2016 NIA Clinical Guidelines for Medical Necessity Review

MUSCULOSKELETAL AND SPINE SURGERY
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.

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All guidelines reviewed between January – November 2015.
INTRODUCTION:
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.

INDICATIONS FOR CERVICAL SPINE SURGERY:

A. Anterior Cervical Decompression with Fusion (ACDF)— Single Level
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*: 
- 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:
  - upper extremity weakness
  - unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - disturbance with coordination
  - hyperreflexia
  - Hoffmann sign
  - positive Babinski sign;

OR
- 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
- When All of the following criteria are met:
Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; AND
Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least 6 weeks of conservative treatment; AND
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:
- MRI (preferred study for assessing cervical spine soft tissue); OR
- 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)

*Cervical spine decompression with fusion as first-line treatment without conservative care measures in the following clinical cases:
- As outlined above for myelopathy or progressive neurological deficit scenarios.
- Significant spinal cord or nerve root compression due to tumor, infection or trauma.
- Fracture or instability on radiographic films measuring:
  - 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
  - Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child

Not Recommended:
- In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
- 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 E. Cervical Fusion for Treatment of Axial Neck Pain Criteria

B. Anterior Cervical Decompression with Fusion (ACDF)—Multiple Level
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*:
- 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:
  - upper extremity weakness
  - unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - disturbance with coordination
  - hyperreflexia
  - Hoffmann sign
  - positive Babinski sign:

OR
- 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
- When ALL of the following criteria are met:
Cervical radiculopathy or myelopathy due to ruptured disc, spondylosis, spinal instability, or deformity; AND
Persistent or recurrent pain/symptoms are unresponsive to at least 6 weeks of conservative treatment; AND
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:
- MRI (preferred study for assessing cervical spine soft tissue); OR
- 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)

* Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases:
  - As outlined above for myelopathy or progressive neurological deficit scenarios.
  - Significant spinal cord or nerve root compression due to tumor, infection or trauma.
  - Fracture or instability on radiographic films measuring:
    - 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
    - Subluxation at the (C1) level of the atlantoaxial interval of more than 3 mm in an adult and 5 mm in a child.

Not Recommended:
- In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
- 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 E. 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*:
- 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:
  - upper extremity weakness
  - unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - disturbance with coordination
  - hyperreflexia
  - Hoffmann sign
  - positive Babinski sign;

OR
- 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
- When ALL of the following criteria are met:
  - Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; AND
o Persistent or recurrent symptoms/pain with functional limitations that is unresponsive to at least 6 weeks of conservative treatment; **AND**

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

- Single level **symptomatic cervical** disease as evidence by:
  - cervical spinal stenosis due to Cervical spondylotic myelopathy (CSM); or
  - cervical spinal stenosis due to Ossification of the posterior longitudinal ligament (OPLL); or
  - single level spinal cord or nerve root compression due to herniated disc

* Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases:
  - As outlined above for myelopathy or progressive neurological deficit scenarios.
  - Significant spinal cord or nerve root compression due to tumor, infection or trauma.
  - Fracture or instability on radiographic films measuring:
    - 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**
    - Subluxation at the (C1) level of the atlantoaxial interval of more than 3 mm in an adult and 5 mm in a child.

Not Recommended:
  - In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
  - 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 E. Cervical Fusion for Treatment of Axial Neck Pain Criteria.*
  - In patients with kyphosis or at risk for development of postoperative kyphosis.

D. **Cervical Posterior Decompression with Fusion—Multiple Levels**

Surgical indications for cervical spine stenosis/cervical spondylotic myelopathy (CSM) must meet the following criteria*:

- 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:
  - upper extremity weakness
  - unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - disturbance with coordination
  - hyperreflexia
  - Hoffmann sign
  - positive Babinski sign

OR
• 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

• When ALL of the following criteria are met:
  - Cervical radiculopathy or myelopathy from ruptured disc, spondylosis, spinal instability, or deformity; **AND**
  - Persistent or recurrent symptoms/pain with functional limitations that is unresponsive to at least 6 weeks of conservative treatment; **AND**
  - Imaging studies indicate significant spinal cord or spinal nerve root compression at multiple levels corresponding with the clinical findings. Imaging studies may include:
    - MRI (preferred study for assessing cervical spine soft tissue); OR
    - 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**
    - Multilevel (>=2) symptomatic cervical disease as evidence by:
      - cervical spinal stenosis due to cervical spondylotic myelopathy (CSM); or
      - cervical spinal stenosis due to ossification of the posterior longitudinal ligament (OPLL); or
      - evidence of significant spinal cord or nerve root compression from herniated discs at two or more levels.

* Cervical spine decompression with fusion performed as first-line treatment without conservative care measures in the following clinical cases:
  • As outlined above for myelopathy or progressive neurological deficit scenarios.
  • Significant spinal cord or nerve root compression due to tumor, infection or trauma.
  • Fracture or instability on radiographic films measuring:
    - 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**
    - Subluxation at the (C1) level of the atlantodental interval of more than 3 mm in an adult and 5 mm in a child.

Not Recommended:
• In asymptomatic or mildly symptomatic cases of cervical spinal stenosis.
• 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 E. Cervical Fusion for Treatment of Axial Neck Pain Criteria.**
• In patients with kyphosis or at risk for development of postoperative kyphosis.

E. 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:**

• 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 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]; \textbf{AND}

- All pain generators are adequately defined and treated; \textbf{AND}
- All physical medicine and manual therapy interventions are completed; \textbf{AND}
- X-ray, MRI, or CT demonstrating disc pathology or spinal instability; \textbf{AND}
- Spine pathology limited to one or two levels unless other complicating factors are involved; \textbf{AND}
- Psychosocial evaluation for confounding issues addressed.

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

\textbf{F. Cervical Posterior Decompression}

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.

\textbf{The following criteria must be met}:

- Positive Clinical Findings of Myelopathy with evidence of progressive neurologic deficits consistent with worsening \textbf{spinal cord compression}— immediate surgical evaluation is indicated. Symptoms may include:
  - upper extremity weakness
  - unsteady gait related myelopathy/balance or generalized lower extremity weakness
  - disturbance with coordination
  - hyperreflexia
  - Hoffmann sign
  - positive Babinski sign;

\textbf{OR}

- 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.

\textbf{OR}

- \textbf{When ALL} of the following criteria are \textbf{met}:
  - Cervical radiculopathy from ruptured disc, spondylosis, or deformity; \textbf{AND}
  - Persistent or recurrent symptoms/pain with functional limitations that is unresponsive to at \textbf{least 6 weeks of conservative treatment}; \textbf{AND}
  - Imaging studies confirm the presence of spinal cord or spinal nerve root compression at the level(s) \textbf{corresponding with the clinical findings}. Imaging studies may include any of the following:
    - MRI (preferred study for assessing cervical spine soft tissue); \textbf{OR}
    - 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);

\textbf{* Cervical decompression performed as first-line treatment without conservative care in the following clinical cases:}

- As outlined above for myelopathy or progressive neurological deficit scenarios.
- Spinal cord or nerve root compression due to tumor, infection or trauma.
Not Recommended:
• In asymptomatic or mildly symptomatic cases.
• In cases of pain alone, without neurological deficits and abnormal imaging findings. See E. Cervical Fusion for Treatment of Axial Neck Pain Criteria.

G. Cervical Artificial Disc
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.

Indications for artificial cervical disc replacement are as follows:
• Skeletally mature patient; AND
• Patient has intractable radiculopathy caused by single level herniated disc located at C3–C7; AND
• Patient symptoms are not responsive to 6 weeks of conservative care treatment; AND
• Imaging studies confirm the presence of compression at the level corresponding with the clinical findings (MRI or CT); AND
• No prior neck surgery; AND
• Use of an FDA-approved prosthetic intervertebral discs

NOTE: CPT codes for Cervical Artificial Disc Replacement - Multiple Level (22858 and 0375T) are not a covered service and are not reimbursable.

Cervical Artificial Disc Replacement is NOT indicated when any of the following clinical scenarios exists:
• Symptomatic multiple level disease
• Adjacent Level Disease: degenerative disease adjacent to a previous cervical fusion
• Infection (at site of implantation or systemic)
• Osteoporosis or osteopenia
• Instability
  o Translation greater than 3mm difference between lateral flexion-extension views at the symptomatic levels;
  o 11 degrees of angular difference between lateral flexion-extension views at the symptomatic levels
• Sensitivity or allergy to implant materials
• Severe spondylosis defined as:
  o > 50% disc height loss compared to minimally or non-degenerated levels; OR
  o Bridging osteophytes; OR
  o Absence of motion on lateral flexion-extension views at the symptomatic site
• Severe facet arthropathy
• Ankylosing spondylitis
• Rheumatoid Arthritis
• Previous Fracture with anatomical deformity
• Ossification of the posterior longitudinal ligament (OPLL)
• Active Cervical Spine Malignancy

H. Cervical Fusion without Decompression
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.

I. Cervical Anterior Decompression (without fusion)

All requests for anterior decompression without fusion will be reviewed on a case-by-case basis.

ADDITIONAL INFORMATION:

A comprehensive assimilation of factors should lead to a specific diagnosis with positive identification of the pathologic condition(s).

- Early intervention may be required in acute incapacitating pain or in the presence of progressive neurological deficits.
- Operative treatment is indicated when the natural history of surgically treated lesions is better than the natural history for non-operatively treated lesions.
- 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.
- 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.
- 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.
- 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.
- 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.

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. 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.

Anterior Approaches – Additional Information:

- 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.
- 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).
• 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).

• **Anterior Cervical Disectomy 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.

**Posterior Approaches**

• **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.

• **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 degenerative spinal stenosis.

• **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.

**REFERENCES**


**Fusion References**


INTRODUCTION:

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 microdiscectomy, lumbar decompression, and lumbar fusion surgery. See the additional information section for procedures considered not medically necessary.

A. Lumbar Microdiscectomy is a surgical procedure to remove part of the damaged spinal disc. The damaged spinal disc herniates into the spinal canal and irritates 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.

B. Lumbar Decompression (Laminectomy, 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.

C. 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.

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

- Indications for Lumbar Microdiscectomy - Surgical indications for inter-vertebral disc herniation*:
  o Primary radicular symptoms noted upon clinical exam that hinders daily activities; AND
  o Failure to improve with at least six consecutive weeks of conservative treatment; AND
  o Imaging studies showing evidence of inter-vertebral disc herniation
*Other indications:* Microdiscectomy may be used as the first line of treatment (*no conservative treatment required*) in the following clinical scenarios:
- Progressive nerve compression resulting in an acute neurologic deficit sensory or motor due to herniated disc; OR
- Cauda equina syndrome (loss of bowel or bladder control).

**NOTE:** Percutaneous lumbar discectomy or radiofrequency disc decompression procedures are deemed investigational procedures and are not approved.

- **Indications for Lumbar Decompression:** Laminectomy, 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*:
  - Low back pain, neurogenic claudication, and/or radicular leg pain that impairs daily activities for at least twelve (12) weeks; AND
  - Failure to improve with at least 6 weeks of conservative therapy; AND
  - Imaging findings consistent with clinical signs/symptoms; AND
  - Imaging studies do not show evidence of spinal instability.

*Other Indications:* Lumbar decompression may be used as the first line of treatment (*no conservative treatment required*) in the following clinical scenarios:
- Progressive nerve compression resulting in an acute neurologic (sensory or motor) deficit
- Cauda equina syndrome (loss of bowel or bladder control)
- Spinal stenosis due to tumor, infection, or trauma

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

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*:
- 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
- Failure to improve with least 6-12 weeks of conservative, non-operative therapy; AND
- Imaging studies corresponding to the clinical findings; AND
- At least one of the following clinical conditions:
  a) Spondylolisthesis [Neural Arch Defect - Spondylolytic spondylolisthesis, degenerative spondylolisthesis, and congenital unilateral neural arch hypoplasia]; OR
  b) Evidence of Segmental Instability - Excessive motion, as in degenerative spondylolisthesis, segmental instability, and surgically induced segmental instability; OR
  c) 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
  d) Revision surgery for failed previous operation(s) repeat disk herniations if significant functional gains are anticipated; OR
  e) Fusion for the treatment of spinal tumor, cancer, or infection; OR
  f) Chronic low back pain or degenerative disc disease must have failed at least 6 months of appropriate non-operative treatment (comprehensive rehabilitation) and must be evaluated on a case-by-case basis.
**Other Indications:** Lumbar spinal fusion may be used as the first line of treatment (no conservative treatment required) in the following clinical scenarios:

- Progressive nerve compression resulting in an acute neurologic deficit sensory or motor AND one of the aforementioned clinical conditions, except chronic low back pain or degenerative disc disease.
- Cauda equina syndrome (loss of bowel or bladder control)

**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:

- Rationale as to why surgery is preferred over other non-invasive or less invasive treatment procedures.
- 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 devices or biologics and indications.

**NOTE:** Pre-sacral, axial lumbar interbody fusion (AxiaLIF) is not an approved surgical approach due to insufficient evidence. Pre-Sacral Fusion Codes: 0195T, +0196T, 22586, 0309T. Artificial lumbar disc replacement or other lumbar implants are not an approved procedure due to insufficient evidence Lumbar Artificial Disc Replacement/Implant Codes: 22857, +0163T, 22862, +0164T, 22865, +0165T, 0221T, +0222T

**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:

- 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
- Failure to improve with least 6-12 weeks of conservative, non-operative therapy: AND
- Imaging studies corresponding to the clinical findings: AND
- At least one of the following clinical conditions:
  - Multiple Level Spondylolisthesis: OR
  - Fusion for the treatment of spinal tumor, trauma, cancer, or infection affecting multiple levels: OR
  - Intra-Operative Segmental Instability

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

- Progressive nerve compression resulting in an acute neurologic deficit (sensory or motor) AND one of the aforementioned clinical conditions.

Instrumentation, bone formation or grafting materials, including biologics, should be used at the surgeon’s discretion; however, use should be limited to FDA approved devices or biologics and indications.
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. Pre-Sacral Fusion Codes: 0195T, +0196T, 22586, 0309T. Artificial lumbar disc replacement or other lumbar implants are not an approved procedure due to insufficient evidence Lumbar Artificial Disc Replacement/Implant Codes: 22857, +0163T, 22862, +0164T, 22865, +0165T, 0221T, +0222T

CONTRAINDICATIONS FOR SPINE SURGERY
• Medical contraindications to surgery, e.g., severe osteoporosis; infection of soft tissue adjacent to the spine, whether or not it has spread to the spine; severe cardiopulmonary disease; anemia; malnutrition and systemic infection
• 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.
• Active Tobacco use prior to fusion surgery. It is recommended that the patient refrain from smoking for at least six weeks prior to surgery and during the period of fusion healing.
• 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.

ADDITIONAL INFORMATION

Services Not Covered: The following procedures are considered are 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.

**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. Percutaneous discectomy is rarely indicated. It is sometimes useful in suspected septic discitis or in order to obtain diagnostic tissue.
Percutaneous discectomy is not recommended for contained disc herniations or bulges with associated radiculopathy, due to lack of evidence to support long-term improvement. This includes radiofrequency disc decompression.

**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.

**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. Physicians performing this
procedure must have been trained in the procedure and certified. Surgical Indications: Failure of conservative therapy including physical therapy, medication management, or therapeutic injections. Indications may include those with chronic low back pain, disc related back pain, or pain lasting for greater than 6 months. There is conflicting evidence regarding its effectiveness.

**NUCLEUS PULPOSUS REPLACEMENT** Involves the introduction of a prosthetic implant into the intervertebral disc, replacing the nucleus pulposus while preserving the annulus fibrosus. INDICATIONS: Nucleus Pulposus Replacement is limited to investigational use in the United States at this time and is not recommended

**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. Lumbar Artificial Disc Replacement Codes: 22857, +0163T, 22862, +0164T, 22865, +0165T, 0221T, +0222T

**Conservative Therapy:** (musculoskeletal) includes 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.

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

- Information provided on exercise prescription/plan AND
- 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).

**Claims Billing & Coding:**
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:

- **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.

- **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.

- 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.

- 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.

- **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.

**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. These are the surgical approaches:

- Intertransverse Fusion or Posterolateral Fusion
- Anterior Interbody Fusion (ALIF)
- Lateral or Transpsoas Interbody Fusion (XLIF)
- Posterior or Trans-foraminal Interbody Fusion (PLIF or TLIF)
- Anterior/posterior Fusion (360-degree)
- Pre-sacral, axial lumbar interbody fusion (AxiaLIF) is still being investigated and is not recommended.

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).

All operative interventions must be based upon positive correlation of clinical findings, clinical course, and diagnostic tests. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s). 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.

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

- 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.
- 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).

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

- 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
- 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.

**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.

**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.

**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.

**REFERENCES:**


CPT Codes: 22532, 22534, 22556, 22585, 22610, 22614, 22830, 63003, 63016, 63046, 63048, 63055, 63057, 63064, 63066, 63077, 63078

OVERVIEW:

Thoracic Decompression with or without fusion:
Thoracic disc herniation with or without nerve root compression is usually treated conservatively (non-surgically). A back brace may be worn to provide support and limit back motion. Injection of local anesthetic and steroids around the spinal nerve (spinal nerve blocks) may be effective in relieving radicular pain. As symptoms subside, activity is gradually increased. This may include physical therapy and/or a home exercise program. Preventive and maintenance measures (e.g., exercise, proper body mechanics) should be continued indefinitely. Job modification may be necessary to avoid aggravating activities.

Simple laminectomy is rarely used in the treatment of thoracic disc herniation because of the high risk of neurologic deterioration and paralysis. Excision of the disc (discectomy) may be performed via several different surgical approaches –anteriorly, laterally, or transpedicularly. Fusion should be performed only if surgery causes instability in the spinal column. Many newer techniques do not usually destabilize the thoracic spine.

INDICATIONS:
All requests for thoracic spine surgery will be reviewed on case-by-case basis. The following criteria must be met for consideration.

1. INDICATIONS FOR DECOMPRESSION SURGERY ONLY INCLUDE:
   - 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 any of the following:
     - upper or lower extremity weakness
     - unsteady gait related to myelopathy/balance or generalized lower extremity weakness
     - disturbance with coordination
     - hyperreflexia
     - Hoffmann sign
     - positive Babinski sign
     - clonus
   - OR
     - Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) or lower extremity weakness (0-3/5 on the strength scale) or paralysis with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images—immediate surgical evaluation is indicated:
   - OR
     - When ALL of the following criteria are met:
       - Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least 12 weeks of conservative treatment concerted conservative treatment to include
completed and appropriate therapy (including stabilization exercises and epidural steroid injections):

AND

- Imaging studies confirm the presence of spinal cord or spinal nerve root compression at the level corresponding with the clinical findings (MRI or CT).

2. INDICATIONS FOR THORACIC DECOMPRESSION WITH FUSION SURGERY INCLUDE:

- Deformity cases—please refer to our Deformity Spine Surgery (Adult) Guideline.

OR

For myelopathy or radiculopathy secondary to cord or root compression (see criteria described below) satisfying the indications for decompressive surgery requiring extensive decompression that results in destabilization of the thoracic spine.

- 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:
  - upper extremity weakness
  - unsteady gait related to myelopathy/balance or generalized lower extremity weakness
  - impaired coordination
  - hyperreflexia
  - Hoffmann sign
  - positive Babinski sign
  - clonus

OR

- Progressive neurological deficit (motor deficit, bowel or bladder dysfunction) or lower extremity weakness (0-3/5 on the strength scale) or paralysis with corresponding evidence of spinal cord or nerve root compression on an MRI or CT scan images—immediate surgical evaluation is indicated;

AND

- Anticipated intra-operative destabilization due to extensive thoracic decompression surgery;

OR

When ALL of the following criteria are met:

- Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least 12 weeks of conservative treatment concerted conservative treatment to include completed and appropriate therapy (including stabilization exercises and epidural steroid injections);

AND

- Imaging studies confirm the presence of spinal cord or spinal nerve root compression commensurate with the clinical findings (MRI or CT);

AND

- Anticipated intra-operative destabilization due to extensive thoracic decompression surgery.

NOTE: There is no current evidence base to support fusion in the thoracic spine for degenerative disease without significant neurological compression or significant deformity as outlined above.
CONTRAINDICATIONS FOR SPINE SURGERY

- **Medical contraindications to surgery.** e.g., severe osteoporosis; infection of soft tissue adjacent to the spine, whether or not it has spread to the spine; severe cardiopulmonary disease; anemia; malnutrition and systemic infection.

- **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.

- **Active nicotine use prior to fusion surgery.** The patient must refrain from nicotine use for at least four weeks prior to surgery and during the period of fusion healing.

- **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.

NOTE: Cases of severe myelopathy and progressive neurological dysfunction may require surgery despite these general contraindications.

REFERENCES:


INTRODUCTION:

Therapeutic Spinal Epidural Injections or Select Nerve Root Blocks (Transforaminal) are types of interventional pain management procedures. The therapeutic use of epidural injections is for short-term pain relief associated with acute back pain or exacerbation of chronic back pain. With therapeutic injections a corticosteroid is injected close to the target area with the goal of pain reduction. Epidural injections should be used in combination with other conservative treatment* modalities and not as stand alone treatment for long-term back pain relief. There are different approaches used when administering spinal epidural injections:

- **Interlaminar** epidural injections, with steroids, access the epidural space between two vertebrae (Interlaminar) to treat cervical, lumbar or thoracic pain with radicular pain. These procedures should be performed using fluoroscopic guidance. Interlaminar epidural injections are the most common type of epidural injection.

- **Transforaminal** epidural injections (also called selective nerve root blocks) access the epidural space via the intervertebral foramen where the spinal nerves exit (cervical, lumbar or thoracic region). It is used both diagnostically and therapeutically. Some studies report lack of evidence and risks of transforaminal epidural injections. These procedures are always aided with fluoroscopic guidance.

- **Caudal** epidural injections, with steroids, are used to treat back and lower extremity pain, accessing the epidural space through the sacral hiatus, providing access to the lower nerve roots of the spine. These procedures should be performed using fluoroscopic guidance. Failed back surgery syndrome is the most common reason for the caudal approach.

The rationale for the use of spinal epidural injections is that the sources of spinal pain, e.g., discs and joints, are accessible and amendable to neural blockade.

Medical necessity management for epidural injections includes an initial evaluation including history and physical examination and a psychosocial and functional assessment. The following must be determined: nature of the suspected organic problem; non-responsiveness to conservative treatment*; level of pain and functional disability; conditions which may be contraindications to epidural injections; and responsiveness to prior interventions.

Interventional pain management specialists do not agree on how to diagnose and manage spinal pain; there is a lack of consensus with regards to the type and frequency of spinal interventional techniques for treatment of spinal pain. The American Society of Interventional Pain Physicians (ASIPP) guidelines and International Spine Intervention Society (ISIS) guidelines provide an algorithmic approach which provides a step-by-step procedure for managing chronic spinal pain based upon evidence-based guidelines. It is based on the structural basis of spinal pain and incorporates acceptable evidence of diagnostic and therapeutic interventional techniques available in managing chronic spinal pain.
The guidelines and algorithmic approach referred to above include the evaluation of evidence for diagnostic and therapeutic procedures in managing chronic spinal pain and recommendations for managing spinal pain. The Indications and Contraindications presented within this document are based on the guidelines and algorithmic approach. Prior to performing this procedure, shared decision-making between patient and physician must occur, and patient must understand the procedure and its potential risks and results (moderate short-term benefits, and lack of long-term benefits).

**INDICATIONS FOR EPIDURAL INJECTIONS OR SELECTIVE NERVE BLOCKS (caudal, interlaminar, and transforaminal)** *(Injection of local anesthetics with corticosteroids)*

- Acute pain or exacerbation of chronic back or neck pain with the following clinical timeframes:
  - Neck or Back Pain with acute radicular pain:
    - after 2 weeks or more of acute radicular pain that has failed to respond or poorly responded to conservative management; OR
  - Failed back surgery syndrome or Epidural fibrosis
    - typically not done immediately post-surgery: no sooner than 6 months post surgery
    - patient must engage in some form of other conservative treatment* for a minimum of 6 weeks prior to epidural injections; OR
  - Spinal stenosis or chronic neck or low back pain
    - patient must engage in some form of other conservative treatment* for a minimum of 6 weeks prior to epidural injections

AND

- Average pain levels of ≥ 6 on a scale of 0 to 10 or Intermittent or continuous pain causing functional disability.

**FREQUENCY OF REPEAT THERAPEUTIC INJECTIONS:**

- Epidural injections may be repeated only as medically necessary. Each epidural injection requires an authorization and the following criteria must be met for repeat injections:
  - Documented proof that the prior injection had a positive response by significantly decreasing the patient’s pain (at least 30–50% reduction in pain after initial injections significant documented functional improvement): AND
  - The patient continues to have ongoing pain or documented functional disability (≥ 6 on a scale of 0 to 10): AND

- The patient is actively engaged in other forms of conservative non-operative treatment (unless pain prevents the patient from participating in conservative therapy*): AND

- Injections meet the following criteria:
  - There must be at least 14 days between injections;
  - No more than 3 procedures in a 12-week period of time per region;
  - Limited to a maximum total of 6 procedures per region per 12 months.

- Course of treatment, up to three epidural injections, regardless of approach must provide at least:
At least 50% or more cumulative pain relief obtained for a minimum of 6 weeks to be considered a positive and effective response.

- NOTE: Each epidural injection requires an authorization.

- If the neural blockade is applied for different regions (cervical and thoracic regions are considered as one region and lumbar and sacral are considered as one region), injections may be administered at intervals of no sooner than 14 days for most types of procedures.

- Injecting multiple regions or performing multiple procedures during the same visit may be deemed medically **unnecessary** unless documentation is provided outlining an unusual situation.

**NOTE:** Procedures performed with ultrasound guidance are not a covered benefit and are not reimbursable.

**CONTRAINDICATIONS FOR EPIDURAL INJECTIONS**

- Bleeding diathesis and full anticoagulation (risk of epidural hematoma);
- Severe spinal stenosis resulting in intraspinal obstruction;
- Local infection at injection site;
- Predominantly psychogenic pain;
- Sepsis;
- Hypovolemia;
- Pregnancy;
- Uncontrolled diabetes;
- Uncontrolled glaucoma;
- High concentrations of local anesthetics in patients with multiple sclerosis;
- For diagnosis or treatment of facet mediated pain;
- Known or suspected allergic reaction to steroid medications;
- Spinal infection;
- Malignancy; OR
- Acute fracture.

**ADDITIONAL INFORMATION:**

*Conservative Therapy* (spine) should include a multimodality approach consisting of a combination of active and inactive components. Inactive components, such as rest, ice, heat, modified activities, medical devices, acupuncture and/or stimulators, medications, injections (epidural, facet, not including trigger point), and diathermy can be utilized. Active modalities may consist of physical therapy, a physician supervised home exercise program**, and/or chiropractic care.

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

- Information provided on exercise prescription/plan AND
- Follow up with member with documentation provided regarding completion of HEP, 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).
**Terminology**  
Interlaminar Epidural; Selective Nerve Root Injection (transforaminal only); Transforaminal Injection; Injections of Spinal Canal

**Hip-spine syndrome** - Hip-spine syndrome is a condition that includes both debilitating hip osteoarthritis and low back pain. Abnormal spinal sagittal alignment and difficulty in maintaining proper balance, as well as a wobbling gait, may be caused by severe osteoarthritis of the hip joint. Epidural injections are used to determine a primary pain generator in this condition.

**Spondylololisthesis and nerve root irritation** - 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 most common cause, in adults, is degenerative disease although it may also result from bone diseases and fractures. Degenerative spondylolisthesis is not always symptomatic. Epidural injections may be used to determine a previously undocumented nerve root irritation as a result of spondylolisthesis.

**Lumbar spinal stenosis with radiculitis** - 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. The most common levels of stenosis are L3 through L5, but it may occur at multilevels in some patients. Radiculitis is the inflammation of a spinal nerve root that causes pain to radiate along the nerve paths. Epidural injections help to ascertain the level of the pain generator in this condition.

**Postoperative epidural fibrosis** - Epidural fibrosis is a common cause of failed back surgery syndrome. With the removal of a disc, the mechanical reason for pain may be removed, but an inflammatory condition may continue after the surgery and may cause pain. Epidural corticosteroids, with their anti-inflammatory properties, are used to treat postoperative fibrosis and may be used along with oral Gabapentin to reduce pain.

**Lumbar herniated disc** - Epidural steroid injections have been proven to be effective at reducing symptoms of lumbar herniated discs. Evidence shows that they can be successful in 42% to 56% of patients who do not improve after 6 weeks of conservative treatment. Observation and epidural steroid injection are effective nonsurgical treatments for this condition.

**Failed back surgery syndrome** - Failed back surgery syndrome (FBSS) is characterized by persistent or recurring low back pain, with or without sciatica, following lumbar surgery. The most common cause of FBSS is epidural fibrosis which be triggered by a surgical procedure such as discectomy. The inflammation resulting from the surgical procedure may start the process of fibrosis and cause pain. Epidural steroid injections are administered to reduce pain.

**Discogenic pain** - Discogenic pain is predominant low back pain without disc herniation. 80% to 90% of low back pain is commonly believed to be of unknown etiology. The term, discogenic disc disease, may refer to degenerative disc disease or to internal disc disruption syndrome. Patients with the latter condition may have painful invertebral discs despite minimal degenerative changes. In the
U.S., discogenic pain accounts for 25% of cases of chronic low back pain. Evidence has shown that epidural steroid injections are effective for short-term improvement of discogenic pain.

REFERENCES:


CPT Codes:
Cervical Thoracic Region: 64490 (+ 64491, +64492)
Lumbar Sacral Region: 64493 (+64494, +64495)

INTRODUCTION:
Facet joints (also called zygapophysial joints or z-joints), posterior to the vertebral bodies in the spinal column and connecting the vertebral bodies to each other, are located at the junction of the inferior articular process of a more cephalad vertebra and the superior articular process of a more caudal vertebra. These joints provide stability and enable movement, allowing the spine to bend, twist, and extend in different directions. They also restrict hyperextension and hyperflexion.

Facet joints are clinically important spinal pain generators in patients with chronic spinal pain. In patients with chronic low back pain, facet joints have been implicated as a cause of the pain in 15% to 45% of patients. Facet joints are considered as the cause of chronic spinal pain in 48% of patients with thoracic pain and 54% to 67% of patients with chronic neck pain. Facet joints may refer pain to adjacent structures, making the underlying diagnosis difficult as referred pain may assume a pseudoradicular pattern. Lumbar facet joints may refer pain to the back, buttocks, and lower extremities while cervical facet joints may refer pain to the head, neck and shoulders.

Imaging findings are of little value in determining the source and location of ‘facet joint syndrome’, a term originally used by Ghormley and referring to back pain caused by pathology at the facet joints. Imaging studies may detect changes in facet joint architecture, but correlation between radiologic findings and symptoms is unreliable. Although clinical signs are also unsuitable for diagnosing facet joint-mediated pain, they may be of value in selecting patients for controlled local anesthetic blocks of either the medial branches or the facet joint itself. This is an established tool in diagnosing facet joint syndrome.

The most common source of chronic pain is the spine and about two-thirds of the U.S. population suffers from spinal pain sometime during their life span. Facet joint interventions are used in the treatment of pain in certain patients with a confirmed diagnosis of facet joint pain. Interventions include intraarticular injections and medial branch nerve blocks in the lumbar, cervical and thoracic spine. Prior to performing this procedure, shared decision-making between patient and physician must occur, and patient must understand the procedure and its potential risks and results. Facet joint injections or medial branch nerve blocks require guidance imaging.

INDICATIONS FOR FACET JOINT INJECTIONS OR MEDIAL BRANCH NERVE BLOCKS
• To confirm disabling non-radicular low back (lumbosacral) or neck (cervical) pain, suggestive of facet joint origin as documented in the medical record based upon all of the following:
  − (a) history, consisting of mainly axial or non-radicular pain, and
  − (b) physical examination, with positive provocative signs of facet disease (pain exacerbated by extension and rotation, or associated with lumbar rigidity).
• Lack of evidence, either for discogenic or sacroiliac joint pain; AND
• Lack of disc herniation or evidence of radiculitis; AND
• Intermittent or continuous pain with average pain levels of ≥ 6 on a scale of 0 to 10 or functional disability; AND
• Duration of pain of at least 2 months; AND
• Failure to respond to conservative non-operative therapy management.
• All procedures must be performed using fluoroscopic or CT guidance.

NOTE:
Ultrasound guidance is not a covered benefit and procedure performed using ultrasound guidance are not reimbursable.

FREQUENCY OF FACET BLOCK
• There must be a minimum of 14 days between injections
• There must be a positive response of ≥ 50% pain relief and improved ability to perform previously painful movements
• Maximum of 3 procedures per region every 6 months.
• If the procedures are applied for different regions (cervical and thoracic regions are considered as one region and lumbar and sacral are considered as one region), they may be performed at intervals of no sooner than 2 weeks for most types of procedures.
• Maximum of 3 levels injected on same date of service.
• Radiofrequency Neurolysis procedures should be considered in patients with positive facet blocks (with at least 50% pain relief and ability to perform prior painful movements without any significant pain).

CONTRAINDICATIONS FOR FACET JOINT INJECTIONS
  o History of allergy to contrast administration, local anesthetics, steroids, or other drugs potentially utilized;
  o Hypovolemia;
  o Infection over puncture site;
  o Bleeding disorders or coagulopathy; History of allergy to medications to be administered;
  o Inability to obtain percutaneous access to the target facet joint;
  o Progressive neurological disorder which may be masked by the procedure;
  o Pregnancy;
  o Spinal infection; OR
  o Acute Fracture

ADDITIONAL INFORMATION:

Additional Terminology: Facet Injections; Facet Joint Blocks; Paravertebral Facet Injections; Paravertebral Facet Joint Injections; Paravertebral Facet Joint Nerve Injections; Zygapophyseal injections; Lumbar Facet Blockade; Medial Branch blocks

Conservative Therapy: (musculoskeletal) includes 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. NOTE - conservative therapy can be expanded to require active therapy components (physical therapy and/or physician supervised home exercise) as noted in some elements of the guideline.

Home Exercise Program - (HEP) – the following two elements are required to meet guidelines for completion of conservative therapy:
  o Information provided on exercise prescription/plan AND
  o 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).

REFERENCES:


CPT Codes:
Cervical Thoracic Region: 64633, +64634
Lumbar Sacral Region: 64635, +64636

INTRODUCTION:

Facet joints (also called zygapophysial joints or z-joints), posterior to the vertebral bodies in the spinal column and connecting the vertebral bodies to each other, are located at the junction of the inferior articular process of a more cephalad vertebra and the superior articular process of a more caudal vertebra. These joints provide stability and enable movement, allowing the spine to bend, twist, and extend in different directions. They also restrict hyperextension and hyperflexion.

Facet joints are clinically important spinal pain generators in patients with chronic spinal pain. Pain mediated by the facet joints may be caused by repetitive stress and/or cumulative low-level trauma resulting in osteoarthritis and inflammation.ii In patients with chronic low back pain, facet joints have been implicated as a cause of the pain in 15% to 45% of patients. They are considered as the cause of chronic spinal pain in 48% of patients with thoracic pain and 54% to 67% of patients with chronic neck pain.iii Facet joints may refer pain to adjacent structures, making the underlying diagnosis difficult as referred pain may assume a pseudoradicular pattern. Lumbar facet joints may refer pain to the back, buttocks, and proximal lower extremities while cervical facet joints may refer pain to the head, neck and shoulders.

Imaging findings are of little value in determining the source and location of ‘facet joint syndrome’, a term originally used by Ghormley and referring to back pain caused by pathology at the facet joints. Imaging studies may detect changes in facet joint architecture, but correlation between radiologic findings and symptoms is unreliable. Although clinical signs are also unsuitable for diagnosing facet joint-mediated pain, they may be of value in selecting patients for controlled local anesthetic blocks of either the medial branches or the facet joint itself. This is an established tool in diagnosing facet joint syndrome.

Facet joints are known to be a source of pain with definitive innervations. Interventions used in the treatment of patients with a confirmed diagnosis of facet joint pain include: medial branch nerve blocks in the lumbar, cervical and thoracic spine; and radiofrequency neurolysis (see also additional terminology). The medial branch of the primary dorsal rami of the spinal nerves has been shown to be the primary innervations of facet joints. Substance P, a physiologically potent neuropeptide considered to play a role in the nociceptive transmission of nerve impulses, is found in the nerves within the facet joint.

Radiofrequency neurolysis is a minimally invasive treatment for cervical, thoracic and lumbar facet joint pain. It involves using energy in the radiofrequency range to cause necrosis of specific nerves (medial branches of the dorsal rami), preventing the neural transmission of pain.iv The objective of radiofrequency neurolysis is to both provide relief of pain and reduce the likelihood of recurrence. Used most often for facet joint pain, radiofrequency neurolysis is recently emerging for sacroiliac joint pain. However, it has been shown to have limited evidence in treating sacroiliac joint pain and is considered investigational and not medically necessary.
Members of the American Society of Anesthesiologists (ASA) and the American Society of Regional Anesthesia and Pain Medicine (ASRA) have agreed that conventional or thermal radiofrequency ablation of the medial branch nerves to the facet joint should be performed for neck or low back pain. Radiofrequency neurolysis has been employed for over 30 years to treat facet joint pain. Prior to performing this procedure, shared decision-making between patient and physician must occur, and patient must understand the procedure and its potential risks and results.

**INDICATIONS FOR THERAPEUTIC FOR PARAVERTEREBRAL FACET JOINT DENERVATION (RADIOFREQUENCY NEUROLYSIS)** (local anesthetic block followed by the passage of radiofrequency current to generate heat and coagulate the target medial branch nerve)

- Positive response to controlled local anesthetic blocks of the facet joint, with at least 50% pain relief and ability to perform prior painful movements without significant pain, but with insufficient sustained relief (less than 2-3 months relief); OR
- Positive response to prior radiofrequency neurolysis procedures with at least 50% pain improvement for up to 6 months of relief in past 12 months; AND
- The presence of the following:
  - Lack of evidence that the primary source of pain being treated is from discogenic pain, sacroiliac joint pain, disc herniation or radiculitis;
  - Intermittent or continuous facet-mediated pain [average pain levels of ≥ 6 on a scale of 0 to 10] causing functional disability;
  - Duration of pain of at least 3 months; AND
  - Failure to respond to more conservative non-operative management

**FREQUENCY:**
- Relief typically lasts between 6 and 12 months and sometimes provides relief for greater than 2 years. Repeat radiofrequency denervation is performed for sustained relief up to two and three times.
- Limit to 2 facet neurolysis procedures every 12 months, per region

**CONTRAINDICATIONS FOR PARAVERTEREBRAL FACET JOINT DENERVATION (RADIOFREQUENCY NEUROLYSIS)**

- History of allergy to local anesthetics or other drugs potentially utilized;
- Lumbosacral radicular pain (dorsal root ganglion);
- Conditions/diagnosis for which procedure is used are other than those listed in Indications;
- Absence of positive diagnostic blocks; OR
- For any nerve other than the medial branch nerve.

**ADDITIONAL INFORMATION:**

*Conservative Therapy:* (spine) should include a multimodality approach consisting of a combination of active and inactive components. Inactive components, such as rest, ice, heat, modified activities, medical devices, acupuncture and/or stimulators, medications, injections (epidural, facet, not including trigger point), and diathermy can be utilized. Active modalities may consist of physical therapy, a physician supervised home exercise program**, and/or chiropractic care.

**Home Exercise Program** - (HEP) – the following two elements are required to meet guidelines for completion of conservative therapy:
- Information provided on exercise prescription/plan AND
- Follow up with member with documentation provided regarding completion of HEP 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).

**Terminology:** Paravertebral Facet Joint Denervation, Radiofrequency Neurolysis, Destruction Paravertebral Facet Joint Nerve, Facet Joint Rhizotomy, Facet Neurolysis, Medial Branch Radiofrequency Neurolysis, Medial Branch Radiofrequency Neurotomy or Radiofrequency Denervation.

**REFERENCES:**


INTRODUCTION

This guideline addresses the use of sacroiliac joint injections for the treatment of low back pain that originates in the region of the sacroiliac joint. An injection of anesthetic and/or steroid may be used for the diagnosis and treatment of sacroiliac joint (SIJ) pain syndrome disorders (such as degenerative joint disease, postsurgical injuries, or traumatic injuries), or for treatment of spondyloarthropathy (inflammatory disorders of the joints and ligaments of the spine).

Sacroiliac joint injections are typically used for the following conditions:

Sacroiliac joint pain syndrome may be caused by various events, including pain secondary to postsurgical or traumatic injury, degeneration (wear and tear), or pregnancy. Physical examination (history and physical, provocative maneuvers) and diagnostic injection help to identify the source of pain as the SIJ.

Diagnostic SIJ injections are used to determine if the SIJ pain originates with the SIJ. Diagnostic blocks can reveal (or fail to reveal) that the source of pain is originating from the SIJ, and then an appropriate treatment plan can be developed (Curatolo and Bogduk, 2010; Manchikanti et al., 2013a).

Therapeutic SIJ injections may be used to treat SIJ pain once it has been determined that the SIJ is the origin of the pain. A therapeutic injection typically includes a corticosteroid and a local anesthetic that can be injected directly into the joint (intra-articular) or into the tissues surrounding the joint (periarticular).

Spondyloarthropathy (also known as spondyloarthritis) is the name for a family of rheumatic diseases that cause arthritis. Sacroilitis is a key indicator of spondyloarthritis and is diagnosed with imaging. Patients with spondyloarthropathy are generally managed by rheumatologists and account for only a small percentage of the cases that present in interventional pain management settings.

INDICATIONS FOR SACROILIAC JOINT INJECTIONS (SIJ)

Diagnostic SIJ

- Controlled SIJ injections are indicated for diagnosis of SIJ pain when a diagnosis cannot be made using less invasive options, including physical examination and imaging studies, and when the controlled SIJ injection will support a chosen treatment strategy. All of the following are required:
  - Low back pain maximal below level of L5 persisting at least 3 months: AND
  - Diagnosis remains uncertain following physical examination and imaging studies: AND
  - At least 4-6 weeks of failed conservative treatments including a comprehensive pain management program, with physical therapy, home exercise, patient education, psychosocial support, and/or medication as appropriate.
Therapeutic SJI

- Therapeutic SJI injections are indicated for treatment of SJI pain when **all** of the following criteria have been met:
  - Low back pain maximal below level of L5 persisting at least 3 months; AND
  - Conservative treatment for 4-6 weeks (including physical therapy, home exercise, patient education, psychosocial support, and/or medication) has failed: AND
  - Evidence of a positive response to a prior Diagnostic SJI intra-articular injection (75-100% pain relief) or evidence of a positive response (50% pain relief) to prior therapeutic SJI injections greater than 6 weeks ago

For the treatment of spondyloarthropathy

- **All** of the following must be met:
  - The patient has experienced ≥ 3 months of low back pain; AND
  - Age of onset < 45 years; AND
  - Comprehensive pain management program including physical therapy, home exercise, patient education, psychosocial support and/or oral medication is in place; AND
  - Prior history of evidence of Sacroiliitis imaging (i.e., active inflammation on magnetic resonance imaging [MRI] or definite radiographic sacroiliitis grade > 2 bilaterally or grade 3-4 unilaterally); AND
  - 1 or more spondyloarthropathy features:
    a. Inflammatory back pain with **at least 4** of the following criteria present:
       i. Age at onset < 40 years
       ii. Insidious onset
       iii. Improvement with exercise
       iv. No improvement with rest
       v. Pain at night (with improvement upon getting up)
    b. Arthritis
    c. Enthesitis of the heel (irritability of muscles, tendons, or ligaments where they enter the bone)
    d. Uveitis (inflammation of the uvea, the middle layer of the eye)
    e. Dactylitis (inflammation of a finger or toe)
    f. Psoriasis
    g. Crohn’s/colic
    h. Good response to NSAIDs
    i. Family history of spondyloarthropathy
    j. Positive testing for HLA-B27
    k. Elevated C-reactive protein (CRP)

**FREQUENCY OF REPEAT THERAPEUTIC INJECTIONS**

- SIJ injections may only be repeated if symptoms recur and the patient has had at least a 50% improvement after each injection: AND
- The injections are performed as one part of a comprehensive treatment program, which will nearly always include an exercise program to improve or maintain spinal mobility: AND
- Repeat injections should not be done more frequently than every six weeks for a total of 4 injections in a 12 month period. (Cardone and Tallia, 2002).

**CONTRAINDICATIONS FOR SACROILIAC JOINT INJECTIONS**

- Active systemic infection
• Skin infection at the site of needle puncture
• Bleeding disorder or anticoagulation therapy
• Uncontrolled high blood pressure
• Uncontrolled diabetes
• Unstable angina
• Congestive heart failure
• Allergies to contrast, anesthetics, or steroids (AAOS, 2009)

ADDITIONAL INFORMATION

Conservative Therapy: (musculoskeletal) includes 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.

Home Exercise Program - (HEP) – the following two elements are required to meet guidelines for completion of conservative therapy:
• Information provided on exercise prescription/plan AND
• Follow up with member 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).

Low back pain is one of the most common of all spinal pain problems. According to the Centers for Disease Control and Prevention (CDC), the prevalence of low back pain in adults 18 years of age and older is 28.4% and may range as high as 32.1% in adults ≥ 75 years (CDC, 2012). Symptoms of low back pain may arise from multiple sites, including lumbar intervertebral discs, facet joints, sacroiliac joints, ligaments, fascia, muscles, and nerve root dura. The sacroiliac joint has been shown to be a source of pain in 10% to 27% of chronic low back pain (Hansen et al., 2007; Simopoulos et al., 2012; Manchikanti et al., 2013a).

The sacroiliac joint (SIJ) is located between the sacrum (located at the base of the spine) and the pelvis, and supports the weight of the upper body in the standing position. There are SIJs in both the right and left side of the lower back. Strong ligaments hold the joints in place. The SIJ is well innervated and has been shown to be capable of being a source of low back pain and referred pain in the lower extremity. Low back pain originating from the SIJ can result from inflammatory conditions such as sacroiliitis, spondyloarthropathy (ankylosing spondylitis; rheumatoid spondylitis), or from postsurgical or traumatic injury, degeneration (wear and tear), or pregnancy. SIJ pain most often occurs in the buttocks and lower back, and may radiate down through the buttocks and the leg. Physical examination and radiographic techniques may confirm a diagnosis related to spondyloarthropathy. Physical examination, including provocative maneuvers to elicit pain response, and controlled SIJ injections can help diagnose noninflammatory pain arising from the SIJ (Hansen et al., 2007; Medline Plus, 2012; Mayo Clinic, 2013).

In order to confirm correct placement of the injectable medication into the intra-articular space, fluoroscopic or computed tomography (CT) guidance is used. A periarticular injection into the soft tissue may be used if ligamentous or muscular attachments are suspected to be involved. The goal of the therapeutic injection is to reduce inflammation and/or pain and provide longer pain relief. Long-term relief is generally defined as 6 weeks or longer, but positive responders generally have a
much longer duration of response; serial injections may be required in order to maintain therapeutic effectiveness (Hansen et al., 2007; AAOS, 2009; Luukkanen et al., 2002; Hawkins and Schofferman, 2009).

Spinal injections for the treatment of SIJ pain syndrome are typically performed as one part of a comprehensive treatment program, which will nearly always include an exercise program to improve or maintain spinal mobility. Potential candidates for SIJ injections include those with low back pain originating from the SIJ that is unresponsive to conservative treatments.

Treatment for SIJ pain depends upon the signs and symptoms, as well as the underlying cause for the pain. Medications, such as over-the-counter analgesics, a short course of narcotics, muscle relaxants or tumor necrosis factor (TNF) inhibitors, such as etanercept (Enbrel), adalimumab (Humira), or infliximab (Remicade), may be prescribed. Therapy sessions with a physical therapist involving range-of-motion, stretching, and strengthening exercises may be used to maintain joint flexibility and strengthen the muscles. Other interventional procedures used to treat SIJ pain include corticosteroid injections to reduce inflammation and pain, radiofrequency denervation, electrical stimulation, or in rare cases, joint fusion (Mayo Clinic, 2013).

The indications for coverage for the treatment of spondyloarthropathy have been established through use of the reviewed clinical studies and through criteria developed by the Assessment of SpondyloArthritis International Society (ASAS) for the classification of axial spondyloarthritis (Sieper et al., 2009). They are in keeping with the benefit guidelines developed by the Centers for Medicare & Medicaid Services (CMS).

While evidence supports that SIJ injection is an effective method of determining the source of pain, evidence supporting the efficacy of SIJ in the treatment of SIJ pain syndrome is considerably limited. There are limited controlled or prospective clinical studies to support SIJ injection for therapeutic purposes. Despite the limited quality of the clinical studies supporting SIJ injection for the treatment of SIJ pain, the procedure is recommended by the American Society of Anesthesiologists (ASA) and the American Society of Regional Anesthesia and Pain Management (ASRAPM) Practice Guidelines. The indications for coverage have been established from the 2009 Comprehensive Evidence-Based Guidelines for Interventional Techniques in the Management of Chronic Spinal Pain, and updated with the 2013 An Update of Comprehensive Evidence-Based Guidelines for Interventional Techniques in Chronic Spinal Pain. Part II: Guidance and Recommendations.

REFERENCES


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.

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

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

- b) Revision/Conversion Arthroplasty
  - *Revision/Conversion hip arthroplasty describes surgical reconstruction due to failure or complication of a previous arthroplasty or reconstruction.*

- c) Hemiarthroplasty (Partial Arthroplasty)
  - *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 non-operative care, including rest, activity modification, weight reduction, oral anti-inflammatory medications, physical therapy, gait aides (cane, walking stick, walker, crutches), and injections (corticosteroid, viscosupplementation, PRP [platelet-rich plasma]).
3. Are associated with typical objective findings on physical exam, including reduced hip flexion and rotation, positive impingement testing, crepitus, hip flexion contracture, antalgic gait limp.
4. Are associated with radiographic or chondral changes consistent with significant arthritis, including joint space narrowing, subchondral sclerosis, subchondral cysts, and osteophytes (radiographs); joint space narrowing, subchondral bone marrow edema, loss of articular cartilage, effusion, subchondral and paralabral cysts, and osteophytes (MRI).

**CLINICAL INDICATIONS:**

**A. Total Hip Arthroplasty (THA)/Resurfacing**
This guideline breaks out the criteria for total hip arthroplasty (THA) and hip resurfacing procedures.

**Total Hip Arthroplasty (THA):**

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

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

  OR

- When ALL of the following criteria are met:
  - 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
  - 6 months of non-operative treatment* have failed to improve symptoms; AND
  - Physical exam has typical findings of hip pathology as evidenced by one or more of the following:
    - Painful, limited range of motion or antalgic gait, or
    - Contracture, or
    - Crepitus, or
    - Leg length difference; AND
  - Imaging demonstrates advanced hip joint arthritis of at least **Kellgren-Lawrence grade 3-4 or ***Tönnis grade 2 or 3:

- Relative Contraindications:
  - Metal allergy (dependent upon implant choice)
  - Chronic renal insufficiency (due to metal ions circulating and potential renal toxicity)

- Absolute Contraindications:
  - Local or remove 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:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No radiographic features of osteoarthritis</td>
</tr>
<tr>
<td>I</td>
<td>Possible joint space narrowing and osteophyte formation</td>
</tr>
<tr>
<td>II</td>
<td>Definite osteophyte formation with possible joint space narrowing</td>
</tr>
<tr>
<td>III</td>
<td>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)</td>
</tr>
<tr>
<td>IV</td>
<td>Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour (increased deformity of the femoral head and acetabulum)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No signs of osteoarthritis</td>
</tr>
<tr>
<td>1</td>
<td>Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity</td>
</tr>
</tbody>
</table>
2 Moderate: Small cysts, moderate narrowing of the joint space, moderate loss of head sphericity
3 Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

**Hip Resurfacing Arthroplasty:**

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

Hip resurfacing arthroplasty may be considered medically necessary when the following criteria are met:

- 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
- 6 months of non-operative treatment* have failed to improve symptoms; AND
- Physical exam has typical findings of hip pathology as evidenced by one or more of the following:
  - Painful, limited range of motion or antalgic gait, or
  - Contracture, or
  - Crepitus, or
  - Leg length difference; AND
- 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
- Male patient is less than 65 years old, or female patient is less than 55 years old; AND
- BMI less than 40; AND
- Patient does not have evidence of any of the following contraindications:
  - Osteoporosis or osteopenia (DEXA scan bone mineral density evaluation)
  - 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
  - Cystic degeneration at the junction of the femoral head and neck on radiographs or MRI or CT
  - Malignancy at the proximal femur
  - Current or recent hip infection, or sepsis
  - Female of child-bearing age (due to metal ions circulating in blood with potential risk to fetus)
  - Chronic renal insufficiency (due to metal ions circulating and potential renal toxicity)
  - Metal allergy

- Relative Contraindications:
  - Osteoporosis or osteopenia (DEXA scan bone mineral density evaluation)
- Absolute Contraindications:
  - Local or remove active infection
o Female of child-bearing age (due to metal ions circulating in blood with potential risk to fetus)

**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 (*some sclerosis and cyst formation and deformity of femoral head and acetabulum*)
- 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***
- 0 No signs of osteoarthritis
- 1 Mild: Increased sclerosis, slight narrowing of the joint space, no or slight loss of head sphericity
- 2 Moderate: Small cysts, moderate narrowing of the joint space, moderate loss of head sphericity
- 3 Severe: Large cysts, severe narrowing or obliteration of the joint space, severe deformity of the head

B. Hip Revision/Conversion Arthroplasty

Hip Revision/Conversion Arthroplasty may be considered medically necessary when a previous hip reconstruction meets the following criteria:
- Extensive disease or damage due to fracture, malignancy, osteolysis, or other bone or soft-tissue reactive or destructive process confirmed by 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*
- Infected joint confirmed by synovial fluid aspiration (cell count and/or culture); OR
- All of the following are present:
  - Symptomatic hip arthroplasty where patient has persistent, severe disabling pain and loss of function for > 6 months; AND
  - Unstable joint upon physical exam; AND
  - 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

Additional Information:

*Non-operative management may include one or more of the following modalities:*
- Rest or activity modifications/limitations;
- Weight reduction for patient with elevated BMI;
- Protected weight-bearing with cane, walker or crutches;
- Physical therapy modalities;
- Supervised home exercise;
- Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;
Injections: cortisone, viscosupplementation, PRP (platelet-rich plasma)

REFERENCES


Hawker, Gillian A., et al. "Which patients are most likely to benefit from total joint arthroplasty?." *Arthritis & Rheumatism* 65.5 (2013): 1243-1252.


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.

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

d) Diagnostic arthroscopy
e) Femoroacetabular Impingement (FAI)
   • Labral Repair Only
   • CAM, Pincer, CAM & Pincer combined
f) Synovectomy, Biopsy, or Removal of Loose or Foreign Body
g) Chondroplasty or abrasion for Chondral injuries, chondromalacia
h) Extra-articular (Endoscopic) Hip Surgery

CLINICAL INDICATIONS:

C. Diagnostic Hip Arthroscopy

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

D. Femoroacetabular Impingement (FAI)

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.

Labral Repair

Arthroscopic labral repair may be medically necessary when ALL of the following criteria are met:

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

**NOTE:** Arthroscopy of the hip for acetabular labral or repair is considered not medically necessary in the presence of significant hip joint arthritis (Tönnis 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
- Tönnis angle >15 degrees; OR
- Femoral head extrusion index >25%

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:
- Positional hip pain for at least 6 weeks not improved with conservative, non-operative care*; AND
- Positive impingement sign on physical exam (hip or groin pain with flexion, adduction and internal rotation; or extension and external rotation); AND
- One of the following radiograph, CT and/or MRI findings of FAI:
  - Nonspherical femoral head or prominent head-neck junction (pistol-grip deformity) with alpha angle >55 degrees indicating CAM impingement; OR
  - Overhang of the anterolateral rim of the acetabulum, posterior wall sign, prominent ischial spine sign, acetabular protrusion, or retroversion with a center edge (CE) angle >35° and/or cross-over sign indicating pincer deformity; OR
  - Combination of CAM and pincer criteria; AND
- No evidence of significant hip joint arthritis; AND
- Skeletally mature patient, AND
- Under age < 50 years old; AND
- BMI < 40; AND
- Radiographic images show no evidence of ANY of the following indicators for hip dysplasia:
  - Lateral center edge angle <20°; OR
  - Anterior center edge angle <20°; OR
  - Tönnis angle >15°; OR
  - 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 (Tönnis grade II or greater)**, the skeletally immature patient (open proximal femoral physis), age > 50 years, or BMI > 40. Requests meeting any of these criteria will be reviewed on a case by case basis.
E. 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:
  - Hip pain associated with grinding, catching, locking, or popping for at least 12 weeks not improved with conservative, non-operative care*; AND
  - Physical exam finding confirms painful hip with limited range of hip motion; AND
  - Radiographs, CT and/or MRI with synovial proliferation, calcifications, nodularity, inflammation, pannus, loose body

F. Shaving or debridement of articular cartilage (chondroplasty), and/or abrasion arthroplasty

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.

All requests will be considered and decided on a case-by-case basis.

G. 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 iliopsopectineal eminence or anterior inferior iliac spine, external snapping hip (external coxa saltans, snapping iliotibial band, iliotibial band at greater trochanter). May also include proximal hamstring endoscopy for partial tear of proximal hamstring with or without bursitis or proximal hamstring, sciatic neurolisis, 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.)

- Activity related painful snapping sensation around the hip joint caused by the iliobibial 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
• 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
• At least 6 months of non-operative care* that may include activity modification, supervised physical therapy, NSAIDS, and/or corticosteroid injection; AND
• Physical exam findings align with patient symptoms and have at least one or more of the following:
  o Limp or painful ambulation
  o Tenderness and/or crepitus to palpation
  o Visible, audible, or palpable snapping at the greater trochanter or pelvic brim
  o Pain and/or weakness with active or resisted motion of the hip
  o Pain relief with diagnostic local anesthetic injection

Additional Information:

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

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

Additional Notes:
• A very high prevalence of abnormal radiographs is found in asymptomatic patients.
  o 33% of asymptomatic hips have a cam
  o 66% of asymptomatic hips have a pincer
  o 68% of asymptomatic hips have a labral tear
• FAI and labral tears are precursors to hip arthritis
• Dysplasia is precursor to hip arthritis
• Arthroscopy is never indicated for treatment of osteoarthritis within the hip
• Rarely (if ever) arthroscopy for dysplasia

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CPT Codes: 27446, 27447, 27486, 27487, 27488, 27438

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.

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.

a) Total Knee Arthroplasty (TKA)
b) Unicompartmental Knee Arthroplasty (UKA)
c) Revision Arthroplasty

A. Total Knee Arthroplasty (TKA)
Total Knee Arthroplasty (TKA) describes reconstruction of all articular joint surfaces. TKA may be considered medically necessary for treatment of the following knee joint pathology:

- Extensive disease or damage due to rheumatoid arthritis, fracture, or avascular necrosis confirmed by imaging (radiographs, MRI or other advanced imaging); AND
- Patient has pain and documented loss of function (no indication to perform TKA in patient with severe disease and no symptoms);

OR

When ALL of the following criteria are met:
- 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
- At least 6 months of non-operative care* that has failed to improve symptoms. Non-operative care should include at least two or more of the following:
  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) Brace/orthesis;
  h) Injections: cortisone/viscosupplementation/PRP (platelet rich plasma); AND
- 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
• Radiographic findings show evidence of bicipartmental or tricompartmental advanced arthritic changes, documented by weight-bearing radiographs described as Kellgren-Lawrence (K-L)** stage III or stage IV degeneration

NOTE:
• All requests for simultaneous bilateral total knee replacements will be reviewed on a case by case basis.
• All requests for TKA in patients with chronic, *painless* effusion and extensive radiographic arthritis 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

**Contraindications**:
- Absolute contraindication:
  - Active infection (local or remote)

- Relative contraindication: Any of the following:
  - 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.
  - Extreme morbid obesity (BMI > 40)
  - Extensor mechanism deficiency
  - Neuropathic joint
  - Severe peripheral vascular disease
  - Compromised soft tissue envelope
  - 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.

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 6 months of non-operative care that has failed to improve symptoms. *Non-operative care should include at least two or more of the following:
  - Rest or activity modifications/limitations;
  - Weight optimization;
  - Protected weight-bearing with cane, walker or crutches;
  - Physical therapy modalities;
  - Supervised home exercise;
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics;
g) Brace/orthosis;

h) 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
- Age > 50 years; AND
- Radiographic findings demonstrate only unicompartmental disease (with or without patellofemoral involvement) with evidence of degeneration equal to K-L* Grade 3 or 4; AND
- Contracture < 5-10 degrees upon physical exam (goniometer); AND
- Angular deformity < 10 passively correctable to neutral upon physical exam (goniometer); AND
- BMI < 40

NOTE:
- All requests for UKA in patients with chronic, *painless* effusion and extensive radiographic arthritis 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

**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

**Contraindications:**

- 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.

Revision TKA may be considered medically necessary when the following criteria are met:
- Previous UKA/PKA or TKA joint: AND
- Infection ruled out by synovial fluid aspiration/biospy (cell count and/or culture) AND off antibiotics; OR
- When ALL of the following criteria are met:
  - Symptomatic UKA/PKA or TKA as evidence by persistent, severe disabling pain and loss of function; AND
  - 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
  - Aseptic loosening, osteolysis confirmed on radiographic or advanced imaging (nuclear medicine bone scan, CT scan, MRI)

**Contraindications:**
- Absolute contraindication:
  - Local or systemic active infection
- Relative contraindication: Any of the following:
  - Deficiency of the extensor mechanism
  - Neuropathic joint
  - Unstable or poorly controlled comorbidities
  - Severe peripheral vascular disease
  - 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)

**Non-Covered Services:**
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:
- Procedures utilizing computer-navigated or patient-specific or gender-specific instrumentation
- Bicompartmental arthroplasty (investigational at this time)
- Robot-assisted TKA (Makoplasty)

**Other issues:**
- Manipulation following total knee arthroplasty:
  - Nonsurgical treatment is initial treatment
  - However, manipulation is indicated if within 3 months from time of primary arthroplasty if physical therapy is unable to improve motion to satisfactory degree
    - If cause of arthrofibrosis/stiffness is due to technical error (component malpositioning or inappropriate sizing), then surgical revision arthroplasty is indicated
    - If cause of arthrofibrosis/stiffness is due to adhesions/capsular contraction, then either arthroscopic or open lysis of adhesions is indicated
- 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, 29885, 29889, 27412, 27415, 27416, 27418, 27420, 27422, 27424, 27425, 29866, 29867, 29870, 29873, 29874, 29875, 29876, 29877, 29878, 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 fiberoptic 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 extraarticular 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.

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

   d) Diagnostic knee arthroscopy
   e) Debridement with or without chondroplasty
   f) Meniscectomy/meniscal repair
   g) Ligament reconstruction/repair
      i. Anterior cruciate ligament (ACL) reconstruction
      ii. Posterior cruciate ligament (PCL) reconstruction
      iii. Collateral ligament repair
   h) Articular cartilage restoration/repair:
      i. Marrow stimulating techniques (microfracture, drilling, abrasion chondroplasty, augmented marrow-stimulation [BioCartilage])
      ii. Restorative techniques (osteochondral autograft transfer system (OATS), mosaicplasty, autologous chondrocyte implantation (ACI), osteochondral allograft implantation, minced articular cartilage allograft transplantation [DeNovo NT])
      i) Synovectomy (major [2+ compartments], minor [1 compartment])
   j) Loose body removal
   k) Lateral release\patellar realignment
   l) Manipulation under anesthesia (MUA)
   m) 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:
- Rest or activity modifications/limitations;
- Ice/heat;
- Protected weight bearing;
- Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
- Brace/orthosis;
- Physical therapy modalities;
- Supervised home exercise;
- Weight optimization;
- Injections: cortisone, viscosupplementation, platelet rich plasma (PRP)

**Kellgren-Lawrence Grading System:**
- Grade 0: No radiographic features of osteoarthritis
- Grade I: Doubtful joint space narrowing and possible osteophytic lipping
- Grade II: Definite osteophyte formation with possible joint space narrowing on anteroposterior weight-bearing radiograph
- Grade III: Multiple osteophytes, definite narrowing of joint space, some sclerosis and possible bony deformity
- Grade IV: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite bony deformity

***Outerbridge Arthroscopic Grading System***
- Grade 0 Normal cartilage
- Grade I Softening and swelling/blistering
- Grade II Partial thickness defect, fissures < 1.5cm diameter/wide
- Grade III Fissures /defects down to subchondral bone with intact calcified cartilage layer, diameter > 1.5cm
- Grade IV Exposed subchondral bone

****The International Cartilage Research Society (ICRS)****
- Grade 0 Normal cartilage
- Grade I Nearly normal. Superficial lesions.
  A. Soft indentation
  B. And/or superficial fissures and cracks
- Grade II Abnormal. Lesions extending down to <50% of cartilage depth
- 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
- 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

**CLINICAL INDICATIONS:**

A. **Diagnostic Knee Arthroscopy**

Diagnostic knee arthroscopy may be medically necessary when ALL of the following criteria are met:
- 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
- At least 12 weeks of non-operative care* that has failed to improve symptoms; AND
- Clinical documentation of painful weight bearing, joint line tenderness, effusion and/or limited motion compared to presymptomatic joint range; AND
- Indeterminate radiographs AND MRI findings.

B. Debridement with or without Chondroplasty
Debridement may be medically necessary when ALL of the following criteria are met:
- 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)); AND
- At least 12 weeks of non-operative care* that has failed to improve symptoms; AND
- MRI results showing evidence of unstable chondral flap; AND
- Recurrent (more than 2) or persistent effusion(s)
  OR
- 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
- At least 6 weeks of supervised or self-directed physical therapy that has failed to improve symptoms.
  OR
- Debridement chondroplasty for patellofemoral chondrosis when ALL of the following criteria are met:
  o 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
  o Other extra-articular or intra-articular sources of pain or dysfunction have been excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma); AND
  o Physical exam localizes tenderness to the patellofemoral joint with pain aggravated by activities that load the joint (single leg squat, ascending >descending stairs, and being in seated position for extended periods of time with knee flexed); AND
  o Imaging (radiographs, MRI, or CT to measure tibial tubercle—trochlear groove distance)
  o At least 12 weeks of non-operative care has failed to improve symptoms; AND
  o 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.

C. Meniscectomy/Meniscal Repair
Meniscectomy and/or meniscal repair may be medically necessary when the following criteria are met:
• Symptomatic meniscal tear confirmed by MRI results that show a peripheral longitudinal tear in a vascular zone, associated with pain and mechanical symptoms upon physical exam:
  
  OR

• Pediatric or adolescent patient has pain and mechanical symptoms upon physical exam; AND
• MRI results show unstable tear;
  
  OR

• When at least 3 of the following 5 criteria are met:
  1. History of "catching" or "locking" as reported by the patient;
  2. Knee joint line pain with forced hyperextension upon physical exam;
  3. Knee joint line pain with maximum flexion upon physical exam;
  4. Knee pain or an audible click with McMurray's maneuver upon physical exam;
  5. Joint line tenderness to palpation upon physical exam; AND

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

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

• Meniscus tear encountered during other medically necessary arthroscopic procedure

**Absolute Contraindications**

• Arthroscopic meniscectomy or meniscal repair is never medically necessary in the presence of Kellgren-Lawrence Grade 4 osteoarthritis.

**Relative Contraindications**

• 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).
• 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.
• BMI > 35

**D. Ligament Reconstruction/Repair**

**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:

• Knee instability (as defined subjectively as "giving way", "giving out", "buckling", two-fist sign) with clinical findings of instability: Lachman’s 1A, 1B, 2A, 2B, 3A, 3B, Anterior Drawer, or Pivot Shift, instrumented (KT-1000 or KT-2000) laxity of greater than 3 mm side-side difference; AND
• MRI results confirm complete ACL tear; AND
• Patient has no evidence of severe arthritis (Kellgren-Lawrence** Grade 3 or 4)

OR

• When ONE of the following criteria are met:
  o MRI results confirm ACL tear associated with other ligamentous instability or repairable meniscus; OR
  o MRI results confirm partial or complete ACL tear AND patient has persistent symptoms despite at least 12 weeks of non-operative care*; OR
  o 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
    o Patient has no evidence of severe arthritis (Kellgren-Lawrence** Grade 3 or 4)

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

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

- 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
- MRI results confirm complete PCL tear: AND
- Failed non-operative care (bracing in full extension successful in acute PCL tears): AND
- Absence of medial and patellofemoral K-L grade 3-4 changes in chronic tears:
  OR
  - The following clinical scenarios will be considered and decided on a case-by-case basis:
    o pediatric and adolescent tears in patients with open physes or open growth plates
    o symptomatic partial tears with persistent instability despite non-operative care
    o incidental Kellgren-Lawrence Grade 2-3 osteoarthritis in acute/subacute tears with unstable joint

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

**Collateral Ligament Repair or Reconstruction:**
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.

**E. Articular Cartilage Restoration/Repair**

**Skeletally Immature Indications:**

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

OR

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

OR

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

AND

• 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.

Skeletally Mature Indications, Listed By Surgical Approach:

• 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:
  o Skeletally mature adult; AND
  o MRI confirms a full-thickness weight-bearing lesion that is < 2.5 sq.cm; AND
  o Patient is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion); AND
  o Patient is less than 50 years of age; AND
  o BMI < 35 (optimal outcomes if patient BMI <30); AND
  o Physical exam findings and/or (imaging) results confirm knee has stable ligaments; AND
  o No evidence of prior meniscectomy in same compartment (medial femoral condyle full thickness lesion and prior medial meniscectomy) unless concurrent meniscal transplant performed.

OR

• 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:
  o Skeletally mature adult: AND
MRI results confirm a full thickness chondral or osteochondral lesion of the femoral condyles or trochlea > 2.5 cm; AND
Patient is less than 50 years of age; AND
Patient has been symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion) for at least 6 months; AND
At least 6 months of non-operative care* has failed to improve symptoms; AND
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
BMI < 35 (optimal outcomes if patient BMI <30); AND
MRI shows no evidence of significant osteoarthritis (greater than Kellgren-Lawrence Grade 2); AND
No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)

OR

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:

- 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
- Other extra-articular or intra-articular sources of pain or dysfunction have been excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma); AND
- 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
- Radiologic imaging shows patellofemoral chondrosis graded 3 or 4 by the Outerbridge Classification*** or ICRS**** (grade 3-4) classification
- At least 6 months of non-operative care has failed to improve symptoms; AND
- No evidence of osteoarthritis (Kellgren-Lawrence** Grade 3-4 based on standing or weight-bearing radiographs ) in the medial/lateral compartments.

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

Synovectomy may be medically necessary when ALL of the following criteria are met:

- Proliferative rheumatoid synovium (in patients with established rheumatoid arthritis according to the American College of Rheumatology Guidelines); AND
- 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
• At least one instance of aspiration of joint effusion and cortisone injection (if no evidence of infection):

**OR**

• Hemarthrosis from injury, coagulopathy or bleeding disorder confirmed by physical exam, joint aspiration, and/or MRI:

**OR**

• Proliferative pigmented villonodular synovitis, synovial chondromatosis, sarcoid synovitis, or similar proliferative synovial disease, traumatic hypertrophic synovitis confirmed by history, MRI or biopsy; AND
• At least 6 weeks of non-operative care* that has failed to improve symptoms; AND
• At least one instance of aspiration of joint effusion and injection of cortisone (if no evidence of infection):

**OR**

• Detection of painful plica confirmed by physical exam and MRI findings; AND
• At least 12 weeks of non-operative care* that has failed to improve symptoms.
• At least one instance of aspiration of joint effusion OR single injection of cortisone (effusion may not be present with symptomatic plica):

**G. Loose Body Removal**

Loose body removal may be medically necessary when the following criteria are met:

- 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)).

**H. 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.

Surgical intervention for the treatment of **lateral patellar compression syndrome** is indicated when the following criteria are met:

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

- 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
- Repeat (greater than 2) patellar dislocations or subluxations have occurred despite 6 months of non-operative care* with radiologic confirmation of MPFL (medial patellofemoral ligament) deficiency; OR
- Physical exam has patellofemoral tenderness and abnormal articulation of the patella in the femoral trochlear groove (patellar apprehension with positive J sign); AND
- Radiologic images rule out fracture or loose body, and show abnormal articulation, troclear dysplasia, or other abnormality related to malalignment; AND
- CT scan or MRI rules out other abnormality to malalignment (tibial tubercle-trochlear groove (TT-TG) distance > 20 millimeters); AND
- At least 6 months of non-operative care* has failed to improve symptoms

I. **Manipulation under Anesthesia (MUA)**
Manipulation under anesthesia (MUA) may be indicated when the following criteria are met:

- Physical exam findings demonstrate inadequate range of motion of the knee defined as less than 105 degrees of flexion; AND
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy; AND
- Patient is **less than 12 weeks** after ligamentous or joint reconstruction.

J. **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.

- Physical exam findings demonstrate inadequate range of motion of the knee, defined as less than 105 degrees of flexion; AND
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy; AND
- Patient is **more than 12 weeks** after ligamentous or joint reconstruction, or resolved infection; OR
- Patient is **more than 12 weeks** after trauma, or resolved infection; AND
- Patient has native knee; AND
- Manipulation under anesthesia is also performed
REFERENCES


All guidelines reviewed between January and November 2015.

Reviewed/Approved by Michael Pentecost, MD, Chief Medical Officer