Arthroscopy</td>
<td>82</td>
</tr>
</tbody>
</table>

Version: 1  
Effective: July 2017
CPT Codes:
Anterior Cervical Decompression with Fusion - Single Level** (ACDF) 22548, 22551, 22554
Anterior Cervical Decompression with Fusion - Multiple Level** (ACDF) 22548, 22551, 22554, +22552, +22558
Cervical Posterior Decompression with Fusion - Multiple Levels** 22590, 22595, 22600, +22614
Cervical Posterior Decompression with Fusion - Single Level** 22590, 22595, 22600
Cervical Artificial Disc – Single Level 22856, 22861, 22864
Cervical Artificial Disc – Two Levels (**0375T is not a covered service and is not reimbursable) 22858, 0098T, 0095T
Cervical Posterior Decompression (without fusion) 63001, 63015, 63020, 63040, 63045, 63050, 63051, +63035, +63043, +63048
Cervical Anterior Decompression (without fusion) 63075, +63076

OVERVIEW:
This guideline outlines the key surgical treatments and indications for common cervical spinal disorders and is a consensus document based upon the best available evidence. Spine surgery is a complex area of medicine, and this document breaks out the clinical indications by surgical type. Operative treatment is indicated only when the natural history of an operatively treatable problem is better than the natural history of the problem without operative treatment. Choice of surgical approach is based on anatomy, the patient's pathology, and the surgeon's experience and preference. All operative interventions must be based on a positive correlation with clinical findings, the natural history of the disease, the clinical course, and diagnostic tests or imaging results.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

INDICATIONS FOR CERVICAL SPINE SURGERY:
A. Anterior Cervical Decompression with Fusion (ACDF) - Single Level
   1) Anterior cervical discectomy and fusion with either a bone bank allograft or autograft with or without plating is the standard approach anteriorly and is most commonly used for disc herniation. The following criteria must be met*:
a) Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with spinal cord compression - immediate surgical evaluation is indicated. Symptoms may include:
   i) upper extremity weakness
   ii) unsteady gait related to myelopathy/balance or generalized lower extremity weakness
   iii) disturbance with coordination
   iv) hyperreflexia
   v) Hoffmann sign
   vi) positive Babinski sign and/or clonus

OR

b) Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with evidence of spinal cord or nerve root compression on Magnetic Resonance Imaging (MRI) or Computed Tomography (CT) imaging - immediate surgical evaluation is indicated.

OR

c) When All of the following criteria are met:
   i) Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; AND
   ii) Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least 6 weeks of appropriate conservative treatment. Documented failure of at least 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:
      i) Analgesics, steroids, and/or NSAIDs
      ii) Structured program of physical therapy
      iii) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
      iv) Epidural steroid injections and or facet injections /selective nerve root block; AND
   
   d) Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at the level corresponding with the clinical findings. Imaging studies may include:
      i) MRI (preferred study for assessing cervical spine soft tissue): OR
      ii) CT with or without myelography — indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI).
2) **Cervical spine decompression with fusion as first-line treatment without conservative care measures** in the following clinical cases:
   a) As outlined above for myelopathy or progressive neurological deficit scenarios.
   b) Significant spinal cord or nerve root compression due to tumor, infection or trauma.
   c) Fracture or instability on radiographic films measuring:
      i) Sagittal plan angulation of greater than 11 degrees at a single interspace greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction OR
      ii) Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child.

3) **Not Recommended:**
   a) In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
   b) In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT.  See V. Cervical Fusion for Treatment of Axial Neck Pain Criteria

B. **Anterior Cervical Decompression with Fusion (ACDF) - Multiple Level**

1) Anterior cervical discectomy and fusion with either a bone bank allograft or autograft with or without plating is the standard approach anteriorly and is most **commonly used for disc herniation.** The following criteria must be met*:
   a) Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated. Symptoms may include:
      i) upper extremity weakness
      ii) unsteady gait related to myelopathy/balance or generalized lower extremity weakness
      iii) disturbance with coordination
      iv) hyperreflexia
      v) Hoffmann sign
      vi) positive Babinski sign and or clonus
   OR
   b) Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated.
   OR
   c) **When ALL** of the following criteria are met:
i) Cervical radiculopathy or myelopathy due to ruptured disc, spondylosis, spinal instability, or deformity: AND

ii) Persistent or recurrent pain/symptoms with functional limitations that are unresponsive to at least 6 weeks of conservative treatment. Documented failure of at least 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:

1. Analgesics, steroids, and/or NSAIDs
2. Structured program of physical therapy
3. Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
4. Epidural steroid injections and or facet injections/selective nerve root block; AND

d) Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at multiple levels corresponding with the clinical findings. Imaging studies may include any of the following:

i) MRI (preferred study for assessing cervical spine soft tissue); OR

ii) CT with or without myelography - indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI)

2) Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases:

a) As outlined above for myelopathy or progressive neurological deficit scenarios.

b) Significant spinal cord or nerve root compression due to tumor, infection or trauma.

c) Fracture or instability on radiographic films measuring:

i) Sagittal plan angulation of greater than 11 degrees at a single interspace greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; OR

ii) Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child.

3) Not Recommended:

a) In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.

b) In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See V. Cervical Fusion for Treatment of Axial Neck Pain Criteria.

C. Cervical Posterior Decompression with Fusion - Single Level

Surgical indications for cervical spine stenosis/cervical spondylotic myelopathy (CSM) must meet the following criteria*:
1) Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated. Symptoms may include:
   a) upper extremity weakness
   b) unsteady gait related to myelopathy/balance or generalized lower extremity weakness
   c) disturbance with coordination
   d) hyperreflexia
   e) Hoffmann sign
   f) positive Babinski sign and / or clonus

   **OR**

2) Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated.

   **OR**

3) **When ALL of the following criteria are met:**
   a) Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity: **AND**
   b) Persistent or recurrent symptoms/pain with functional limitations that is unresponsive to at least 6 weeks of conservative treatment: AND Documented failure of at least 6 consecutive weeks of **any 2** of the following physician-directed conservative treatments:
      i) Analgesics, steroids, and/or NSAIDs
      ii) Structured program of physical therapy
      iii) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
      iv) Epidural steroid injections and or facet injections /selective nerve root block: **AND**
   c) Imaging studies confirm the presence of spinal cord or spinal nerve root compression (disc herniation or foraminal stenosis) at single level corresponding with the clinical findings. Imaging studies may include:
      i) MRI (preferred study for assessing cervical spine soft tissue): OR
      ii) CT with or without myelography - indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI): AND
   d) Single level **symptomatic cervical** disease as evidence by:
      i) cervical spinal stenosis due to cervical spondylotic myelopathy (CSM): or
ii) cervical spinal stenosis due to ossification of the posterior longitudinal ligament (OPLL); or

iii) single level spinal cord or nerve root compression due to herniated disc.

4) Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases:
   a) As outlined above for myelopathy or progressive neurological deficit scenarios.
   b) Significant spinal cord or nerve root compression due to tumor, infection or trauma.
   c) Fracture or instability on radiographic films measuring:
      i) Sagittal plan angulation of greater than 11 degrees at a single interspace greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction; OR
      ii) Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child.

5) Not Recommended:
   a) In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
   b) In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See V. Cervical Fusion for Treatment of Axial Neck Pain Criteria.
   c) In patients with kyphosis or at risk for development of postoperative kyphosis.

D. Cervical Posterior Decompression with Fusion - Multiple Levels

1) Surgical indications for cervical spine stenosis/cervical spondylotic myelopathy (CSM) must meet the following criteria*:
   a) Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening spinal cord compression - immediate surgical evaluation is indicated. Symptoms may include:
      i) upper extremity weakness
      ii) unsteady gait related to myelopathy/balance or generalized lower extremity weakness
      iii) disturbance with coordination
      iv) hyperreflexia
      v) Hoffmann sign
      vi) positive Babinski sign and/or clonus

   OR

   b) Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated.
OR

c) **When ALL of the following criteria are met:**

  i)  Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity: **AND**

  ii) Persistent or recurrent symptoms/pain with functional limitations that is unresponsive to at **least 6 weeks of conservative treatment**: **AND** Documented failure of at least 6 consecutive weeks of **any 2** of the following physician-directed conservative treatments:

     1) Analgesics, steroids, and/or NSAIDs

     2) Structured program of physical therapy

     3) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician

     4) Epidural steroid injections and or facet injections /selective nerve root block: **AND**

d) Imaging studies indicate significant spinal cord or spinal nerve root compression at **multiple levels corresponding with the clinical findings**. Imaging studies may include:

  i) MRI (preferred study for assessing cervical spine soft tissue); **OR**

  ii) CT with or without myelography - indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI): **AND**

e) Multilevel (>=2) symptomatic cervical disease as evidence by:

  i) cervical spinal stenosis due to cervical spondylotic myelopathy (CSM): **or**

  ii) cervical spinal stenosis due to ossification of the posterior longitudinal ligament (OPLL); **or**

  iii) evidence of significant spinal cord or nerve root compression from herniated discs at two or more levels.

2) **Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases:**

  a) As outlined above for myelopathy or progressive neurological deficit scenarios.

  b) Significant spinal cord or nerve root compression due to tumor, infection or trauma.

  c) Fracture or instability on radiographic films measuring:

     i) Sagittal plan angulation of greater than 11 degrees at a single interspace greater than 3.5mm anterior subluxation in association with radicular/cord dysfunction: **OR**

     ii) Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child.

3) **Not Recommended:**
a) In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.

b) In cases of neck pain alone, without neurological deficits, and no evidence of significant spinal nerve root or cord compression on MRI or CT. See V. Cervical Fusion for Treatment of Axial Neck Pain Criteria.

c) In patients with kyphosis or at risk for development of postoperative kyphosis.

Cervical Fusion for Treatment of Axial Neck Pain:
In patients with non-radicular cervical pain for whom fusion is being considered, **ALL of the following criteria must be met:**

1) Improvement of the symptoms has failed or plateaued, and the residual symptoms of pain and functional disability are unacceptable at the end of 6 to 12 consecutive months of appropriate, active treatment, or at the end of longer duration of non-operative programs for debilitated patients with complex problems [NOTE: Mere passage of time with poorly guided treatment is not considered an active treatment program]; **AND**

2) All pain generators are adequately defined and treated; **AND**

3) All physical medicine and manual therapy interventions are completed; **AND**

4) X-ray, MRI, or CT demonstrating disc pathology or spinal instability; **AND**

5) Spine pathology limited to one or two levels unless other complicating factors are involved; **AND**

6) Psychosocial evaluation for confounding issues addressed.

**NOTE:** The effectiveness of three-level or greater cervical fusion for non-radicular pain has not been established.

VI. **Cervical Posterior Decompression**

1) Surgical indications for cervical nerve root decompression due to radiculopathy, disc herniation or foraminal stenosis. A posterior laminotomy and discectomy is occasionally used for patients with specific lateral disc herniations when the surgeon’s preference is that the individual would respond better with a posterior approach than an anterior one.

The following criteria must be met*:

Positive clinical findings of myelopathy with evidence of progressive neurologic deficits consistent with worsening **spinal cord compression** - immediate surgical evaluation is indicated. Symptoms may include:

a) upper extremity weakness

b) unsteady gait related to myelopathy/balance or generalized lower extremity weakness

c) disturbance with coordination

d) hyperreflexia

e) Hoffmann sign

f) positive Babinski sign and / or clonus
OR

2) Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images - immediate surgical evaluation is indicated.

OR

3) When ALL of the following criteria are met:

a) Cervical radiculopathy from ruptured disc, spondylosis, or deformity; AND

b) Persistent or recurrent symptoms/pain with functional limitations that is unresponsive to at least 6 weeks of appropriate conservative treatment; AND

Documented failure of at least 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:

i) Analgesics, steroids, and/or NSAIDs

ii) Structured program of physical therapy

iii) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician

iv) Epidural steroid injections and or facet injections /selective nerve root block; AND

c) Imaging studies confirm the presence of spinal cord or spinal nerve root compression at the level(s) corresponding with the clinical findings. Imaging studies may include any of the following:

i) MRI (preferred study for assessing cervical spine soft tissue): OR

ii) CT with or without myelography— indicated in patients in whom MRI is contraindicated; preferred for examining bony structures, or in patients presenting with clinical symptoms or signs inconsistent with MRI findings (e.g., foraminal compression not seen on MRI);

4) Cervical decompression performed as first-line treatment without conservative care in the following clinical cases:

a) As outlined above for myelopathy or progressive neurological deficit scenarios.

b) Spinal cord or nerve root compression due to tumor, infection or trauma.

5) Not Recommended:

a) In asymptomatic or mildly symptomatic cases.

b) In cases of pain alone, without neurological deficits and abnormal imaging findings. See E. Cervical Fusion for Treatment of Axial Neck Pain Criteria.

VII. Cervical Artificial Disc Replacement (Single or Two Level)

This involves the insertion of a prosthetic device into the cervical intervertebral space with the goal of maintaining physiologic motion at the treated cervical segment. The use of artificial discs
in motion-preserving technology is based on the surgeon's preference and training. Only FDA-approved artificial discs are appropriate.

1) Indications for artificial cervical disc replacement are as follows:
   a) Skeletally mature patient: **AND**
   b) Patient has intractable radiculopathy caused by one or two level disease (either herniated disc or spondolytic osteophyte) located at C3-C7: **AND**
   c) Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least 6 weeks of **appropriate conservative treatment**. Documented failure of at least 6 consecutive weeks of **any 2** of the following physician-directed conservative treatments:
      i) Analgesics, steroids, and/or NSAIDs
      ii) Structured program of physical therapy
      iii) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
      iv) Epidural steroid injections and or facet injections /selective nerve root block: **AND**
   d) Imaging studies confirm the presence of compression at the level(s) corresponding with the clinical findings (MRI or CT): **AND**
   e) No prior neck surgery: **AND**
   f) Use of an FDA-approved prosthetic intervertebral discs

2) Cervical Artificial Disc Replacement is NOT indicated when any of the following clinical scenarios exists:
   a) Symptomatic multiple level disease affecting 3 or more levels
   b) Adjacent level disease: degenerative disease adjacent to a previous cervical fusion
   c) Infection (at site of implantation or systemic)
   d) Osteoporosis or osteopenia
   e) Instability
      i) Translation greater than 3mm difference between lateral flexion-extension views at the symptomatic levels:
      ii) 11 degrees of angular difference between lateral flexion-extension views at the symptomatic levels
   f) Sensitivity or allergy to implant materials
   g) Severe spondylosis defined as:
      i) > 50% disc height loss compared to minimally or non-degenerated levels: OR
      ii) Bridging osteophytes: OR
      iii) Absence of motion on lateral flexion-extension views at the symptomatic site
h) Severe facet arthropathy  
i) Ankylosing spondylitis  
j) Rheumatoid arthritis  
k) Previous fracture with anatomical deformity  
l) Ossification of the posterior longitudinal ligament (OPLL)  
m) Active cervical spine malignancy  

VIII. **Cervical Fusion without Decompression**  
1) Cervical fusion without decompression will be reviewed on a case-by-case basis. Atraumatic instability due to Down Syndrome-related spinal deformity, rheumatoid arthritis, or basilar invagination are uncommon, but may require cervical fusion.  

IX. **Cervical Anterior Decompression (without fusion)**  
2) All requests for anterior decompression without fusion will be reviewed on a case-by-case basis.  

X. **ADDITIONAL INFORMATION:**  
1) **CPT Codes:**  
a) Anterior Cervical Decompression with Fusion - Single Level** (ACDF) 22548, 22551, 22554  
b) Anterior Cervical Decompression with Fusion - Multiple Level** (ACDF) 22548, 22551, 22554, +22552, +22585  
c) Cervical Posterior Decompression with Fusion - Multiple Levels** 22590, 22595, 22600, +22614  
d) Cervical Posterior Decompression with Fusion - Single Level** 22590, 22595, 22600  
e) Cervical Artificial Disc – Single Level 22856, 22861, 22864  
f) Cervical Artificial Disc – Two Levels (**0375T is not a covered service and is not reimbursable) 22858, 0098T, 0095T  
g) Cervical Posterior Decompression (without fusion) 63001, 63015, 63020, 63040, 63045, 63050, 63051, +63035, +63043, +63048,  
h) Cervical Anterior Decompression (without fusion) 63075, +63076  

2) **Conservative Therapy:** (Musculoskeletal) includes primarily physical therapy and/or injections; and a combination of modalities, such as rest, ice, heat, modified activities, medical devices, (such as crutches, immobilizer, metal braces, orthotics, rigid stabilizer or splints, etc and not to include neoprene sleeves), medications, diathermy, chiropractic treatments, or physician supervised home exercise program. Part of this combination may include the physician instructing patient to rest the area or stay off the injured part.  

3) **Home Exercise Program** - (HEP) – the following two elements are required to meet guidelines for completion of conservative therapy:
a) Information provided on exercise prescription/plan AND
b) Follow up with member with documentation provided regarding completion of HEP, (after 4 – 6 week period) or inability to complete HEP due to physical reason- i.e. increased pain, inability to physically perform exercises. (Patient inconvenience or noncompliance without explanation does not constitute “inability to complete” HEP).

4) A comprehensive assimilation of factors should lead to a specific diagnosis with positive identification of the pathologic condition(s).
   a) Early intervention may be required in acute incapacitating pain or in the presence of progressive neurological deficits.
   b) Operative treatment is indicated when the natural history of surgically treated lesions is better than the natural history for non-operatively treated lesions.
   c) Patients may present with localized pain or severe pain in combination with numbness, extremity weakness, loss of coordination, gait issues, or bowel and bladder complaints. Nonoperative treatment continues to play an important role in the care of patients with degenerative cervical spine disorders. If these symptoms progress to neurological deficits, from corresponding spinal cord or nerve root compression, than surgical intervention may be warranted.
   d) All patients being considered for surgical intervention should first undergo a comprehensive neuromusculoskeletal examination to identify those pain generators that may either respond to non-surgical techniques, or may be refractory to surgical intervention.
   e) If operative intervention is being considered, particularly those procedures that require a fusion, it is recommended that the person refrain from smoking for at least six weeks prior to surgery and during the time of healing.
   f) In situations requiring the possible need for operation, a second opinion may be necessary. Psychological evaluation is strongly encouraged when surgery is being performed for isolated axial pain to determine if the patient will likely benefit from the treatment.
   g) It is imperative for the clinician to rule out non-physiologic modifiers of pain presentation, or non-operative conditions mimicking radiculopathy, myelopathy or spinal instability (peripheral compressive neuropathy, chronic soft tissue injuries, and psychological conditions), prior to consideration of elective surgical intervention.

5) Degenerative cervical spine disorders, while often benign and episodic in nature, can become debilitating, resulting in axial pain and neurological damage to the spinal cord or roots. Compression on the nerve root and/or spinal cord may be caused by (1) a herniated disc with or without extrusion of disc fragments and/or (2) degenerative cervical spondylosis.

XI. Anterior Approaches – Additional Information:
   1) Anterior surgical approaches to cervical spine decompression emerged in the 1950s in response to technical limitations experienced with posterior approaches, including restricted access to and exposure of midline bony spurs and disc fragments.
2) The first reports in the literature describe anterior cervical discectomy combined with a spinal fusion procedure (ACDF). Fusion was added to address concerns about potential for loss of spinal stability and disc space height, leading to late postoperative complications such as kyphosis and radicular pain (Sonntag and Klara, 1996; Dowd and Wirth, 1999; Matz et al., 2009a; Matz et al., 2009b; Denaro and Di Martino, 2011; Botelho et al., 2012; van Middelkoop et al., 2012).

3) Anterior cervical fusion (ACF) accounted for approximately 80% of cervical spine procedures performed in the United States between 2002 and 2009, while posterior cervical fusion (PCF) accounted for 8.5% of these procedures (Oglesby et al., 2013).

4) **Anterior Cervical Discectomy and Fusion (ACDF)** – removal of all or part of a herniated or ruptured disc or spondolytic bony spur to alleviate pressure on the nerve roots or on the spinal cord in patients with symptomatic radiculopathy. Discectomy is most often combined with fusion to stabilize the spine.

XII. **Posterior Approaches**

1) **Laminectomy** – removal of the bone between the spinal process and facet pedicle junction to expose the neural elements of the spine; this allows for the inspection of the spinal canal, identification and removal of pathological tissue, and decompression of the cord and roots.

2) **Laminoplasty** – the opening of the lamina to enlarge the spinal canal. There are several laminoplasty techniques; all aim to alleviate cord compression by reconstructing the spinal canal. Laminoplasty is commonly performed to decompress the spinal cord in patients with multilevel degenerative spinal stenosis and neutral or lordotic alignment.

3) **Laminoforaminotomy (also known as posterior discectomy)** – the creation of a small window in the lamina to facilitate removal of arthritic bone spurs and herniated disc material pressing on the nerve root as it exits through the foramen. The procedure widens the opening of the foramen so that the nerve exits without being compressed.

XIII. **REFERENCES**


XIV. Fusion References


CPT Codes:
- Lumbar Fusion (Single level) = 22533, 22558, 22612, 22630, 22633
- Lumbar Fusion (Multiple levels) = 22533, +22534, 22558, +22585, 22612, +22614, 22630, +22632, 22633, +22634 (+indicates multiple levels)
- Lumbar Decompression = 63030, +63035, 63005, 63012, 63017, 63042, +63044, 63047, +63048, 63056, +63057
- Lumbar Discectomy/Microdiscectomy = 63030, +63035, 62380

OVERVIEW:
This guideline outlines the key surgical treatments and indications for common lumbar spinal disorders and is a consensus document based upon the best available evidence. Spine surgery is a complex area of medicine and this document breaks out the treatment modalities for lumbar spine disorders into surgical categories: lumbar discectomy/microdiscectomy, lumbar decompression, and lumbar fusion surgery. See the additional information section for procedures considered not medically necessary.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

INTRODUCTION
I. Lumbar Discectomy/Microdiscectomy is a surgical procedure to remove part of the damaged spinal disc. The damaged spinal disc herniates into the spinal canal and compresses the nerve roots. Nerve root compression leads to symptoms like low back pain, radicular pain, numbness and tingling, muscular weakness, and paresthesia. Typical disc herniation pain is exacerbated with any movement that causes the disc to increase pressure on the nerve roots.

II. Lumbar Decompression (Laminectomy, Laminotomy, Facetectomy, and Foraminotomy): Laminectomy is common decompression surgery. The American Association of Neurological Surgeons defines laminectomy as a surgery to remove the back part of vertebra, lamina, to create more space for the spinal cord and nerves. The most common indication for laminectomy is spinal stenosis. Spondylolisthesis and herniated disk are also frequent indications for laminectomy. Decompression surgery is usually performed as part of lumbar fusion surgery.

III. Lumbar Fusion Surgery: Lumbar spinal fusion (arthrodesis) is a surgical procedure used to treat spinal conditions of the lumbar, e.g., degenerative disc disease, spinal stenosis, injuries/fractures of the spine, spinal instability, and spondylolisthesis. Spinal fusion is a “welding” process that permanently fuses or joins together two or more adjacent bones in the spine, immobilizing the vertebrae and restricting motion at a painful joint. It is usually performed after other surgical procedures of the spine, such as discectomy or laminectomy.
The goal of fusion is to increase spinal stability, reduce irritation of the affected nerve roots, compression on the spinal cord, disability, and pain and/or numbness. Clinical criteria for single level fusion versus multiple level fusions are outlined under the indications section.

I. **INDICATIONS FOR LUMBAR & PRE-SACRAL SURGERY:** (This section of the clinical guidelines provides the clinical criteria for each of the lumbar and pre-sacral spine surgery categories.)

- **Indications for Lumbar Discectomy/Microdiscectomy - Surgical indications for inter-vertebral disc herniation***:
  
a) Primary radicular symptoms noted upon clinical exam that significantly hinders daily activities; **AND**
  
b) Failure to improve with at least six (6) consecutive weeks of appropriate conservative treatment; And Documented failure of at least six (6) consecutive weeks of any 2 of the following physician-directed conservative treatments:
    
i) Analgesics, steroids, and/or NSAIDs
    
ii) Structured program of physical therapy
    
iii) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
    
iv) Epidural steroid injections and or facet injections /selective nerve root block; **AND**
    
c) Imaging studies showing evidence of inter-vertebral disc herniation that correlate exactly with the patients symptoms / signs

- **Other indications**: Microdiscectomy may be used as the first line of treatment (no conservative treatment required) in the following clinical scenarios:
  
a) Progressive nerve compression resulting in an acute motor neurologic deficit sensory or motor due to herniated disc. The neurological deficits should be significant: 0-2/5 on the motor function scale for L5 or S1 roots; 0-3/5 for L3 or L4 roots. Lesser degrees of motor dysfunction may resolve with conservative treatment and are not considered an indication for early surgery; **OR**
  
b) Cauda equina syndrome (loss of bowel or bladder control).

**NOTE**: Percutaneous lumbar discectomy, radiofrequency disc decompression, and related procedures are deemed investigational procedures and are not approved. Discectomy and microdiscectomy are the gold standards.

II. **Indications for Lumbar Decompression**: Laminectomy, Laminotomy, Facetectomy, and Foraminotomy. These procedures allow decompression by partial or total removal of various parts of vertebral bone and ligaments. Surgical Indications for spinal canal decompression due to lumbar spinal stenosis***:
1) Neurogenic claudication, and/or radicular leg pain that impairs daily activities for at least twelve (12) weeks; AND

2) Failure to improve with at least 6 weeks of appropriate conservative therapy. Documented failure of at least 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:
   a) Analgesics, steroids, and/or NSAIDs
   b) Structured program of physical therapy
   c) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
   d) Epidural steroid injections and/or facet injections/selective nerve root block; AND

3) Imaging findings demonstrating moderate to severe stenosis consistent with clinical signs/symptoms.

4) *Other Indications: Lumbar decompression may be used as the first line of treatment (no conservative treatment required) in any of the following clinical scenarios:
   a) Progressive nerve compression resulting in an acute neurologic (sensory or motor) deficit. The neurological deficits should be significant — 0-2/5 on the motor function scale for L5 or S1 roots; 0-3/5 for L3 or L4 roots. Lesser degrees of motor dysfunction may resolve with conservative treatment and are not considered an indication for early surgery.
   b) Cauda equina syndrome (loss of bowel or bladder control)
   c) Spinal stenosis due to tumor, infection, or trauma

NOTE: Percutaneous decompressions, endoscopic decompression, and related procedures (laser, etc.) are deemed investigational procedures and are not approved. Open or microdecompressions via laminectomy or laminotomy are the gold standards.

III. Indications for Lumbar Spine Fusion: Single Level with or without decompression

   i) Because of variable outcomes with fusion surgery, patients should be actively involved in the decision-making process and provided appropriate decision-support materials when considering this intervention. The following indicators must be present*:
      a) Lumbar back pain, neurogenic claudication, and/or radicular leg pain without sensory or motor deficit that impairs daily activities for at least 6 months; AND
      b) Failure to improve with at least 6 weeks of appropriate conservative therapy (six months for isolated LBP). Documented failure of at least 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:
         i) Analgesics, steroids, and/or NSAIDs
         ii) Structured program of physical therapy
         iii) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
iv) Epidural steroid injections and or facet injections /selective nerve root block; AND

c) Imaging studies corresponding to the clinical findings: AND

d) At least one of the following clinical conditions:

i) Spondylolisthesis [Neural Arch Defect -Spondyloytic spondylolisthesis, degenerative spondylolisthesis, and congenital unilateral neural arch hypoplasia]: OR

ii) Evidence of segmental instability -Excessive motion, as in degenerative spondylolisthesis, segmental instability, and surgically induced segmental instability: OR

iii) Revision surgery for failed previous operation(s) for pseudoarthrosis at the same level at least 6-12 months from prior surgery** if significant functional gains are anticipated: OR

iv) Revision surgery for failed previous operation(s) repeat disk herniations if significant functional gains are anticipated (Note: Many recurrent disc herniations can be treated with discectomy alone, so specific indications for the addition of fusion will be required): OR

v) Fusion for the treatment of spinal tumor, cancer, or infection: OR

vi) Chronic low back pain or degenerative disc disease (disc degeneration without significant neurological compression presenting with low back pain) must have failed at least 6 months of appropriate active non-operative treatment (completion of a comprehensive cognitive -behavioral rehabilitation program is mandatory) and must be evaluated on a case-by-case basis.

NOTE: The results of several randomized trials suggests that in many degenerative cases uninstrumented posterolateral intertransverse fusion has similar results to larger instrumented (PLIF, TLIF, etc.) fusion techniques with fewer morbidities and less likelihood of revision surgery. Accordingly, specific findings suggesting more significant instability should be present when larger techniques are used (gaping of facets, gross motion on flexion / extension radiographs, wide disc spaces).

2) *Other Indications: Lumbar spinal fusion may be used as the first line of treatment (no conservative treatment required) in the following clinical scenarios:

a) Progressive nerve compression resulting in an acute neurologic deficit (motor) AND

i) one of the aforementioned clinical conditions, except chronic low back pain or degenerative disc disease. The neurological deficits must be significant: 0-2/5 on the motor function scale for L5 or S1 roots; or 0-3/5 for L3 or L4 roots. Lesser degrees of motor dysfunction may resolve with conservative treatment and are not considered an indication for early surgery.

b) Cauda equina syndrome (loss of bowel or bladder control)
IV. **REPEAT LUMBAR SPINE FUSION OPERATIONS**: Repeat lumbar fusion operations will be reviewed on a case-by-case basis upon submission of medical records and imaging studies that demonstrate remediable pathology. The below must also be documented and available for review of repeat fusion requests:

1) Rationale as to why surgery is preferred over other non-invasive or less invasive treatment procedures.

2) Signed documentation that the patient has participated in the decision-making process and understands the high rate of failure/complications.

Instrumentation, bone formation or grafting materials, including biologics, should be used at the surgeon's discretion; however, use should be limited to FDA approved indications regarding the specific devices or biologics.

**NOTE:** Pre-sacral, axial lumbar interbody fusion (AxiaLIF) is not an approved surgical approach due to insufficient evidence. Artificial lumbar disc replacement or other lumbar implants are not an approved procedure due to insufficient evidence.

V. **Indications for multi-level fusions with or without decompression (all multi-level fusion surgeries will be reviewed on a case-by-case basis).** Because of variable outcomes with fusion surgery, patients should be actively involved in the decision-making process and provided appropriate decision-support materials when considering this intervention. The following clinical indications must be present*:

1) Lumbar back pain, neurogenic claudication, and/or radicular leg pain without sensory or motor deficit that impairs daily activities for at least 6 months; AND

2) Failure to improve with at least 6 weeks of appropriate conservative therapy. Documented failure of 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:
   a) Analgesics, steroids, and/or NSAIDs
   b) Structured program of physical therapy
   c) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
   d) Epidural steroid injections and or facet injections /selective nerve root block; AND

3) Imaging studies corresponding to the clinical findings; AND

4) At least one of the following clinical conditions:
   a) Multiple level spondylolisthesis (Note: Fusions in cases with single level spondylolisthesis should be limited to the unstable level); OR
   b) Fusion for the treatment of spinal tumor, trauma, cancer, or infection affecting multiple levels; OR
   c) Intra-operative segmental instability

5) **Other Indications**: Lumbar spinal fusion may be used as the first line of treatment (no conservative treatment required) in the following clinical scenarios:
a) Progressive nerve compression resulting in an acute neurologic deficit (motor), AND one of the aforementioned clinical conditions. The neurological deficits must be significant: 0-2/5 on the motor function scale for L5 or S1 roots; or 0-3/5 for L3 or L4 roots. Lesser degrees of motor dysfunction may resolve with appropriate conservative treatment and are not considered an indication for early surgery.

b) Instrumentation, bone formation or grafting materials, including biologics, should be used at the surgeon’s discretion; however, use should be limited to FDA approved indications regarding the specific devices or biologics.

c) This lumbar surgery guideline does not address spinal deformity surgeries or the clinical indications for spinal deformity surgery [CPT codes 22800-22812].

NOTE: Pre-sacral, axial lumbar interbody fusion (AxiaLIF) is not an approved surgical approach due to insufficient evidence. Artificial lumbar disc replacement or other lumbar implants are not an approved procedure due to insufficient evidence.

VI. CONTRAINDICATIONS FOR SPINE SURGERY (Note: Cases will not be approved if the below contraindications exist):

1) Medical contraindications to surgery, e.g., severe osteoporosis; infection of soft tissue adjacent to the spine and may be at risk for spreading to the spine; severe cardiopulmonary disease; anemia; malnutrition and systemic infection

2) Psychosocial risk factors. It is imperative to rule out non-physiologic modifiers of pain presentation or non-operative conditions mimicking radiculopathy or instability (e.g., peripheral neuropathy, piriformis syndrome, myofascial pain, sympathetically mediated pain syndromes, sacroiliac dysfunction, psychological conditions, etc.) prior to consideration of elective surgical intervention. Patients with clinically significant depression or other psychiatric disorders being considered for elective spine surgery will be reviewed on a case-by-case basis and the surgery may be denied for risk of failure.

3) Active Tobacco or Nicotine use prior to fusion surgery. Patients must be free from smoking and/or nicotine use for at least six weeks prior to surgery and during the entire period of fusion healing.

4) Morbid Obesity. Contraindication to surgery in cases where there is significant risk and concern for improper post-operative healing, post-operative complications related to morbid obesity, and/or an inability to participate in post-operative rehabilitation. These cases will be reviewed on a case-by-case basis and may be denied given the risk of failure.

VII. ADDITIONAL INFORMATION

1) Spinal surgeries should be performed only by those with extensive surgical training (neurosurgery, orthopaedic surgery)

2) Services Not Covered: The following procedures are considered either still under investigation or are not recommended based upon the current evidence: Percutaneous lumbar discectomy; Laser discectomy; Percutaneous Radiofrequency Disc Decompression; intradiscal electrothermal annuloplasty (IDEA) or more commonly called
IDET (Intradiscal Electrothermal therapy); Nucleus Pulpous Replacement; Pre-Sacral Fusion, or Lumbar Artificial Disc Replacement.

a) **PERCUTANEOUS DISCECTOMY** is an invasive operative procedure to accomplish partial removal of the disc through a needle which allows aspiration of a portion of the disc trocar under imaging control. It’s only indication is in order to obtain diagnostic tissue, due to lack of evidence to support long-term improvement compared to gold standard discectomy. This includes radiofrequency disc decompression.

b) **LASER DISCECTOMY** is a procedure which involves the delivery of laser energy into the center of the nucleus pulposus using a fluoroscopically guided laser fiber under local anesthesia. The energy denatures protein in the nucleus, causing a structural change which is intended to reduce intradiscal pressure. Its effectiveness has not been fully established.

c) **INTRADISCAL ELECTROTHERMAL ANNULOPLASTY (IDEA)** (more commonly called IDET, or Intradiscal Electrothermal therapy) is an outpatient non-operative procedure in which a wire is guided into the identified painful disc using fluoroscopy. The wire is then heated at the nuclear-annular junction within the disc. It has not been shown to be effective.

d) **NUCLEUS PULPOSUS REPLACEMENT** Involves the introduction of a prosthetic implant into the intervertebral disc, replacing the nucleus pulposus while preserving the annulus fibrosus. It has not been shown to be effective relative to other gold standard interventions.

e) **LUMBAR ARTIFICIAL DISC REPLACEMENT**: Involves the insertion of a prosthetic device into an intervertebral space from which a degenerated disc has been removed, sparing only the peripheral annulus. The prosthetic device is designed to distribute the mechanical load of the vertebrae in a physiologic manner and maintain range of motion. Studies do not demonstrate a long-term advantage of measured function or pain over comparison groups undergoing fusion. The longevity of this prosthetic device has not yet been determined.

3) **Conservative Therapy**: (Musculoskeletal) includes primarily physical therapy and/or injections; and a combination of modalities, such as rest, ice, heat, modified activities, medical devices, (such as crutches, immobilizer, metal braces, orthotics, rigid stabilizer or splints, etc and not to include neoprene sleeves), medications, diathermy, chiropractic treatments, or physician supervised home exercise program. Part of this combination may include the physician instructing patient to rest the area or stay off the injured part.

4) **Home Exercise Program** - (HEP) – the following two elements are required to meet guidelines for completion of conservative therapy:

   a) Information provided on exercise prescription/plan AND

   b) Follow up with member with information provided regarding completion of HEP (after suitable 4-6 week period), or inability to complete HEP due to physical reason—i.e. increased pain, inability to physically perform exercises. (Patient inconvenience or noncompliance without explanation does not constitute “inability to complete” HEP).
5) **Isolated Low Back Pain** - Pain isolated to the lumbar region of the spine and the surrounding paraspinal musculature. Also referred to ‘mechanical low back pain’ or ‘discogenic pain’. No associated neurogenic claudication or radiculopathy.

6) **Claims Billing & Coding:**
   a) NIA uses a combination of internally developed edits in addition to an enhanced set of industry standard editing. NIA’s Claims Edit Module is a group of system edits that run multiple times per day. Edits that are part of this module include industry standard edits that apply to spine surgery services and NIA custom edits developed specifically for spine surgery. The following describes each of the edits NIA applies:

7) **Outpatient Code Editor (OCE):** This edit performs all functions that require specific reference to HCPCS codes, HCPCS modifiers, and ICD-9-CM diagnosis codes. The OCE only functions on a single claim and does not have any cross claim capabilities. NIA is consistent with CMS.

8) **National Correct Coding Initiative (NCCI) editing:** The edit prevents improper payment when incorrect code combinations are reported. The NCCI contains two tables of edits. The Column One/Column Two Correct Coding Edits table and the Mutually Exclusive Edits table include code pairs that should not be reported together for a number of reasons explained in the Coding Policy Manual. NIA is consistent with CMS.
   a) Incidental edits: This edit applies if a procedure being billed is a component of another procedure that occurred on the same date of service for the same provider and tax ID and claimant.
   b) Mutually exclusive editing: This edit applies if a procedure being billed is mutually exclusive with a procedure that occurred on the same date of service for the same provider tax ID and claimant.

9) **Multiple Procedure Discounts (MPD):** This edit applies a reduction to the second and any other subsequent services by the same provider, in the same setting, for the same member. We typically apply a 50% reduction. NIA follows the CMS methodology that began in January 2011 which allows for application of MPD to codes within CMS’s two specific advanced imaging code families. However, NIA differs from CMS in that we apply MPD to all provider types unless health plan contracts prohibit this.

10) **Lumbar Fusion** - Fusions can be performed either anteriorly, laterally, or posteriorly, or via a combined approach; although simple posterolateral fusions are indicated in the great majority of cases requiring fusion. Aggressive surgical approaches to fusion may be an indication for denial of cases (when such techniques have not been demonstrated to be superior to less morbid techniques) or recommendation for alternative procedure. These are the surgical approaches:
   a) Intertransverse Fusion or Posterolateral Fusion
   b) Anterior Interbody Fusion (ALIF)
   c) Lateral or Transpsoas Interbody Fusion (XLIF)
   d) Posterior or Trans-foraminal Interbody Fusion (PLIF or TLIF)
   e) Anterior/posterior Fusion (360-degree)
f) Pre-sacral, axial lumbar interbody fusion (AxiaLIF) is still being investigated and is not recommended.

11) Use of bone grafts including autologous or allograft which might be combined with metal or biocompatible devices to produce a rigid, bony connection between two or more adjacent vertebrae are common. Bone formation or grafting materials including biologics should be used at the surgeon’s discretion; however, use of biologics should be limited to FDA approved indications in order to limit complications (especially BMP).

12) All operative interventions must be based upon positive correlation of clinical findings, clinical course, and diagnostic tests and must be performed by surgeons with appropriate training (neurosurgery, orthopaedic surgery). A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s). A failure of accurate correlation may be an indication for denial of cases. It is imperative to rule out non-physiologic modifiers of pain presentation or non-operative conditions mimicking radiculopathy or instability (e.g., peripheral neuropathy, piriformis syndrome, myofascial pain, sympathetically mediated pain syndromes, sacroiliac dysfunction, psychological conditions, etc.) prior to consideration of elective surgical intervention.

13) Operative treatment is indicated when the natural history of surgically treated lesions is better than the natural history for non-operatively treated lesions.

a) All patients being considered for surgical intervention should first undergo a comprehensive neuro-musculoskeletal examination to identify mechanical pain generators that may respond to non-surgical techniques or may be refractory to surgical intervention.

b) While sufficient time allowances for non-operative treatment are required to determine the natural cause and response to non-operative treatment of low back pain disorders, timely decision making for operative intervention is critical to avoid de-conditioning and increased disability (exclusive of "emergent" or urgent pathology such as cauda equina syndrome or associated rapidly progressive neurologic loss).

14) In general, if the program of non-operative treatment fails, operative treatment is indicated when:

a) Improvement of the symptoms has plateaued or failed to occur and the residual symptoms of pain and functional disability are unacceptable at the end of 6 to 12 weeks of active treatment, or at the end of longer duration of non-operative programs for debilitated patients with complex problems; and/or

b) Frequent recurrences of symptoms cause serious functional limitations even if a non-operative active treatment program provides satisfactory relief of symptoms, and restoration of function on each recurrence.

15) **Lumbar spinal stenosis and associated lumbar spondylolisthesis** - Spinal stenosis is narrowing of the spinal column or of the neural foramina where spinal nerves leave the spinal column, causing pressure on the spinal cord. The most common cause is degenerative changes in the lumbar spine. Neurogenic claudication is the most common symptom, referring to “leg symptoms encompassing the buttock, groin and anterior thigh, as well as radiation down the posterior part of the leg to the feet.” In addition to
pain, leg symptoms can include fatigue, heaviness, weakness and/or paresthesia. Some patients may also suffer from accompanying back pain. Symptoms are worse when standing or walking and are relieved by sitting. Lumbar spinal stenosis is often a disabling condition, and it is the most common reason for lumbar spinal surgery in adults over 65 years.

16) **Degenerative lumbar spondylolisthesis** - is the displacement of a vertebra in the lower part of the spine: one lumbar vertebra slips forward on another with an intact neural arch and begins to press on nerves. The slippage occurs at the L4-L5 level most commonly. The most common cause, in adults, is degenerative disease although it may also result from bone diseases and fractures. Spondylolisthesis seldom occurs before the age of 50 years and it disproportionately affects women, especially black women. Degenerative spondylolisthesis is not always symptomatic. *The indications for fusion in this group are evolving and as more evidence emerges, changes to the accepted indications and acceptable techniques used may be made.*

17) **Lumbar degenerative disease without stenosis or spondylolisthesis** - Spondylosis is an umbrella term describing age-related degeneration of the spine. Lumbar degenerative disease without stenosis or spondylolisthesis is characterized by disabling low back pain and spondylosis at L4-5, L5-S1, or both levels.

VIII. REFERENCES


CPT Codes: 27132, 27134, 27137, 27138

INTRODUCTION:

This guideline outlines the indications for four hip arthroplasty categories: total hip, partial/hemi-arthroplasty, resurfacing, and revision/conversion. Arthroplasty describes the surgical replacement or reconstruction of a joint with implanted devices when the joint has been damaged by an arthritic, traumatic, or malignant process.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

This guideline is structured with clinical indications outlined for each of the following hip arthroplasty applications:

I. Total Hip Arthroplasty (THA)/Hip Resurfacing
   1) THA describes the reconstruction of the entire joint articular surfaces, including the femoral head and acetabular sides.
   2) Hip resurfacing arthroplasty replaces the articular surface of the femoral head with limited removal of femoral bone and the entire surface of the acetabulum.

II. Revision/Conversion Arthroplasty
   1) Revision/Conversion hip arthroplasty describes surgical reconstruction due to failure or complication of a previous arthroplasty or reconstruction.

III. Hemiarthroplasty (Partial Arthroplasty)
   1) Hemiarthroplasty is reconstruction of the femoral head but not the acetabulum and is indicated for the treatment of trauma (no additional clinical guidelines included)

Elective arthroplasty surgery may be considered when pain and documented loss of function (deviation from normal hip function which may include painful weight bearing; painful or inadequate range of motion to accomplish activities of daily living (ADLs) and/or employment; and mechanical catching, locking, popping):

1) Cause a diminished quality of life
2) Symptoms have been present for at least 6 months and have not responded to at least 3 months of non-operative care, including rest, activity modification, weight reduction, oral anti-inflammatory medications, physical therapy, gait aides (cane, walking stick, walker, crutches), and/or corticosteroid injections.
3) Are associated with typical objective findings on physical exam, including reduced hip flexion and rotation, crepitus, hip flexion contracture, antalgic gait limp.
4) Are associated with radiographic or chondral changes consistent with significant osteoarthritis, including joint space narrowing, subchondral sclerosis, subchondral cysts, and osteophytes (radiographs)
CLINICAL INDICATIONS:

I. Total Hip Arthroplasty (THA)/Resurfacing

This guideline breaks out the criteria for total hip arthroplasty (THA) and hip resurfacing procedures.

a) Total Hip Arthroplasty (THA):

THA may be considered medically necessary when the following criteria are met:

a) Hip pathology is due to osteoarthritis, rheumatoid arthritis, femoral neck fracture in the setting of pre-existing arthritis, malignancy, failure of previous surgery, dysplasia, or avascular necrosis with femoral head collapse, confirmed by imaging.

OR

b) When ALL of the following criteria are met:

i) Pain and documented loss of function (deviation from normal hip function which may include painful weight bearing; painful or inadequate range of motion to accomplish activities of daily living (ADLs) and/or employment; and mechanical catching, locking, popping); are present for at least 6 months; AND

ii) 3 months of non-operative treatment* have failed to improve symptoms; AND

iii) Physical exam has typical findings of hip pathology as evidenced by one or more of the following:

(1) Painful, limited range of motion or antalgic gait, or
(2) Contracture, or
(3) Crepitus, or
(4) Leg length difference; AND

iv) Imaging demonstrates advanced hip joint arthritis of at least **Kellgren-Lawrence grade 3-4 or ***Tönnis grade 2 or 3 or joint space less than two millimeters; AND

v) No injection into the joint within 3 months of surgery;

c) Relative Contraindications:

i) Metal allergy (dependent upon implant choice)

ii) Chronic renal insufficiency (due to metal ions circulating and potential renal toxicity)

d) Absolute Contraindications:

1) Any injection into the joint within 3 months of surgery

2) Local or remote active infection

3) Female of child-bearing age (due to metal ions circulating in blood with potential risk to fetus) (metal on metal replacements)
**Kellgren-Lawrence Grading System:**

a) Grade 0: No radiographic features of osteoarthritis
b) Grade I: Possible joint space narrowing and osteophyte formation
c) Grade II: Definite osteophyte formation with possible joint space narrowing
d) Grade III: Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour (*some sclerosis and cyst formation and deformity of femoral head and acetabulum*)
e) Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour (*increased deformity of the femoral head and acetabulum*)

**Tönnis Classification of Osteoarthritis by Radiographic Changes**

a) No signs of osteoarthritis
b) Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity
c) Moderate: Small cysts, moderate narrowing of the joint space, moderate loss of head sphericity
d) Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

**II. Hip Resurfacing Arthroplasty:**

*Hip resurfacing procedures will be reviewed on a case by case basis.*

a) Hip resurfacing arthroplasty may be considered medically necessary when the following criteria are met:
a) Pain and documented loss of function (deviation from normal hip function which may include painful weight bearing; painful or inadequate range of motion to accomplish activities of daily living (ADLs) and/or employment; and mechanical catching, locking, popping); are present for at least 6 months; AND
b) 3 months of non-operative treatment* have failed to improve symptoms; AND
c) Physical exam has typical findings of hip pathology as evidenced by one or more of the following:
   i) Painful, limited range of motion or antalgic gait, or
   ii) Contracture, or
   iii) Crepitus, or
   iv) Leg length difference; AND
d) Imaging demonstrates advanced hip joint pathology of at least **Kellgren-Lawrence grade 3-4 or ***Tönnis grade 2 or 3 or avascular necrosis involving less than 50% of the femoral head; AND

e) Male patient is less than 65 years old, or female patient is less than 55 years old; AND

f) BMI less than 45; AND

g) No injection into the joint within 3 months of surgery; AND

h) Patient does not have evidence of any of the following contraindications:

i) Osteoporosis or osteopenia (DEXA scan bone mineral density evaluation)

ii) Other co-morbidity (including medications that contribute to decreased bone mineral density (glucocorticoid steroids, heparin, aromatase inhibitors, thiazolidinediones, proton pump inhibitors, loop diuretics, cyclosporine, anti-retrovirals, anti-psychotics, anti-seizures, certain breast cancer drugs, certain prostate cancer drugs, depo-provera, aluminum-containing antacids) that may contribute to active bone demineralization

iii) Cystic degeneration at the junction of the femoral head and neck on radiographs or MRI or CT

iv) Malignancy at the proximal femur

v) Current or recent hip infection, or sepsis

vi) Female of child-bearing age (due to metal ions circulating in blood with potential risk to fetus)

vii) Chronic renal insufficiency (due to metal ions circulating and potential renal toxicity)

viii) Metal allergy

a) Relative Contraindications:

i) Osteoporosis or osteopenia (DEXA scan bone mineral density evaluation)

b) Absolute Contraindications:

○ Any injection into the joint within 3 months of surgery

○ Local or remote active infection

○ Female of child-bearing age (due to metal ions circulating in blood with potential risk to fetus) *(metal on metal replacements)*

**Kellgren-Lawrence Grading System:**

a) Grade 0: No radiographic features of osteoarthritis

b) Grade I: Possible joint space narrowing and osteophyte formation

c) Grade II: Definite osteophyte formation with possible joint space narrowing
d) Grade III: Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour (*some sclerosis and cyst formation and deformity of femoral head and acetabulum*)

e) Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour (*increased deformity of the femoral head and acetabulum*)

***Tönnis Classification of Osteoarthritis by Radiographic Changes***

a) 0- No signs of osteoarthritis

b) 1- Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity

c) 2- Moderate: Small cysts, moderate narrowing of the joint space, moderate loss of head sphericity

d) 3- Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

**III. Hip Revision/Conversion Arthroplasty**

a) Hip Revision/Conversion Arthroplasty may be considered medically necessary when a previous hip reconstruction meets the following criteria:

   a) Extensive disease or damage due to fracture, dislocation, instability, malignancy, osteolysis, or other bone or soft-tissue reactive or destructive process confirmed by radiographs, MRI or other advanced imaging. *NOTE: MRI is used less often in these circumstances unless it is a metal-on-metal and looking for soft-tissue lesions; x-ray, CT, nuclear studies are used more frequently; OR*

   b) Infected joint confirmed by synovial fluid aspiration (cell count and/or culture); OR

   c) When all of the following are present:

      i) Symptomatic hip arthroplasty where patient has persistent, severe disabling pain and loss of function for > 6 months; AND

      ii) Unstable joint upon physical exam; AND

      iii) Aseptic loosening, osteolysis, other bone or soft-tissue reactive or destructive process, inappropriate positioning of components, or other failure of fixation of components confirmed on imaging

**IV. Additional Information:**

a) *Non-operative management may include one or more of the following modalities:*

   a) Rest or activity modifications/limitations;

   b) Weight reduction for patient with elevated BMI;

   c) Protected weight-bearing with cane, walker or crutches;
d) Physical therapy modalities;
e) Supervised home exercise;
f) Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;
g) Injections: cortisone, viscosupplementation, PRP (platelet-rich plasma)

2) Non-Covered Services:

a) The following procedures are not considered a covered service and are not reimbursable based on lack of current scientific evidence for clinically important improvement, safety or efficacy; or based on scientific evidence of increased risk of serious complications:

i) Procedures utilizing computer-navigated or patient-specific or gender-specific instrumentation.

V. REFERENCES


INTRODUCTION:

This guideline describes the indications for, and surgical uses of arthroscopy in the hip as well as open, non-arthroplasty hip repair procedures.

Arthroscopy introduces a fiberoptic camera into the hip joint (arthroscopy) and surrounding extra-articular areas (endoscopy) through a small incision for diagnostic purposes. Other tools may then be introduced to remove, repair, or reconstruct intra-articular and extra-articular pathology. Surgical indications are based on relevant clinical symptoms, physical exam, radiologic findings, and response to non-operative, conservative management when medically appropriate.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

This guideline is structured with clinical indications outlined for each of the following applications: Arthroscopic; Open, non-arthroplasty;

I. Diagnostic arthroscopy
II. Femoroacetabular Impingement (FAI)
   1) Labral Repair Only
   2) CAM, Pincer, CAM & Pincer combined
III. Synovectomy, Biopsy, or Removal of Loose or Foreign Body
IV. Chondroplasty or abrasion for Chondral injuries, chondromalacia
V. Extra-articular (Endoscopic) Hip Surgery

CLINICAL INDICATIONS:

V. Diagnostic Hip Arthroscopy

All requests for diagnostic hip arthroscopy will be considered and decided on a case-by-case basis.

VI. Femoroacetabular Impingement (FAI) Syndrome

FAI is a condition characterized by a mechanical conflict between the femur (cam) and/or acetabulum (pincer) that may result in labral injury (labral tear) or articular cartilage injury (chondral defect, arthritis). Up to 95% of labral tears are observed in the presence of FAI. Thus, “isolated” labral tears are very uncommon. Labral tears are infrequently traumatic (<5%). There is no evidence to support hip arthroscopy for FAI and/or labral tear in an asymptomatic subject.
1) Labral Repair
Arthroscopic labral repair may be medically necessary when ALL of the following criteria are met:

a) Motion-related or positional hip or groin pain in positions of flexion and rotation that may be associated with mechanical symptoms of locking, popping, or catching; AND
b) Positive provocative test on physical exam with pain at the hip joint with flexion, adduction, and internal rotation; AND
c) Acetabular labral tear by MRI, with or without intra-articular contrast; AND
d) Symptoms not improved with at least 6 weeks of conservative, non-operative care*, AND
e) No evidence of hip joint arthritis, defined as a Tönnis Grade 2 or 3 (or joint space less than 2 millimeters) on weight-bearing AP radiograph; AND
f) Patient is less than age 50.

NOTE: Arthroscopy of the hip for acetabular labral repair is considered not medically necessary in the presence of significant hip joint arthritis (Tonnis grade II or greater)**, dysplasia*** or other structural abnormality that would require skeletal correction.

***Dysplasia defined as:
- Lateral center edge angle <20 degrees: OR
- Anterior center edge angle <20 degrees: OR
- Tonnis angle >15 degrees: OR
- Femoral head extrusion index >25%

2) Cam, Pincer, Combined Cam & Pincer Repair
Technically not a repair, this procedure involves bony decompression, shaving, osteoplasty, femoroplasty, acetabuloplasty, and/or osteochondroplasty. Greater than 95% of labral repairs should be performed with at least a femoral osteoplasty or an acetabuloplasty.

Arthroscopic Cam, Pincer, or combined Cam and Pincer repair may be medically necessary when ALL of the following criteria are met:

a) Positional hip pain for at least 6 weeks not improved with conservative, non-operative care*; AND
b) Positive impingement sign on physical exam (hip or groin pain with flexion, adduction and internal rotation; or extension and external rotation); AND
c) One of the following: radiograph, CT, and/or MRI findings of FAI:
   i. Nonspherical femoral head or prominent head-neck junction (pistol-grip deformity) with alpha angle >55 degrees indicating Cam impingement; OR
   ii. Overhang of the anterolateral rim of the acetabulum (crossover sign), posterior wall sign, prominent ischial spine sign, acetabular protrusion, or retroversion with a center edge (CE) angle >40° and/or cross-over sign indicating pincer deformity; OR
iii. Combination of Cam and pincer criteria; AND
d) No evidence of significant hip joint arthritis; AND
e) Skeletally mature patient, AND
f) Under age < 50 years old; AND
g) Radiographic images show no evidence of ANY of the following indicators for hip dysplasia:
   i. Lateral center edge angle <20°; OR
   ii. Anterior center edge angle <20°; OR
   iii. Tonnis angle >15°; OR
   iv. Femoral head extrusion index >25%

NOTE: Arthroscopy of the hip for FAI is considered not medically necessary or contraindicated in the presence of significant hip joint arthritis (Tonnis grade II or greater)**, the skeletally immature patient (open proximal femoral physis), age > 50 years, or BMI >45. Requests meeting any of these criteria will be reviewed on a case by case basis.

VII. Arthroscopy for Synovectomy, Biopsy, or Removal of Loose or Foreign Body
Arthroscopic synovectomy, biopsy, removal of loose or foreign body, or a combination of these procedures may be medically necessary when the following criteria are met:
   • Radiographic evidence of acute post-traumatic intra-articular foreign body or displaced fracture fragment;

OR
   • When ALL of the following criteria are met:
     a) Hip pain associated with grinding, catching, locking, or popping for at least 12 weeks not improved with conservative, non-operative care*; AND
     b) Physical exam finding confirms painful hip with limited range of hip motion; AND
     c) Radiographs, CT and/or MRI with synovial proliferation, calcifications, nodularity, inflammation, pannus, loose body

VIII. Shaving or debridement of articular cartilage (chondroplasty), and/or abrasion arthroplasty
1) There are no clinical indications for performing an independent debridement procedure within the hip. Debridement should always be combined or secondary to another procedure, and is primary performed within FAI procedures.
2) All requests will be considered and decided on a case-by-case basis.

IX. Extra-articular (Endoscopic) Hip Surgery
Arthroscopy for extra-articular hip pathology is recognized as a less invasive adjunctive tool to correct or minimize symptoms of structural pathology, but is not supported in current high level evidence-based literature.

Use of this technology for these applications will be decided on a case-by-case basis.
Extra-articular hip applications may be used to minimize symptoms of internal snapping hip (internal coxa saltans, iliopsoas tendonitis, snapping iliopsoas), iliopsoas tendon at iliopectineal eminence or anterior inferior iliac spine, external snapping hip (external coxa saltans, snapping iliotibial band, iliopsoas tendon at greater trochanter). May also include proximal hamstring endoscopy for partial tear of proximal hamstring with or without bursitis or proximal hamstring, sciatic neurolysis, ischiofemoral decompression (for ischiofemoral impingement), or anterior inferior iliac spine (subspine) decompression for subspine impingement (3 types of anterior inferior iliac spine):

- Type 1: small, tip does not extend to sourcil;
- Type 2: medium, tip extends down to sourcil;
- Type 3: large, tip extends down below sourcil.

*Type 3 should have surgical decompression. Most type 2 should have surgical decompression. Type 1 should never need surgical decompression.*

1) Activity related painful snapping sensation around the hip joint caused by the iliotibial tract over the greater trochanter or bursa (external snapping hip) and/or the iliopsoas tendon over medial bony prominence or bursa (internal snapping hip) unresponsive to non-operative care;

OR

2) Activity related pain and tenderness at the greater or lesser trochanter due to bursal inflammation, tendinosis and/or tendinitis, or tear of the tendon (gluteus medius or minimus) unresponsive to non-operative care; AND

3) At least 6 months of non-operative care* that may include activity modification, supervised physical therapy, NSAIDS, and/or corticosteroid injection; AND

4) Physical exam findings align with patient symptoms and have at least one or more of the following:
   a) Limp or painful ambulation
   b) Tenderness and/or crepitus to palpation
   c) Visible, audible, or palpable snapping at the greater trochanter or pelvic brim
   d) Pain and/or weakness with active or resisted motion of the hip
   e) Pain relief with diagnostic local anesthetic injection

X. **Additional Information:**

1) **Non-Operative Treatment:**
   a) Throughout this document, conservative, non-operative care* is defined as a combination of two or more of the following:
   b) Rest or activity modifications/limitations;
   c) Ice/heat;
   d) Protected weight bearing;
   e) Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;
f) Brace/orthosis;
g) Physical therapy modalities;
h) Supervised home exercise;
i) Weight optimization;
j) Injections: cortisone/viscosupplementation/PRP (Platelet-rich plasma)

2) **Tönnis Classification of Osteoarthritis by Radiographic Changes**
   a. Grade 0  No signs of osteoarthritis
   b. Grade 1  Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity
   c. Grade 2  Moderate: Small cysts, moderate narrowing of the joint space, moderate loss of head sphericity
   d. Grade 3  Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

VII. **Additional Notes:**
   I. A very high prevalence of abnormal radiographs is found in asymptomatic patients.
      a. 37% of asymptomatic hips have a cam
      b. 67% of asymptomatic hips have a pincer
      c. 68% of asymptomatic hips have a labral tear
   II. FAI and labral tears are precursors to hip arthritis
   III. Dysplasia is precursor to hip arthritis
   IV. Arthroscopy is never indicated for treatment of osteoarthritis of the hip
   V. Rarely (if ever) arthroscopy for dysplasia

VIII. **REFERENCES**


INTRODUCTION:
Arthroplasty describes the surgical replacement or reconstruction of a joint with implanted devices when the joint has been damaged by an arthritic or traumatic process. This guideline outlines the clinical indications for three types of knee arthroplasty procedures: total, partial/unicompartmental, and revision arthroplasty.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

This guideline is structured with clinical indications outlined for each of the following applications: Total Knee Arthroplasty (TKA), Unilateral Knee Arthroplasty (UKA), and Revision Arthroplasty.

I. Total Knee Arthroplasty (TKA)
II. Unicompartmental Knee Arthroplasty (UKA)
III. Revision Arthroplasty

A. Total Knee Arthroplasty (TKA)
Total Knee Arthroplasty (TKA) describes reconstruction of all articular joint surfaces.

1) TKA may be considered medically necessary for treatment of the following knee joint pathology:
   a) Extensive disease or damage due to osteoarthritis, rheumatoid arthritis, fracture, or avascular necrosis confirmed by imaging (radiographs, MRI or other advanced imaging): AND
   b) Patient has pain and documented loss of function (no indication to perform TKA in patient with severe disease and no symptoms):

   OR

   c) When ALL of the following criteria are met:
      i) Pain that is persistent and severe and/or patient has documented loss of function that has been present for at least 6 months resulting in a diminished quality of life: AND
      ii) At least 3 months of non-operative care* that has failed to improve symptoms.

      Non-operative care should include at least two or more of the following:
      I. Rest or activity modifications/limitations;
      II. Weight reduction for patient with elevated BMI;
      III. Protected weight-bearing with cane, walker or crutches;
      IV. Physical therapy modalities;
      V. Supervised home exercise;
VI. Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;

VII. Brace/orthosis;

VIII. Injections: cortisone/viscosupplementation/PRP (platelet rich plasma);

AND

d) Physical exam findings demonstrate one or more of the following: tenderness, swelling/effusion, limited range of motion (decreased from uninvolved side or as compared to a normal joint), flexion contracture, palpable or audible crepitus, instability and/or angular deformity: AND

e) Radiographic findings show evidence of bicompartamental or tricompartmental advanced arthritic changes, documented by standing, weight-bearing radiographs described as Kellgren-Lawrence (K-L)** stage III or stage IV degeneration (NOTE: MRI should not be the primary tool used to determine the presence or severity of arthritic changes in the joint): AND

f) No injection into the joint within 3 months of surgery.

NOTE:

All requests for simultaneous bilateral total knee replacements will be reviewed on a case by case basis.

g) All requests for TKA in patients with chronic, painless effusion and extensive radiographic osteoarthritis will be evaluated on a case-by-case basis.

**Kellgren-Lawrence Grading System:**

Grade 0: No radiographic features of osteoarthritis

Grade I: Possible joint space narrowing and osteophyte formation

Grade II: Definite osteophyte formation with possible joint space narrowing

Grade III: Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour

Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour;

2) **Contraindications:**

a) Absolute contraindication:
   i) Active infection (local or remote)
   ii) Any injection into the joint within 3 months of surgery

b) Relative contraindication: Any of the following:
   i) Prior infection at site (unless aspiration with cultures and serology [CBC with differential, ESR, CRP] demonstrates no infection). If prior infection at site, tissue biopsies should be sent intra-operatively to exclude latent/dormant infection.
ii) Extreme morbid obesity (BMI >45)
iii) Extensor mechanism deficiency
iv) Neuropathic joint
v) Severe peripheral vascular disease
vi) Compromised soft tissue envelope
vii) Uncontrolled comorbidities

B. Unicompartmental Knee Arthroplasty (UKA)/Partial Knee Replacement (PKA)

Unicompartmental knee arthroplasty (UKA) is also called partial, hemi- or unicondylar knee, bicondylar knee arthroplasty, and involves reconstruction of either the medial (more common than lateral) or lateral weight bearing compartment of the knee and/or patellofemoral joint

1) UKA/PKA may be medically necessary when ALL of the following criteria are met:
   - Pain localized to the medial or lateral compartment is present for at least 6 months; AND
   - At least 3 months of non-operative care that has failed to improve symptoms.
     *Non-operative care should include at least two or more of the following:
       i) Rest or activity modifications/limitations;
       ii) Weight optimization;
       iii) Protected weight-bearing with cane, walker or crutches;
       iv) Physical therapy modalities;
       v) Supervised home exercise;
       vi) Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;
       vii) Brace/orthosis;
       viii) Injections: cortisone/viscosupplementation/PRP (platelet rich plasma): AND
   - Total arc of motion (goniometer) > 90 degrees; AND
   - Normal ACL or stable reconstructed ACL per physical exam test; AND
   - Radiographic findings demonstrate only unicompartmental disease (with or without patellofemoral involvement) with evidence of degeneration equal to K-L* Grade 3 or 4 (NOTE: MRI should not be the primary tool used to determine the presence or severity of arthritic changes in the joint); AND
   - Contracture < 5-10 degrees upon physical exam (goniometer); AND
   - Angular deformity < 10 passively correctable to neutral upon physical exam (goniometer); AND
   - BMI <45; AND
   - No injection into the joint within 3 months of surgery.

NOTE:
All requests for UKA in patients with chronic, painless effusion and extensive radiographic osteoarthritis will be evaluated on a case-by-case basis.

Relative Contraindication

   a) Age < 50 due to an increased risk for revision surgery.
**Kellgren-Lawrence Grading System:**

Grade 0: No radiographic features of osteoarthritis
Grade I: Possible joint space narrowing and osteophyte formation
Grade II: Definite osteophyte formation with possible joint space narrowing
Grade III: Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour
Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour

Outerbridge Arthroscopic Grading System

Grade 0 Normal cartilage
Grade I Softening and swelling
Grade II Partial thickness defect, fissures < 1.5cm diameter
Grade III Fissures down to subchondral bone, diameter > 1.5cm
Grade IV Exposed subchondral bone

2) **Contraindications:**
   - Any injection into the joint within 3 months of surgery
   - Local or systemic active infection
   - Inflammatory arthritis
   - Angular deformity or contracture greater than indicated range
   - Significant arthritic involvement of other knee compartments
   - Ligamentous instability (at least ACL [anterior cruciate ligament])
   - Poor bone quality or significant osteoporosis or osteopenia
   - Meniscectomy of the opposite compartment
   - Stiffness greater than indicated range of motion

C. **Revision Arthroplasty**

Revision describes surgical reconstruction due to failure or complication of a previous arthroplasty.

1) Revision TKA may be considered medically necessary when the following criteria are met:
   a) Previous UKA/PKA or TKA joint; AND
   b) Infection ruled out by synovial fluid aspiration/biopsy (cell count and/or culture) AND off antibiotics; OR
   c) When ALL of the following criteria are met:
i) Symptomatic UKA/PKA or TKA as evidence by persistent, severe disabling pain and loss of function: AND

ii) Any of the following upon physical exam: tenderness to palpation objectively attributable to the implant, swelling or effusion, pain on weight-bearing or motion, instability on stress-testing, abnormal or limited motion compared to usual function, palpable or audible crepitus associated with reproducible pain: AND

iii) Aseptic loosening, osteolysis confirmed on radiographic or advanced imaging (nuclear medicine bone scan, CT scan, MRI): AND

d) No injection into the joint within 3 months of surgery unless the joint is infected and an infection treatment in combination with revision performed:

2) Contraindications:
    a) Absolute contraindication:
        i) Local or systemic active infection
        ii) Any injection into the joint within 3 months of surgery

    b) Relative contraindication: Any of the following:
        i) Deficiency of the extensor mechanism
        ii) Neuropathic joint
        iii) Unstable or poorly controlled comorbidities
        iv) Severe peripheral vascular disease
        v) Compromised soft-tissue envelope (revision may be performed in conjunction with plastic surgical consultation for soft tissue coverage via pedicle flaps or other acceptable procedure)

D. Non-Covered Services:
1) The following procedures are not considered a covered service and are not reimbursable based on lack of current scientific evidence for clinically important improvement, safety or efficacy; or based on scientific evidence of increased risk of serious complications:
   I. Procedures utilizing computer-navigated or patient-specific or gender-specific instrumentation
   II. Bicompartmental arthroplasty (investigational at this time)
   III. Robot-assisted TKA (Makoplasty)

V. Other issues:
1) Manipulation following total knee arthroplasty:
   a) Nonsurgical treatment is initial treatment
   b) However, manipulation with or without arthroscopic or open lysis of adhesions, is indicated if within 3 months from time of primary arthroplasty if physical therapy is unable to improve motion to satisfactory degree
      i) If cause of arthrofibrosis/stiffness is due to technical error (component malpositioning or inappropriate sizing), then surgical revision arthroplasty is indicated
ii) If more than 3 months from time of primary arthroplasty, manipulation is unlikely to be successful and is also significantly associated with higher risk of fracture.

2) Poor dental hygiene (e.g. tooth extraction should be performed prior to arthroplasty). Major dental work within 2 year after a joint replacement MAY lead to seeding of the implant and possible revision surgery. If possible, all dental work must be completed prior to shoulder arthroplasty as these procedures increase risk for infection. Following surgery, patients should receive antibiotics for routine dental check-ups for a minimum of two years.

REFERENCES


CPT Codes: 27332, 27333, 27403, 29868, 29880, 29881, 29882, 29883, 27405, 27407, 27409, 27427, 27428, 27429, 29888, 29889, 27412, 27415, 27416, 27418, 27420, 27422, 27424, 27425, 29866, 29867, 29870, 29873, 29874, 29875, 29876, 29877, 29879, G0289, 27570, 29884

INTRODUCTION:

This guideline describes surgical indications of both arthroscopy as well as open, non-arthroplasty knee surgery. Also included are indications for knee manipulation. Arthroscopy introduces a fiber-optic camera into the knee joint through a small incision for diagnostic visualization purposes. Other instruments may then be introduced to remove, repair, or reconstruct intra-and extra-articular joint pathology. Surgical indications are based on relevant subjective clinical symptoms, objective physical exam and radiologic findings, and response to previous non-operative treatments when medically appropriate. Open, non-arthroplasty knee surgeries are performed instead of an arthroscopy as dictated by the type and severity of injury and/or disease and surgeon skill/experience.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

This guideline is structured with clinical indications outlined for each of the following applications: Arthroscopic; Open, non-arthroplasty; Manipulation:

I. Diagnostic knee arthroscopy
II. Debridement with or without chondroplasty
III. Meniscectomy/meniscal repair/meniscal transplant
IV. Ligament reconstruction/repair
   1) Anterior cruciate ligament (ACL) reconstruction
   2) Posterior cruciate ligament (PCL) reconstruction
   3) Collateral ligament repair
V. Articular cartilage restoration/repair:
   1) Marrow stimulating techniques (microfracture, drilling, abrasion chondroplasty, augmented marrow-stimulation [BioCartilage])
   2) Restorative techniques (osteochondral autograft transfer system (OATS), mosaicplasty, autologous chondrocyte implantation (ACI), osteochondral allograft implantation, minced articular cartilage allograft transplantation [DeNovo NT])
VI. Synovectomy (major [2+ compartments], minor [1 compartment])
VII. Loose body removal
VIII. Lateral release/patellar realignment
IX. Manipulation under anesthesia (MUA)
X. Lysis of adhesions for arthrofibrosis of the knee

*Non-operative Treatment:
Throughout this document non-operative care* is defined as a combination of two or more of the following:

1) Rest or activity modifications/limitations;
2) Ice/heat;
3) Protected weight bearing;
4) Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
5) Brace/orthosis;
6) Physical therapy modalities;
7) Supervised home exercise;
8) Weight optimization;
9) Injections: cortisone, viscosupplementation, platelet rich plasma (PRP)

**Kellgren-Lawrence Grading System**:

1) Grade 0: No radiographic features of osteoarthritis
2) Grade I: Doubtful joint space narrowing and possible osteophytic lipping
3) Grade II: Definite osteophyte formation with possible joint space narrowing on anteroposterior weight-bearing radiograph
4) Grade III: Multiple osteophytes, definite narrowing of joint space, some sclerosis and possible bony deformity
5) Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite bony deformity

***Outerbridge Arthroscopic Grading System***

1) Grade 0: Normal cartilage
2) Grade I: Softening and swelling/blistering
3) Grade II: Partial thickness defect, fissures < 1.5cm diameter/wide
4) Grade III: Fissures /defects down to subchondral bone with intact calcified cartilage layer, diameter > 1.5cm
5) Grade IV: Exposed subchondral bone

****The International Cartilage Research Society (ICRS)**

1) Grade 0: Normal cartilage
2) Grade I: Nearly normal. Superficial lesions.
3) Grade II: Abnormal. Lesions extending down to <50% of cartilage depth
4) Grade III: Severely abnormal
   a) Cartilage defects extending down >50% of cartilage depth
   b) And down to calcified layer
   c) And down to, but not through the subchondral bone
   d) And blisters
5) Grade IV: Severely abnormal (through the subchondral bone)
   a) Penetration of subchondral bone but not across entire diameter of defect
   b) Penetration of subchondral bone across the full diameter of the defect

Note: MRI should not be the primary tool used to determine the presence or severity of arthritic changes in the joint.

CLINICAL INDICATIONS:

I. Diagnostic Knee Arthroscopy
   1) Diagnostic knee arthroscopy may be medically necessary when ALL of the following criteria are met:
      a) At least 3 months of knee pain with documented loss of function (deviation from normal knee function which may include painful weight bearing, unstable articulation, and/or inadequate range of motion (>10 degrees flexion contracture or <90 degrees flexion or both) to accomplish activities of daily living (ADLs), recreational activity, and/or employment (documentation of missed days of work or modifications of work status due to injury/pain)); AND
      b) At least 12 weeks of non-operative care* that has failed to improve symptoms; AND
      c) Clinical documentation of painful weight bearing, joint line tenderness, effusion and/or limited motion compared to presymptomatic joint range; AND
      d) Indeterminate radiographs AND MRI findings.

II. Debridement with or without Chondroplasty
    1) Debridement may be medically necessary when ALL of the following criteria are met:
       a) Knee pain with documented loss of function (deviation from normal knee function which may include painful weight bearing, unstable articulation, and/or inadequate range of motion (>10 degrees flexion contracture or <90 degrees flexion or both) to accomplish activities of daily living (ADLs) and/or employment (documentation of missed days of work or modifications of work status due to injury/pain)); OR
b) At least 12 weeks of non-operative care\* that has failed to improve symptoms; AND  
c) MRI results showing evidence of unstable chondral flap; AND  
   i) Recurrent (more than 2) or persistent effusion(s):  
   OR  
d) Arthrofibrosis as evidence by physical exam findings of painful stiffness and loss  
of motion due to proliferation of scar tissue in and around the joint. NOTE:  
   Imaging is not necessary, but historically has been used to determine the  
diagnosis; AND  
e) At least 6 weeks of supervised or self-directed physical therapy that has failed to  
   improve symptoms.  
   OR  

2) Debridement chondroplasty for patellofemoral chondrosis when ALL of the following  
criteria are met:  
   a) Anterior knee pain and loss of function (deviation from normal pain-free weight  
      bearing, stable articulation, and/or range of motion to accomplish activities of daily  
      living (ADLs) and/or employment); AND  
   b) Other extra-articular or intra-articular sources of pain or dysfunction have been  
      excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma); AND  
   c) Physical exam localizes tenderness to the patellofemoral joint with pain aggravated  
      by activities that load the joint (single leg squat, descending >ascending stairs, and  
      being in seated position for extended periods of time with knee flexed “theater sign”);  
      AND  
   d) Imaging (radiographs, MRI, or CT to measure tibial tubercle—trochlear groove  
      distance with patellar instability)  
   e) At least 12 weeks of non-operative care has failed to improve symptoms; AND  
   f) No evidence of osteoarthritis (Kellgren-Lawrence** Grade 3-4 based on standing or  
      weight-bearing radiographs and patellofemoral views))  

NOTE: arthroscopic debridement with or without chondroplasty for osteoarthritis of the knee is  
considered NOT MEDICALLY NECESSARY unless above criteria noted.  

III. **Meniscectomy/Meniscal Repair/Meniscal Transplant**  
   1) Meniscectomy and/or meniscal repair may be medically necessary when the following  
criteria are met:  
      a) Symptomatic meniscal tear confirmed by MRI results that show a peripheral  
         longitudinal meniscus tear, associated with pain and mechanical symptoms upon  
         physical exam:  
         OR
b) Pediatric or adolescent patient has pain and mechanical symptoms upon physical exam: AND

c) MRI results show tear:

OR

d) When at least 3 of the following 5 criteria are met:
   i) History of "catching" or "locking" as reported by the patient;
   ii) Knee joint line pain with forced hyperextension upon physical exam;
   iii) Knee joint line pain with maximum flexion upon physical exam;
   iv) Knee pain or an audible click with McMurray's maneuver upon physical exam;
   v) Joint line tenderness to palpation upon physical exam: AND

e) At least 6 weeks of non-operative care* that has failed to improve symptoms: AND

f) One of the following radiographic findings:
   i) Radiographic findings without moderate or severe osteoarthritic changes; OR
   ii) MRI results confirm meniscal tear in patients < 30 years of age; OR
   iii) MRI results confirm displaced tear (any age);

OR

g) Meniscus tear encountered during other medically necessary arthroscopic procedure

**Meniscal Transplants may be medically necessary when the following criteria are met:**

a) Patient is less than 40 years old: AND

b) Patient has no evidence of arthritic changes: AND

c) Symptomatic meniscal deficiency confirmed by MRI results that show a meniscal deficient compartment, OR previous arthroscopy photographs or video showing subtotal or total meniscectomy: AND

d) At least 6 weeks of non-operative care* that has failed to improve symptoms:

2) **Contraindications:**

a) Meniscal transplant absolute contraindications
   i) Uncorrected (staged or simultaneous) ligamentous insufficiency (ACL, PCL, MCL, LCL, PMC, PLC)
   ii) Uncorrected (staged or simultaneous) malalignment greater than 5 degrees varus or 5 degrees valgus
   iii) Uncorrected (staged or simultaneous) full-thickness articular cartilage isolated defects (ICRS 3 or 4; Outerbridge 4)
   iv) Kellgren-Lawrence Grade 3 or 4 osteoarthritis

b) Meniscectomy/Meniscal Repair Absolute Contraindications
i) Arthroscopic meniscectomy or meniscal repair is never medically necessary in the presence of Kellgren-Lawrence Grade 4 osteoarthritis.

c) Meniscectomy/Meniscal Repair Relative Contraindications
   i) Meniscectomy or repair is considered NOT MEDICALLY NECESSARY in the presence of Kellgren-Lawrence Grade 3 osteoarthritis unless acute onset with effusion, locking (note: locking only. This does not include catching, popping, cracking), and MRI evidence of bucket-handle or displaced meniscal fragment that correlates with the correct compartment (i.e. medial tenderness and locking for a medial tear).
   ii) If grade 3 changes are present, only a meniscectomy may be indicated, not repair. If evidence of meniscal extrusion on coronal MRI with/without subchondral edema, arthroscopy is relatively contraindicated, even if tear is present.
   iii) > 45

IV. Ligament Reconstruction/Repair

1) **Anterior Cruciate Ligament (ACL) Reconstruction with Allograft or Autograft:**

   ACL reconstruction or repair may be medically necessary when ALL of the following criteria are met:

   a) Knee instability (as defined subjectively as "giving way", "giving out", "buckling", two-fist sign) with clinical findings of instability: Lachman’s 2A, 2B, 3A, or 3B, positive Anterior Drawer or Pivot Shift, instrumented (KT-1000 or KT-2000) laxity of greater than 3 mm side-side difference; AND

   b) MRI results confirm complete ACL tear; AND

   c) Patient has no evidence of severe arthritis (Kellgren-Lawrence** Grade 3 or 4)

   OR

   d) When ONE of the following criteria are met:
      i) MRI results confirm ACL tear associated with other ligamentous instability or repairable meniscus; OR
      ii) MRI results confirm partial or complete ACL tear AND patient has persistent symptoms despite at least 12 weeks of non-operative care*; OR
      iii) Acute ACL tear confirmed by MRI in high demand occupation or competitive athlete (as quantified by Marx activity score for athletics (any score greater than 4) and Tegner activity score for athletics and/or occupation (score greater than 2)); AND
      iv) Patient has no evidence of severe arthritis (Kellgren-Lawrence** Grade 3 or 4)

   e) Tears in patients less than age 13 will be reviewed on a case by case basis.

2) **Posterior Cruciate Ligament (PCL) Reconstruction:**
PCL reconstruction or repair may be medically necessary when the following criteria are met:

- a) Knee instability (as defined subjectively as "giving way", "giving out", "buckling", two-fist sign) with clinical findings of positive Posterior Drawer, posterior Sag, or quadriceps active, or Dial test at 90 degrees knee flexion, reverse pivot shift test; AND

- b) MRI results confirm complete PCL tear; AND

- c) Failed non-operative care (including bracing in full extension for acute isolated PCL tears); AND

- d) Absence of medial and patellofemoral K-L grade 3-4 changes in chronic tears; OR

- e) The following clinical scenarios will be considered and decided on a case-by-case basis:
  - i) pediatric and adolescent tears in patients with open physes or open growth plates
  - ii) symptomatic partial tears with persistent instability despite non-operative care
  - iii) incidental Kellgren-Lawrence Grade 2-3 osteoarthritis in acute/subacute tears with unstable joint
  - iv) Tears in patients less than age 13

3) **Collateral Ligament Repair or Reconstruction:**

- a) Collateral ligament repair or reconstruction should rarely occur independent of additional repair or reconstruction surgery. All non-traumatic collateral ligament repair/reconstruction requests will be reviewed on a case by case basis.

V. **Articular Cartilage Restoration/Repair**

1) **Skeletally Immature Indications:**

- a) When ALL of the following criteria are met:
  - i) Skeletally immature patient; AND
  - ii) Patient is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion); AND
  - iii) radiographic findings (any radiograph and MRI) of a **displaced lesion**; OR

- b) When ALL of the following criteria are met:
  - i) Skeletally immature patient; AND
  - ii) Patient is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion); AND
  - iii) At least 12 weeks of non-operative care* has failed to improve symptoms; AND
iv) Radiographic findings (any radiograph and MRI) results finding of a stable osteochondral lesion

OR

c) When ALL of the following criteria are met:
   i) Skeletally immature; AND
   ii) Asymptomatic; AND
   iii) At least 12 weeks of non-operative care has failed to improve lesion stability or size; AND
   iv) Radiographic findings (any radiograph and MRI) results finding of an unstable osteochondral lesion

d) **Exclusion (applies to all criteria above):**
   i) Exclude patients with evidence of meniscal deficiency and/or malalignment IF these are not being addressed (meniscal transplant and/or lateral release/patellar realignment procedure) at the same time as the cartilage restoration procedure.

2) **Skeletally Mature Indications, Listed By Surgical Approach:**
   a) Reparative marrow stimulation techniques (microfracture & drilling. Abrasion arthroplasty is including in coding but is not indicated) may be medically necessary when ALL of the following criteria are met:
      i) Skeletally mature adult; AND
      ii) MRI confirms a full-thickness weight-bearing lesion that is < 2.5 sq.cm; AND
      iii) Patient is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion); AND
      iv) Patient is less than 50 years of age; AND
      v) BMI < 35 (optimal outcomes if patient BMI <30); AND
      vi) Physical exam findings and/or (imaging) results confirm knee has stable ligaments; AND
      vii) No evidence of prior meniscectomy in same compartment (medial femoral condyle full thickness lesion and prior medial meniscectomy) unless concurrent meniscal transplant performed.

Restorative techniques (abrasion arthroplasty, osteochondral autograft transfer or transplantation (OATS), mosaicplasty, autologous chondrocyte implantation (ACI), osteochondral allograft implantation, minced articular cartilage allograft transplantation [DeNovo NT]) may be medically necessary when ALL of the following criteria are met:

   i. MRI results confirm a full thickness chondral or osteochondral lesion of the femoral condyles or trochlea > 2 cm2; AND
   ii. Patient is less than 50 years of age; AND
iii. Patient has been symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion) for at least 6 months; AND
iv. At least 3 months of non-operative care* has failed to improve symptoms; AND
v. MRI and/or physical findings confirm knee has normal alignment as defined as +/- 3 degrees from neutral on full-length mechanical axis long-leg x-ray (unless concurrent or staged tibial or femoral osteotomy performed) and stability (unless concurrent ligamentous repair or reconstruction performed); AND
vi. BMI <45 (optimal outcomes if patient BMI <30); AND
vii. MRI shows no evidence of significant osteoarthritis (greater than Kellgren-Lawrence Grade 2); AND
viii. No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)

OR

b) Surgical intervention for the treatment of patellofemoral chondrosis (osteochondral autograft transfer or transplantation (OATS), microfracture, autologous chondrocyte implantation (ACI), osteochondral allograft implantation, minced articular cartilage allograft transplantation [DeNovo NT], debridement chondroplasty, tibial tubercle osteotomy) may be medically necessary when ALL of the following criteria are met:

i) Anterior knee pain and loss of function (deviation from normal knee function which may include painful weight bearing, unstable articulation, and/or inadequate range of motion (>10 degrees flexion contracture or <90 degrees flexion or both) to accomplish activities of daily living (ADLs), recreational activity, and/or employment (documentation of missed days of work or modifications of work status due to injury/pain)); AND

ii) Other extra-articular or intra-articular sources of pain or dysfunction have been excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma); AND

iii) Physical exam localizes tenderness to the patellofemoral joint with pain aggravated by activities that load the joint (single leg squat, descending > ascending stairs or stair climbing, and being in seated position for extended periods of time with knee flexed); AND

iv) Radiologic imaging shows patellofemoral chondrosis graded 3 or 4 by the Outerbridge Classification*** or ICRS**** (grade 3-4) classification

v) At least 3 months of non-operative care has failed to improve symptoms; AND

vi) No evidence of osteoarthritis (Kellgren-Lawrence** Grade 3-4 based on standing or weight-bearing radiographs ) in the medial/lateral compartments

VI. **Synovectomy (major [2+ compartments], minor [1 compartment])**

1) Synovectomy may be medically necessary when ALL of the following criteria are met:
a) Proliferative rheumatoid synovium (in patients with established rheumatoid arthritis according to the American College of Rheumatology Guidelines listed below); AND

b) Not responsive to disease modifying drug (DMARD) therapy for at least 6 months and at least 6 weeks of non-operative care that has failed to improve symptoms; AND

c) At least one instance of aspiration of joint effusion and cortisone injection (if no evidence of infection);

OR

d) Hemarthrosis from injury, coagulopathy or bleeding disorder confirmed by physical exam, joint aspiration, and/or MRI;

OR

e) Proliferative pigmented villonodular synovitis, synovial chondromatosis, sarcoid synovitis, or similar proliferative synovial disease, traumatic hypertrophic synovitis confirmed by history, MRI or biopsy; AND

f) At least 6 weeks of non-operative care* that has failed to improve symptoms; AND

g) At least one instance of aspiration of joint effusion and injection of cortisone (if no evidence of infection);

OR

h) Detection of painful plica confirmed by physical exam and MRI findings; AND

i) At least 12 weeks of non-operative care* that has failed to improve symptoms.

j) At least one instance of aspiration of joint effusion OR single injection of cortisone (effusion may not be present with symptomatic plica);

American College of Rheumatology Guidelines

<table>
<thead>
<tr>
<th>2010 ACR/EULAR: Classification Criteria for RA</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOINT DISTRIBUTION (0-5)</td>
</tr>
<tr>
<td>1 large joint</td>
</tr>
<tr>
<td>2-10 large joints</td>
</tr>
<tr>
<td>1-3 small joints (large joints not counted)</td>
</tr>
<tr>
<td>4-10 small joints (large joints not counted)</td>
</tr>
<tr>
<td>&gt;10 joints (at least one small joint)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEROLOGY (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative RF AND negative ACPA</td>
</tr>
<tr>
<td>Low positive RF OR low positive ACPA</td>
</tr>
</tbody>
</table>
VII. Loose Body Removal

1) Loose body removal may be medically necessary when the following criteria are met:
   a) Removal of loose body or foreign object that causes limitation or loss of function (deviation from normal knee function which may include painful weight bearing, unstable articulation, and/or inadequate range of motion (>10 degrees flexion contracture or <90 degrees flexion or both) to accomplish activities of daily living (ADLs), recreational activity, and/or employment (documentation of missed days of work or modifications of work status due to injury/pain)).

VIII. Lateral Release/Patellar Realignment:

This guideline describes indications for surgical procedures to address patellofemoral pain disorders and abnormal alignment of the extensor mechanism of the knee by arthroscopic and/or open surgical techniques. Surgical indications are based on relevant clinical symptoms, physical exam, radiologic findings, and response to non-operative management when medically appropriate.

1) Surgical intervention for the treatment of **lateral patellar compression syndrome** is indicated when the following criteria are met:
   a) Evidence of lateral patellar tilt on physical exam (inability to neutralize tilt) and from radiologic images (patellofemoral view: mercer merchant (45 degrees flexion; and/or skyline (60-90 degrees flexion); and/or sunrise (60-90 degrees flexion); AND
   b) Associated lateral patella facet K-L changes grade 1, 2, or 3; AND
   c) Reproducible isolated lateral patellofemoral pain with patellar tile test; AND
   d) At least 6 months of non-operative care* has failed to improve symptoms including appropriate hamstring/IT band stretching and patellar mobilization techniques; AND
   e) No evidence of patellar dislocation without documented patellar tilt; AND

---

High positive RF OR high positive ACPA | 3
---
SYMPOTOM DURATION (0-1)

| <6 weeks | 0 |
| ≥6 weeks | 1 |
---

ACUTE PHASE REACTANTS (0-1)

| Normal CRP AND normal ESR | 0 |
| Abnormal CRP OR abnormal ESR | 1 |

>6 = definite RA

f) No evidence of medial patellofemoral changes (Kellgren-Lawrence Grade 2 osteoarthritis or higher);

2) Surgical intervention for the treatment of patellar malalignment and/or patellar instability is indicated when the following criteria are met:

a) Acute traumatic patellar dislocation is associated with an osteochondral fracture, loose body, vastus medialis obliquus/Medial patellofemoral ligament muscle avulsion, or other intra-articular injury that requires urgent operative management;

OR

b) Repeat (greater than 2) patellar dislocations or subluxations have occurred despite 3 months of non-operative care* with radiologic confirmation of MPFL (medial patellofemoral ligament) deficiency;

OR

c) Physical exam has patellofemoral tenderness and abnormal articulation of the patella in the femoral trochlear groove (patellar apprehension with positive J sign); AND

d) Radiologic images rule out fracture or loose body, and show abnormal articulation, trochlear dysplasia, or other abnormality related to malalignment; AND

e) CT scan or MRI rules out other abnormality to malalignment (tibial tubercle-trochlear groove (TT-TG) distance > 20 millimeters which would indicate concomitant tibial tubercle anteromedialization osteotomy); AND

f) At least 3 months of non-operative care* has failed to improve symptoms

IX. **Manipulation under Anesthesia (MUA)**

1) Manipulation under anesthesia (MUA) may be indicated when the following criteria are met:

a) Physical exam findings demonstrate inadequate range of motion of the knee defined as less than 105 degrees of flexion; AND

b) Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy; OR

c) Patient is less than 12 weeks after ligamentous or joint reconstruction.

2) **Lysis of Adhesions for Arthrofibrosis of the knee**

Surgical indications are based on relevant clinical symptoms, physical exam, radiologic findings, time from primary surgery, and response to conservative management when medically appropriate. Improved range of motion may be accomplished through arthroscopically-assisted or open lysis of adhesions with general anesthesia, regional anesthesia, or sedation.

a) Physical exam findings demonstrate inadequate range of motion of the knee, defined as less than 105 degrees of flexion; AND
b) Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy: AND

c) Patient is more than 12 weeks after ligamentous or joint reconstruction, or resolved infection: OR

d) Patient is more than 12 weeks after trauma, or resolved infection: AND

e) Patient has native knee: AND

f) Manipulation under anesthesia is also performed

X. REFERENCES


CPT Codes: 23473, 23474, 23472, 23470

Overview:
Arthroplasty describes the surgical replacement or reconstruction of a joint with implanted devices when the joint has been damaged by an arthritic or traumatic process. This guideline outlines the clinical indications for shoulder arthroplasty procedures: total, partial/hemi/unicompartmental, reverse shoulder, and revision arthroplasty.

This guideline is structured with clinical indications outlined for each of the following applications:

I. Total Shoulder Arthroplasty (TSA)
II. Hemi-Arthroplasty
III. Reverse Arthroplasty (RTSA)
IV. Revision Arthroplasty

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

Clinical Notes
Total shoulder arthroplasty (TSA) is the most predictable of the arthroplasty procedures and is the "gold standard" but is dependent upon patient age. Stemmed hemiarthroplasty is most often used by non-specialist surgeons and has less successful outcomes. Resurfacing is an option for younger, more active and high demand patients but is only performed in high volume by very few surgeons in the US. It has good longevity with proper patient selection. Stemmed hemiarthroplasty may be accompanied by non-prosthetic glenoid arthroplasty. This involves contouring the glenoid fossa to allow for more anatomical congruity between humeral head and the glenoid and, thus, more anatomical kinematics and shoulder function without the risk of a prosthetic glenoid implant ("ream and run" glenoid or meniscal allograft transposition). It is a technically demanding procedure and requires increased skill, expertise and experience. Biological resurfacing of the glenoid may be considered but generally has fallen out of favor due to high failure rates over mid-term follow-up. Biological resurfacing of the glenoid should be a case-by-case analysis.

CLINICAL INDICATIONS

I. TOTAL SHOULDER ARTHROPLASTY (TSA)
The replacement of the glenohumeral joint is called a shoulder arthroplasty. It can be either a total shoulder arthroplasty (TSA), where both the glenoid and humerus are replaced, a partial arthroplasty of the humerus only (hemiarthroplasty, HA), or a partial resurfacing of the humerus (humeral head resurfacing, HHR, HR). In general, these arthroplasty
procedures are reserved for end stage arthritis of the shoulder joint, including functional loss of motion, pain and disability. The choice of arthroplasty is dependent upon surgeon philosophy, experience and skill. Successful outcome, regardless of procedure, is more likely with high volume (> 5-10 per year) shoulder specialists. The most significant factor to a patient’s revision surgery is due to incorrect technique (the device was the wrong size or not inserted correctly or poor surgical exposure).

1) **Total Arthroplasty may be necessary when the following criteria are met:**
   a) Evidence of painful osteoarthritis OR
   b) Inflammatory, non-infectious arthritis (e.g. rheumatoid) with functional limitations (such as activities of daily living or employment or simple recreation) AND
   c) Complete or near-complete loss of joint space on axillary and AP x-rays (internal rotation and/or external rotation); AND
   d) 12 weeks of non-operative treatment* have failed to improve symptoms; AND
   e) Adequate bone stock (sufficient bone available to place a glenoid component. Requires either a good axillary x-ray, or either a CT or MRI) to support chosen device; AND
   f) Functional and intact rotator cuff and deltoid; AND
   g) No injection into the joint within 3 months of surgery.

2) **NOTES**
   a) In general, the more severe the disease, the more loss of motion and more glenoid erosion will exist and the more likely TSA will be required, regardless of age. However, if patients wait too long, it can be impossible to place the glenoid component (due to posterior glenoid erosion) in a TSA and outcomes are even worse for HA. For best patient outcomes, only one total shoulder arthroplasty should be performed in patient’s lifetime.
   
   b) Additional research is necessary to support an accurate age range for each type of shoulder arthroplasty. At this time, patient age is a relative indication for surgery and ultimately relies on surgeon’s judgment and patient presentation. TSA can be done at any age, but in general, to minimize complications (future need of a TSA revision) and improve quality of life:
   
   i) Age <55: Hemiarthroplasty maybe the best surgical option due to the likelihood these patients will need the joint converted to a total shoulder arthroplasty (and revising a total shoulder arthroplasty is much more complex and in some cases cannot be successfully performed)
   
   ii) Age 55-65: Surgery depends on patient anatomy and activity desires (TSA or resurfacing (HHR), although inexperienced surgeons may choose stemmed hemiarthroplasty (HA) as it is technically less demanding)
   
   iii) Age > 65: (generally TSA or RSA is best).

3) **Non-operative Treatment Options:**
a) At least 3 months of non-operative care that has failed to improve symptoms. Non-operative care should include at least two or more of the following:

i)  Rest or activity modifications/limitations;

ii) Physical therapy modalities;

iii) Supervised home exercise;

iv) Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;

v) Corticosteroid injections

4) CONTRAINDICATIONS

a) Neurological disease resulting in chronic pain syndrome (CRPS or its variants) or loss of deltoid (such as axillary nerve palsy) or rotator cuff function.

b) Active or recent (within 6 months of surgery) infection. History of prior shoulder joint infection without proof that indolent infection has been eliminated (patient has been off antibiotics for a minimum of 6 weeks) via laboratory work (serologies, including CBC with differential, ESR (erythrocyte sedimentation rate), CRP (C-reactive protein), with or without blood cultures, and synovial fluid aspiration (cultures, gram stain, cell count, differential, crystals)). Cultures must be for aerobic and anaerobic bacteria (AFB, fungal). Cultures must be held for minimum 30 days (especially to rule out Propionobacterium acnes).

c) Nuclear scans, advanced imaging and often aspiration or soft tissue/bone biopsy (note: recent studies suggest only intra-operative tissue cultures are reliable indicators of joint contamination/infection and IF occult infection is a concern (after prior procedures), biopsies should be taken, delayed placement of the arthroplasty should be strongly considered after antibiotic spacer placement, and appropriate antibiotic management commenced once confirmed.

d) Poor dental hygiene (e.g. tooth extraction should be performed prior to arthroplasty). Major dental work within 2 year after a joint replacement MAY lead to seeding of the implant and possible revision surgery. If possible, all dental work must be completed prior to shoulder arthroplasty as these procedures increase risk for infection. Following surgery, patients should receive antibiotics for routine dental check-ups for a minimum of two years.

e) Any injection into the joint within 3 months of surgery.

II. INDICATIONS FOR HEMI-ARTHROPLASTY

1) Hemiarthroplasty may be necessary when the following criteria are met:

a) Patient meets all of the criteria within TSA; OR

b) Patient with avascular necrosis of the humeral head without advanced glenoid disease (Kellgren-Lawrence grade 1 or 2), stemmed hemiarthroplasty is often a better option to avoid the risks inherent with the glenoid component; AND

c) No injection into the joint within 3 months of surgery;
2) **Kellgren-Lawrence Grading System:**
   a) Grade 0: No radiographic features of osteoarthritis
   b) Grade I: Possible joint space narrowing and osteophyte formation
   c) Grade II: Definite osteophyte formation with possible joint space narrowing
   d) Grade III: Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour
   e) Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour

3) **CONTRAINDICATIONS**
   a) Any injection into the joint within 3 months of surgery.

III. **REVERSE ARTHROPLASTY (RTSA)**

This is a device that places the ball on the glenoid side (glenosphere and baseplate) and the socket on the humeral side. It has been used in Europe for decades but recently was approved for use in the US. It has specific indications which are changing constantly as more experience is gained with this concept.

The original purpose of a RTSA was to allow basic function of a pseudoparalytic shoulder from a chronic rotator cuff tear with arthropathy (or arthritis) in an inactive person over age 65. Because it is associated with a high complication rate (10-50% in primary procedures and as high as 70% in revisions), it should be used with careful consideration. Salvage after failed RTSA is difficult with poor outcomes.

It works by moving the center of joint rotation medial and downward and increasing deltoid tension to facilitate active abduction and elevation of the arm.

1) **INDICATIONS FOR REVERSE ARTHORPLASTY:**

Reverse total shoulder arthroplasty is currently indicated for patients greater than 65 years of age (age is a relative indication) with rotator cuff tear arthropathy, pseudoparalysis, adequate bone stock, no evidence of excessive prior acromioplasty and a functional deltoid.

2) **Treatment of Arthritic Shoulder:**
   a) Non-repairable massive (> 2 tendons) rotator cuff tear AND intact deltoid, AND inability to actively elevate the arm above the level of the shoulder (90 degrees) (i.e. nonfunctional cuff tear arthropathy); AND
   b) Age > 65: Case-by-case review for patients ages less than 65 years; AND
   c) Failure of conservative treatment for greater than 3 months (formal PT for deltoid retraining and minimum of 1 steroid injection; AND
   d) Patient must be compliant with instructions and understand long-term activity is limited to basic ADLS; AND
e) IF patient meets criteria but can raise the arm above shoulder level, a stemmed or resurfacing extended articular surface resurfacing device (EAS) (CTA head) may be a better option (i.e. FUNCTIONAL cuff tear arthropathy). This is also an option in those < 60 years old; AND

f) No injection into the joint within 3 months of surgery;

3) CONTRAINDICATIONS
   a) Any injection into the joint within 3 months of surgery.

4) Treatment of fracture or failure TSA:
   a) Acute 3-4 part fractures of proximal humerus with or without concomitant tuberosity as evidence by radiographic findings; AND
   b) Age >65.

IV. REVISION ARTHROPLASTY

Historically this procedure was coded as the removal of hardware and total shoulder arthroplasty. CPT introduced shoulder revision procedure codes in January 2013.

1) There are two primary reasons for shoulder revision procedures:
   a) conversion of a previous hemiarthroplasty to a total shoulder and treatment of a failed total or
   b) hemiarthroplasty (due to failure of the glenoid).

2) Treatment of failed Total Shoulder Arthroplasty:
   a) Failure of TSA as a result of subsequent non-repairable RCT as evidence by loss of ability to raise the arm: AND
   b) Large to massive non-repairable (stage 3-4 atrophy) RCT on imaging (CT arthrogram): AND
   c) Severe suprascapular neuropathy with associated rotator cuff dysfunction.

3) Revision total shoulder arthroplasty may be necessary when the following are met:
   a) Evidence of a prior total shoulder arthroplasty
   b) Clinical and radiographic evidence of a failed glenoid or humeral component or both (evidence includes radiolucencies around cemented or uncemented glenoid and/or humeral components indicating osteolysis/loosening / instability)
   c) Periprosthetic humeral or scapular fracture
   d) Persistent pain, loss of function, ADLs
   e) Failure of non-surgical treatment OR the possibility of delay may make a revision more complicated with increased risk of peri-operative or post-operative complications)
   f) Infected prior arthroplasty (as a single- or two-stage procedure, as indicated based on infection chronicity)
g) Negative work up for infection including CRP ESR white count, plus/minus aspiration arthrogram.

4) CONTRAINDICATIONS
   a) Prior hemiarthroplasty: in this situation, a hemiarthroplasty removal code and total shoulder arthroplasty code or reverse total shoulder arthroplasty code should be used
   b) Insufficient glenoid and/or humeral bone to support a revision component
   c) Active or recent history of infection
   d) Neurogenic pain syndrome
   e) Acromial fracture OR overly thin acromion from prior subacromial decompression
   f) Severe osteoporosis as evidenced by radiographic osteopenia, osteomalacia or severe osteoporosis on Dexascan
   g) Non-functioning deltoid or axillary nerve injury / palsy.

V. ADDITIONAL INFORMATION:

1) IMAGING

Nearly all shoulder problems can be diagnosed with adequate history/physical exam AND proper plain radiographic series (typically 4 views, TRUE AP-internal rotation, TRUE AP-external rotation, scapular Y (outlet view), axillary).

Advanced imaging should only be considered when evaluating for a SUSPECTED surgical problem determined from the above. It should not be used to “search” for pathology as MRI and CT (with or without arthrogram) scans often demonstrate asymptomatic abnormalities that are present with increasing frequency with advancing age.

MRI may over-estimate clinically important pathology in many cases yet can miss other treatable conditions and is very dependent on the imaging center and the physician reading the study. Highly trained, high volume Orthopedic shoulder surgeons may interpret studies more accurately than radiologists given their ability to correlate history and physical exam findings with prior experience in surgery when pathology can be confirmed and compared to imaging. CT scan with 3-D reconstructions provide better data on glenoid anatomy and should be considered prior to any primary arthroplasty.

VI. REFERENCES


12) Tashjian RZ, Hung M, Keener JD, Bowen RC, McAllister J, Chen W, et al. Determining the minimal clinically important difference for the American Shoulder and Elbow Surgeons


23415 – Shoulder Arthroscopy

CPT CODES: 23410, 23412, 23420, 29827, 23450, 23455, 23460, 23462, 23465, 23466, 29806, 29807, S2300, 29825, 23120, 23125, 23130, 23405, 23415, 23430, 23450, 23455, 23460, 23462, 23465, 23466, 29806, 29807, S2300, 29825, 29827, 23120, 23125, 23130, 23405, 23415, 23430, 23450, 23455, 23460, 23462, 23465, 23466, 29806, 29807, S2300, 29825, +29826, 29828

OVERVIEW

This guideline describes indications for arthroscopic and open, non-arthroplasty shoulder surgeries. Arthroscopy introduces a fiber-optic camera into the shoulder joint through a small incision for diagnostic visualization purposes. Other instruments may then be introduced to remove, repair, or reconstruct joint pathology. Surgical indications are based on relevant subjective clinical symptoms, objective physical exam and radiologic findings, and response to previous non-operative treatments when medically appropriate. Open, non-arthroplasty surgeries are performed instead of an arthroscopy as dictated by the type and severity of injury and/or disease.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

This guideline is structured with clinical indications outlined for each of the following applications:

I. Rotator Cuff Repair
II. Distal Clavicle Excision (DCE)
III. Labral Repairs
   1) SLAP
   2) Anterior-Inferior Labral Tear (Bankart)
   3) Posterior Labral Repair
   4) Combined Tears
   5) Open Capsurolorrhaphy for Multidirectional Instability
IV. Long Head Biceps (LHB) Tenotomy or Tenodesis
V. Synovectomy
VI. Lysis of adhesions: Capsulotomy
VII. Subacromial Decompression (SAD)

VIII. Elective surgery of the shoulder should only be considered if the following general criteria are met:
   1) There is clinical correlation of patient subjective complaints with objective exam findings and/or imaging (if applicable)
   2) Patient has limited function (ADLs, occupation, or sports)
   3) Patient is medically stable with no uncontrolled medical problems such as diabetes
   4) Patient does no have active local or systemic infection
5) Patient does not have active, untreated drug dependency (drug dependency increases likelihood of poor surgical outcome)

6) Patient is not an active smoker. Smoking increases rotator cuff degeneration, increases the prevalence of larger rotator cuff tears, and inhibits healing in many cases (especially primary rotator cuff repair) and is a relative contra-indication across surgeries. A smoking cessation program should be instituted pre-operatively and continued post-operatively.

**CLINICAL INDICATIONS**

I. **ROTATOR CUFF REPAIR (RCR)**

Surgical treatment of rotator cuff tear (RCT) should only be performed when there is a clinical correlation of patient symptoms, clinical exam findings, imaging, and failed non-operative management (where required). Although many surgeons perform mini-open rotator cuff repair, traditional open rotator cuff repair (RCR) with deltoid take-down should be rare given increased morbidity compared to arthroscopic or mini-open surgery. Nonetheless, in certain situations traditional open repair remains an acceptable (albeit not preferred) technique.

NOTE: If Subacromial Decompression (SAD) is to be performed in conjunction with this surgery, see SAD-specific criteria in guidelines to confirm clinical necessity AND SAD must be noted within preoperative notes.

NOTE: RCR Surgery *may* be required as first line therapy in the following situations:

a) Surgery is appropriate as first line treatment when MRI shows significant progression of a full thickness tear, at least 50% increase in tear size, on serial imaging performed at least 3 months apart, even with minimal or no patient symptoms.

b) If MRI shows medium size or greater (must be a complete single tendon or greater) full thickness tear with minimal or no patient symptoms, surgery may be appropriate as first line treatment.

1) **Surgical repair of a partially torn rotator cuff may be necessary when **ALL** of the following criteria are met**:

   a) Reproducible rotator cuff pain patterns as evidenced by:

      i) Lateral arm, deltoid pain not radiating past the elbow, night pain, or pain with overhead motions; *AND*

      ii) Positive impingement signs and/or tests on exam (reproducible pain when arm is positioned overhead (above plane of shoulder) with relief of pain when arm is repositioned below the plane of the shoulder); *AND*

      iii) Functional loss (inability to do normal and/or recreational activities); *AND*

   b) MRI showing >50% partial thickness tear (articular-sided, concealed, or bursal-sided); *AND*
c) Failure of at least 12 weeks non-surgical treatment*.

d) *Nonsurgical treatment must include ALL of the following:
   i) Physical therapy or properly instructed home exercise program (physical therapy protocol should include treatment for scapular dyskinesis when present)
   ii) Rest or activity modification
   iii) Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated); OR
   iv) Single injection of corticosteroid and local anesthetic into subacromial or intra-articular space.

2) **Surgical repair of a small (<1cm), full thickness rotator cuff tear** may be necessary when **ALL of the following criteria are met**:
   a) Reproducible “rotator cuff pain patterns” as evidence by:
      i) Lateral arm, deltoid pain not radiating past the elbow, night pain, or pain with overhead motions; AND
      ii) Positive impingement signs and/or tests on exam (reproducible pain when arm is positioned overhead (above plane of shoulder) with relief of pain when arm is repositioned below the plane of the shoulder); AND/OR
      iii) Rotator cuff weakness on physical exam; AND
      iv) Functional loss (inability to do normal activities); AND
   b) MRI showing small, full thickness tear (<1cm); AND
   c) Failure of at least 6 weeks non-surgical treatment*

d) *Nonsurgical treatment must include physical therapy or properly instructed home exercise program (physical therapy protocol should include treatment for scapular dyskinesis when present); AND
   i) Rest or activity modification; OR
   ii) Minimum of 4 weeks of oral NSAIDs (if not medically contraindicated); OR
   iii) Single injection of corticosteroid and local anesthetic into subacromial or intra-articular space.

3) **Surgical repair of a medium (1-3cm) or large (3-5cm), full-thickness torn rotator cuff** may be necessary when **ALL of the following criteria are met**:
   a) Reproducible “rotator cuff pain patterns” as evidence by:
      i) Lateral arm, deltoid pain not radiating past the elbow, night pain, or pain with overhead motions; AND
      ii) Positive impingement signs and/or tests on exam (reproducible pain when arm is positioned overhead (above plane of shoulder) with relief of pain when arm is repositioned below the plane of the shoulder); AND/OR
      iii) Rotator cuff weakness on physical exam; AND
      iv) Functional loss (inability to do normal activities); AND
   b) MRI showing medium (1-3cm) or large (3-5cm), full-thickness tear; OR
   c) Serial MRI demonstrates progression in size, even if asymptomatic; OR
d) MRI demonstrates presence of atrophy and/or fatty degeneration and/or Goutallier stage 2.

4) **Surgical repair of a massive (>5 cm with at least 2 tendons involved) torn rotator cuff may be necessary when ALL of the following criteria are met:**
   a) MRI demonstrates Goutallier stage 0 (normal muscle), 1 (some fatty streaks), or 2 (less than 50% fatty degeneration or infiltration); AND
   b) Warner classification of atrophy “none” or “mild”; AND
   c) No x-ray evidence of chronic subacromial articulation of humeral head (e.g. acromiohumeral distance less than 7 millimeters, acetabularization or femoralization, no remodeling of greater tuberosity, lack of sclerotic lateral acromion, lack of extensive CA (coracoacromial) ligament calcification; AND
   d) MRI showing massive (>5cm), full-thickness tear.

5) **Surgical revision of a previously repaired small, medium, large or massive torn rotator cuff may be necessary when ALL of the following criteria are met:**
   a) All RCR revision cases within 1 year of original RCR will be reviewed on a case-by-case basis.
   b) MRI (with or without arthrogram) or CT arthrogram results showing failure of healing (Sugayas type 4-5) or recurrent tear > 3 months after index surgery.

Note: Requests for superior capsular reconstruction will be reviewed on a case-by-case basis.

II. **DISTAL CLAVICLE EXCISION (DCE)**

The AC joint (acromioclavicular joint) commonly develops degenerative disease in those over 30 years of age, those with a history with grade 1 or 2 AC sprain/separation, those with a history of heavy lifting (labor occupation or strength training), or those with evidence of remote trauma. It can occur in isolated form in younger patients (distal clavicle osteolysis) but is more commonly observed concomitantly with rotator cuff disease in those over age 40 years of age.

**NOTE:** If Subacromial Decompression is to be performed in conjunction with this surgery, see SAD-specific criteria in guidelines to confirm clinical necessity AND SAD must be noted within preoperative notes.

1) **Distal Clavicle Excision may be necessary when ALL of the following criteria are met:**
   a) Positive clinical exam findings as evidenced by pain upon palpation over AC joint and pain with cross-body adduction test; AND
   b) Positive radiographic findings:
      i) Radiographic (x-ray) demonstrates narrowed joint space, distal clavicle or medial acromial sclerosis, and/or osteophytes or cystic degeneration of distal clavicle or...
medial acromion correlating with the clinical findings, patient symptoms and diagnosis; OR
i) MRI (not required) findings with edema in the distal clavicle and/or inflammatory change within the joint space correlating with the clinical findings, patient symptoms and diagnosis; AND
ii) Failed 12 weeks of non-surgical treatment*.

NOTE: If patient has >50% pain relief from AC joint injection, then this diagnostically confirms location of pain as AC joint and pain should resolve with distal clavicle excision if patient has failed non-surgical treatments. If patient has <50% pain relief from AC joint injection, then this diagnostically rules out the AC joint as the pain generator and distal clavicle excision should not be performed in isolation. If injection fails, patient may be at higher risk for surgical infection if performed within 3-6 months of injection; AND
i) Physical therapy or properly instructed home exercise program; OR
ii) Rest or activity modification; OR
iii) Minimum of 4 weeks of oral or topical NSAIDs (if not medically contraindicated).

III. LABRAL REPAIRS

There is a tendency to misinterpret normal degenerative labral changes and variations as “tears” which may lead to over-utilization of surgery if decisions are made upon imaging reports alone. In addition, the anterior-superior labrum (from 12 to 3 o’clock for a right shoulder) has many normal variations that can be misinterpreted as a tear, including sublabral hole/foramen, Buford complex, and a labral overhang with an intact biceps anchor. In general, true labral tears lead to pain, catching, popping, functional limitations (including ADLs, occupational and sports), micro-instability, and gross instability. Labral repairs are most-frequently associated with a specific traumatic event.

NOTE: If subacromial decompression is to be performed in conjunction with this surgery, see SAD-specific criteria in guidelines to confirm clinical necessity AND SAD must be noted within preoperative notes.

SLAP

A SLAP tear describes a labral tear that extends from 10 to 2 o’clock. There are many types of SLAP tears, and treatment options are dependent upon the type of tear. For all SLAP tears, non-operative management should always be used as the initial treatment approach. Surgical indications should be focused on clinical symptoms and failure to respond to non-operative treatments, rather than imaging (due to a higher percentage of tears being missed on images AND significant over-diagnosing of tears based on imaging-alone).
1) **SLAP repair of a labral tear may be necessary when ALL of the following criteria are met:**

   a) Minimum of 12 weeks of non-operative treatment;
      i) Activity modification by avoiding painful activity; AND
      ii) NSAIDs; OR
      iii) Oral steroids; OR
      iv) Failed intra-articular injection (*Corticosteroid injection is not included in non-operative management for SLAP tear*); OR
      v) PT or self directed home exercise program: AND

   b) MRI demonstrating superior labral tear: AND

   c) History compatible with tear (acute onset in thrower or overhead athlete, fall, traction injury, shear injury (MVA), lifting injury); AND

   d) Pain localized to the glenohumeral joint (often only associated with certain reaching or lifting activities and at night); OR

   e) Painful catching/popping/locking sensations; AND

   f) Inability to perform desired tasks without pain (ADLs, sports, occupation); AND

   g) Age < 40*; AND

   h) Type 2 or 4 SLAP tear (not type 1 or 3)
      i) I Labral and biceps fraying, anchor intact
      ii) II Labral fraying with detached biceps tendon anchor
      iii) III Bucket handle tear, intact biceps tendon anchor (biceps separates from bucket handle tear)
      iv) IV Bucket handle tear with detached biceps tendon anchor (remains attached to bucket handle tear)

   i) *All requests for SLAP repair in patients age >40 will be reviewed on a case-by-case basis.

   j. **CONTRAINDICATIONS:**
      i) ANY evidence of degenerative disease upon imaging
      ii) Smoker and age >40
      iii) Diabetics with poor control HgBA1c > 7
      iv) MRI findings not attributable to normal common variants (for example, labral overhang)

   v) In cases where a true SLAP tear exists, but the patient has one or more contraindications, a SLAP debridement (limited, extensive debridement), biceps tenotomy or tenodesis may be an alternative. *See Tenotomy and Tenodesis Indications.*

2) **ANTERIOR-INFERIOR LABRAL TEAR (Bankart):**

   This is defined as a “Bankart” tear after the physician who first described it. It is located in the 3-6 o’clock region of a right shoulder, “clock face”. It is typically caused by a traumatic instability event (dislocation or subluxation). It can involve the labrum, the
capsular ligaments (IGHL [inferior glenohumeral ligamentous complex]) and/or the bone (bony Bankart fracture). If symptomatic, Bankart tears typically require surgical repair (indications below).

a) **Bankart repair of a labral tear may be necessary when ALL of the following criteria are met:**

i) **ACUTE, FIRST TIME DISLOCATION**
   1. History of an acute event of instability (subluxation or dislocation) or acute onset of pain following activity; AND
   2. Acute Labral Tear on MRI or CT imaging; AND
   3. Age < 30 (high recurrence rate without repair); AND
   4. Range of motion is not limited by stiffness upon physical exam; AND
   5. Clinical exam findings demonstrate positive apprehension test, positive relocation test, or objective laxity with pain.

ii) **RECURRENT (two or more dislocations)**
   1. Recurrent instability (subluxation or dislocation) with history of repeat events; AND
   2. Evidence of labral tear with or without bony Bankart fracture of glenoid width upon imaging; AND
   3. Range of motion is not limited by stiffness upon physical exam; AND
   4. Clinical exam findings demonstrate positive apprehension test, positive relocation test, positive labral grind test, or objective laxity with pain.

iii) **CONTRAINDICATIONS**
   1. Pain only (no documented recurrent instability events) in patients over 40.
   2. Evidence of degenerative glenohumeral disease upon imaging
   3. Evidence of Engaging Hill Sachs humeral head defect upon imaging if surgery is for stand alone Bankart repair
   4. Cases demonstrating greater than 20% glenoid bone loss (should indicate Latarjet reconstruction or bone graft [autograft or allograft] repair) will be reviewed on a case by case basis.

3) **POSTERIOR LABRAL REPAIR:**

Identical to Bankart tears with the exception of the posterior aspect of the shoulder. Posterior labral tears are often associated with a paralabral cyst that grows large enough to compress the supraspinular nerve (isolated to infraspinatus). Posterior labral tears are frequently associated with contact sports or a patient history of a traumatic fall/posterior loading of the joint. They are often observed in athletes performing repetitive posterior loading of the joint (offensive linemen in football, weight-lifting: push-ups, bench press). These tears are more likely to result in pain and weakness rather than recurrent dislocations/instability.
a) Surgical repair of a posterior labral tear may be necessary when ALL of the following criteria are met:
   i) Symptoms of pain OR painful catching/popping OR instability (shoulder pops out of joint); AND
   ii) MRI findings of posterior labral tear; AND
   iii) Exam findings demonstrate positive load-shift test, OR jerk test, OR glenohumeral grind test OR objective laxity with pain or profound weakness; AND
   iv) Failure of 12 weeks or more of non-surgical treatment (exception is traumatic tear in competitive athlete at any level): NSAIDs and home exercise OR physical therapy and activity modifications (i.e. avoidance of painful activity); AND
   v) Age < 40*; AND
   vi) No radiographic evidence of degenerative disease (e.g. posterior glenoid cartilage loss, subchondral glenoid cysts, mucoid degeneration of labrum, narrowing of joint space with posterior humeral head subluxation on axillary x-ray or axial MRI images).

*NOTE: Posterior labral changes are often misinterpreted on MRI as a “tear” in age >40 years old when early glenohumeral degeneration manifests with posterior glenohumeral degeneration.

4) COMBINED TEARS (e.g Anterior/Posterior, SLAP/Anterior, SLAP/Posterior, SLAP/Ant/Post)

Combined tears that require repair are almost always associated with significant recurrent instability. Often tears begin within one area and overtime the failure to repair the original injury causes the tear to extend.

a) Surgical repair of a combination tear may be necessary when ALL of the following criteria are met:

   i) Acute Tears
      (1) History of an acute event of instability (subluxation or dislocation); AND
      (2) Acute labral tear on MRI/CT imaging with/without bony Bankart fracture not > 25% of glenoid width upon imaging; AND
      (3) Age < 30 (high recurrence rate without repair); AND
      (4) Range of motion not limited by stiffness upon physical exam; AND
      (5) Clinical exam findings demonstrate positive apprehension test and positive relocation test, OR positive labral grind test OR objective laxity with pain; AND
      (6) Minimal to no evidence of degenerative changes on imaging.
ii) Recurrent Tears

(1) Recurrent instability (subluxation or dislocation) with at least 2 instability events; AND
(2) Labral tear on MRI AND CT, with/without Bony Bankart fracture not > 25% of glenoid width upon imaging; AND
(3) Range of motion not limited by stiffness upon physical exam; AND
(4) Clinical exam findings demonstrate positive apprehension test and positive relocation test, or positive labral grind test, or objective laxity with pain; AND
(5) Minimal to no evidence of degenerative changes on imaging.

NOTE: Thermal capsulorrhaphy was previously used to augment unstable shoulders, with and without labral tears. It is no longer considered an accepted procedure for unstable shoulders.

5) Open or Arthroscopic Capsulorrhaphy for Multidirectional Instability of the Shoulder (MDI)

a) Patient has pain and limited function (ADLs, occupation, or sports); AND
b) Patient has recurrent instability due to hyperlaxity or mobility and no traumatic dislocation documented via Beighton (or Brighton, or equivalent); AND
c) Physical exam supports repeatable increased glenohumeral joint translation (greater than 2 cm of movement during the sulcus test); AND
d) Imaging (x-ray and MRI) rules out fracture and/or other soft-tissue injury; AND
e) Failure of 6 months or more of formal physical therapy and activity modifications (i.e. avoidance of painful activity).

IV. LONG HEAD BICEPS (LHB) TENOTOMY/TENODESIS

This is a common source of pain, especially in overhead sports and in the presence of rotator cuff tears (especially subscapularis). It can be an isolated source of pain in chronic tenosynovitis, SLAP tears, or small tears of the biceps sling, resulting in dynamic or static subluxation or dislocation. LHB problems are frequently missed on MRI (especially using contrast which can mask the pathology). The choice of tenodesis versus tenotomy is controversial. Typically, tenodesis is better for more active, muscular individuals performing higher demand activity (labor, sports). Tenotomy is generally a better option for older, less active patients with poor muscle definition, as it generally leaves the patient with a "popeye" deformity and the possibility of biceps cramping or anterior shoulder pain with activity. The choice of tenotomy vs. tenodesis is generally left up to the surgeon/patient.

NOTE: If Subacromial Decompression is to be performed in conjunction with this surgery, see SAD-specific criteria in guidelines to confirm clinical necessity AND SAD must be noted within preoperative notes.
1) **Tenotomy or Tenodesis may be necessary when the following criteria are met:**
   a) Diagnosis of chronic LHB groove pain from tenosynovitis refractory to conservative treatment OR
   b) Smoker with SLAP labral tear (regardless of age, more significant with increasing age) OR
   c) Failed SLAP repair OR
   d) SLAP tear in diabetic or patient with loss of motion or predisposition to stiff shoulder OR
   e) LHB hypertrophy/tearing/subluxation in association with RCR AND
   f) Failed 12 weeks of non-surgical treatment including:
      i) Activity modification (eliminating or decreasing pain producing movements) or rest; AND
      ii) Oral OR topical anti-inflammatory medicine AND
      iii) Intra-articular OR bicipital groove (anesthetic and corticosteroid) injection; AND
      iv) Home exercise program OR formal physical therapy for >12 weeks.

2) **CONTRAINDICATIONS**
   a) Less than 12 weeks of non-surgical treatment for isolated LHB tenosynovitis.
   b) (Relative Contraindication) Failed bicipital groove injection
   c) The indications for tenodesis and tenotomy are the same with the exception that tenodesis is typically better for more active, muscular individuals that are performing higher-demand activities for work or sport. Tenotomy is often preferred in patients that smoke (this is a relative indication of tenotomy over tenodesis) due to healing problems in tenodesis.

V. **SYNOVECTOMY**

Synovitis is common in many shoulder conditions and typically resolves when the primary pathology is treated. Most commonly, this includes loose bodies, inflammatory arthritis or degenerative arthritis, labral tears and adhesive capsulitis. Primary synovial diseases include pigmented villonodular synovitis, synovial chondromatosis, rheumatoid arthritis, other inflammatory arthritides, traumatic synovial hypertrophy or metaplasia.

Synovectomy as an isolated procedure is usually reserved for primary synovial disease or in cases where secondary hypertrophic synovitis is documented during arthroscopy (these include adhesive capsulitis, osteoarthritis, chronic rotator cuff tear). These should be evident on arthroscopic photographs taken at surgery but may be missed on preoperative images.

**NOTE:** If Subacromial Decompression is to be performed in conjunction with this surgery, see SAD-specific criteria in guidelines to confirm clinical necessity AND SAD must be noted within preoperative notes.
VI. LYSIS OF ADHESIONS: CAPSULOTOMY

Adhesive capsulitis is a thickening and tightening of the soft tissue capsule that surrounds the glenohumeral joint. Adhesive capsulitis begins with a gradual onset of pain and limitation of shoulder motion, patient discomfort and loss of movement progress to interfere with activities of daily living. Primary adhesive capsulitis is the subject of much debate as the specific causes of this condition are not fully understood. Patients with uncontrolled diabetes have a significantly higher risk of developing adhesive capsulitis than the general population. Secondary (acquired) adhesive capsulitis develops from a known cause, such as stiffness following a shoulder injury, surgery, or a prolonged period of immobilization. Adhesive capsulitis may last from one to three years if untreated.

a) Patient has pain, loss of motion, and limited function (ADLs, occupation, or sports); AND
b) Physical exam evaluating range of motion and patient comorbidities (diabetes); AND
c) Failure of 12 weeks of non-operative treatment*; AND
d) Imaging (x-ray and/or MRI) may be used to identify other underlying problems.

e) *Nonsurgical treatment must include physical therapy or properly instructed home exercise program; AND
   i) Rest or activity modification; OR
   ii) Oral or topical NSAIDs (if not medically contraindicated)

VII. SUBACROMIAL DECOMPRESSION (SAD)

Acromioplasty involves removing bone from the undersurface of the acromion to change a type 3 acromion to a type 1 acromion. Although debated for decades, current evidence concludes that there is no role for isolated acromioplasty (subacromial decompression), which prompted conversion of CPT code 29826 (acromioplasty, subacromial decompression) from an index, primary, "stand-alone" code to an "add-on" code only.

1) Subacromial decompression may be necessary in conjunction with other shoulder procedures when ALL of the following criteria are met:
   a) Radiographic (x-ray) evidence of mechanical outlet impingement as evidenced by a Bigliani type 3 morphology*; AND
   b) Must be performed at the same time as capsulorrhaphy, repair of SLAP lesion, removal of loose body, synovectomy (partial or complete), debridement (limited or excessive), distal clavicle excision, lysis and resection of adhesions, rotator cuff repair, or biceps tenodesis.

c) *There are 3 types of acromion anatomy according to Bigliani classification:
   i) Type 1, flat, 20%
   ii) Type 2, curved, 40%
   iii) Type 3, hooked, 40%
NOTE: If decompression is requested and performed as part of rotator cuff repair patient must have documented type 3 acromial morphology on supraspinatus outlet or scapular-Y x-ray. Please see rotator cuff repair indications.

2) CONTRAINDICATIONS:
   a) Type 1 or Type 2 or a thinned acromion. Subacromial bursectomy may be a reasonable option.
   b) If patient has received an injection in the subacromial space and there is failure to adequately respond—significant relief (>50%) for minimum of 1 week—to injection in the subacromial space (pain should respond temporarily if impingement).
   c) Prior subacromial decompression with either a Type 1 or a thinned acromion or no evidence of overhang on x-ray (unnecessary revision can thin the acromion and lead to deltoid avulsion and/or acromial fracture)
   d) Open SAD procedures should rarely be performed given the increased morbidity due to deltoid disruption.

VIII. ADDITIONAL INFORMATION

1) ARTHROSCOPIC vs. OPEN

Most shoulder procedures can be performed open or arthroscopic. The method is simply the “tool” used to perform a given surgical procedure. However, arthroscopic surgery often leads to more rapid recovery with less pain, fewer complications (e.g. loss of motion, infection) and more rapid restoration of function. This is only true if the user of the “tool” (surgeon) is skilled in this discipline. Arthroscopic surgery is technically more difficult, requiring more complex 3-D spatial skills, hand-eye coordination, 3-D interpretation of 2-D imaging and advanced training and higher volume to become proficient. Thus, in unskilled hands, arthroscopic surgery can lead to INCREASED morbidity relative to the open form of the same procedure. Studies have demonstrated that higher volume, specialty trained surgeons have better outcomes, shorter operative times, faster patient recovery and decreased costs.

The indications for most shoulder surgery is identical for open and arthroscopic techniques and the preferred method of surgery should be left to the surgeon, given their comfort with the specific procedure.

2) IMAGING

Nearly all shoulder problems can be diagnosed with adequate history/physical exam AND proper plain radiographic series (typically 3 views - AP, scapular Y, axillary).

Advanced imaging should only be considered when evaluating for a SUSPECTED surgical problem determined from the above. It should not be used to “search” for pathology as MRI and CT (with or without arthrogram) scans often demonstrate asymptomatic abnormalities that are present with increasing frequency with advancing age.
MRI may over-estimate clinically important pathology in many cases yet can miss other treatable conditions and is very dependent on the imaging center and the physician reading the study. Highly trained, high volume Orthopedic shoulder surgeons may interpret studies more accurately than radiologists given their ability to correlate history and physical exam findings with prior experience in surgery when pathology can be confirmed and compared to imaging.

3) ROTATOR CUFF REPAIR

The rotator cuff (RC) is a highly complex 5 layered structure that envelops the humerus. It is made up of the inter-woven fibers of 4 muscle-tendon units and serves to maintain proper humeral head positioning on the glenoid during shoulder motion. Tears (RCT) can occur within the tendon substance, on the bursal side, articular side, or a combination of these.

Most tears begin within the tendon substance at the attachment of the supraspinatus in the critical zone behind the biceps tendon. It can then extend anteriorly, posteriorly and/or medially. It can include the fibers of the biceps sling, which maintains stability of the long head of the biceps. The latter is often missed on MRI. If left untreated, RCT tend to progress over time as the intrinsic healing ability is low. Most RCTs are degenerative and the chance of having a full thickness ASYMPTOMATIC RCT on MRI is approximately 10% per decade of life (e.g. 50% at age 50). They are the result of normal shoulder use with micro-tearing that ultimately leads to a larger tear. They can also occur in younger patients involved with repetitive overhead activity and tension overload sports (e.g throwing, tennis). The latter tears are pathologically different and usually start on the articular side and often in conjunction with labral tears. They are also more complex to treat.

4) LABRAL TEARS

The labrum is a circumferential (or nearly) fibrocartilage surrounding the glenoid. It is a complex structure but simplistically serves to provide stability to the shoulder through a variety of methods (e.g. deepens the glenoid fossa, acts as a bumper, attachment point for stabilizing capsular ligaments and long head biceps tendon). Fibers blend with the articular cartilage of the glenoid rim so that there is a smooth transition to the joint surface.

With age and degeneration, the articular cartilage thins and the labrum hypertrophies giving the appearance on MRI of a “tear”. These can be misinterpreted by some and lead to repairs of normal labral tissue and subsequently, a stiff painful shoulder. In addition, the anterior-superior labrum (from 1 to 3 o’clock for a right shoulder) has a many normal variations that can be misinterpreted as a tear including sublabral hole, Buford complex and a loose attachment.

To understand which findings on MRI (or other advanced imaging) are pathologic versus normal “variants” or age-appropriate changes, one needs to understand the function of the labrum, normal ranges and clinical importance of each region. This is critical to determine which tears require repair.

There are 3 clinically important regions to the labrum which can tear: superior labrum (superior labrum anterior posterior) or SLAP tear (10-2 o’clock for right shoulder), anterior-inferior labrum (Bankart tear, 3-6 o’clock) and posterior labrum (Posterior Bankart, Kim Lesion, 6 to 10 o’clock). Both anterior and posterior tears can connect via an inferior tear. In addition, any
combination of tears can occur. A complete circumferential tear is typically called a triple labral tear.

Advanced imaging is very sensitive to labral abnormalities but is center dependent. In addition, interpretation of the clinical significance of labral abnormalities has been shown to be more accurate when determined by highly trained Orthopedic shoulder specialists when compared to radiologists. The latter tend to there is a tendency to over read normal degenerative changes and variations as “tears” which may lead to over-utilization of surgery by those surgeons who rely on imaging reports alone or do not have expertise in MRI interpretation.

Clinically relevant triple labral tears (i.e. circumferential 360° tears) may be associated with gross recurrent instability. Circumferential tears without instability are more often degenerative and should be debrided if painful but not repaired.

- Note that all degenerative shoulders will have thinning of the articular cartilage on the periphery of the glenoid and hypertrophy of the labrum, which is typically interpreted on MRI by the radiologist as a “tear”. This can lead to inappropriate repair and worsening clinical symptoms of pain and loss of motion. The posterior aspect of the joint is affected earliest and most severely
- Injections are usually not indicated for labral tears but maybe indicated for degenerative shoulders

IX. REFERENCES


6) Erickson J, Lavery K, Monica J, Gatt C, Dhawan A. Surgical treatment of symptomatic superior labrum anterior-posterior tears in patients older than 40 years: a systematic


