AIM Clinical Appropriateness Guidelines are regularly reviewed and updated. The following document has an effective date of April 15, 2013. It is made available with the following notice:

- These guidelines apply only to diagnostic imaging cases adjudicated on or after April 15, 2013. Guidelines in effect until April 14, 2013, can be found on the AIM website at www.aimspecialtyhealth.com.

- This document includes only those guidelines that have been revised, with language that differs from the current guidelines. A complete guidelines document listing all indications will be available on the AIM website on the future effective date of April 15, 2013.
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CPT CODES

72125 ..................CT of cervical spine, without contrast
72126 ..................CT of cervical spine, with contrast
72127 ..................CT of cervical spine, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Entire cervical spine (C1-C7), from the craniocervical junction through the T1 vertebra.
- Axial images are routinely obtained, with capability for coronal and sagittal reconstructions.

IMAGING CONSIDERATIONS

- Radiation exposure should be considered when ordering this exam. Please see the patient safety link above for additional information regarding radiation exposure and possible alternatives specific to this exam.
- MRI is the modality of choice for most cervical spine imaging indications, unless contraindicated or not tolerated by the patient (for example, secondary to claustrophobia).
- CT is the preferred technique for certain clinical scenarios such as suspected fracture, follow-up of known fracture, osseous tumor evaluation and congenital vertebral defects, as well as procedures such as cervical spine CT myelography.
- Do not use CT cervical spine for imaging of the soft tissues of the neck. See CPT codes 70490-70492 CT soft tissue neck for this service.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for cervical spine CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

MRI is the preferred modality for most cervical spine imaging, except for a few indications which include CT evaluation of bony abnormalities (such as suspected fracture or fracture follow-up; osseous tumor assessment; developmental vertebral abnormalities) and CT myelography.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

FRACTURE EVALUATION

- Following initial evaluation with radiographs

SIGNIFICANT ACUTE TRAUMA TO THE CERVICAL SPINE REGION

POST-MYELOGRAM CT OR CT FOLLOWING OTHER CERVICAL SPINE INTERVENTIONAL PROCEDURE

POST-TRAUMA

- Neurologic deficit with possible spinal cord injury
- Progressively worsening pain
COMMON DIAGNOSTIC INDICATIONS

WHEN THE PATIENT’S CONDITION MEETS THE CERVICAL SPINE MRI GUIDELINES, BUT THERE IS EITHER A CONTRAINDICATION TO MRI OR THE PATIENT CANNOT TOLERATE MRI EXAMINATION (FOR EXAMPLE, DUE TO CLAUSTROPHOBIA).

For most other indications, MRI is the preferred modality for advanced cervical spine imaging, unless contraindicated.

NON-SPECIFIC NECK PAIN
- In a patient where focused history and physical exam suggest non-specific cervical pain and/or referred upper extremity pain and all of the following are met:
  - Patient is a potential candidate for surgery or epidural steroid injection; **AND**
  - Patient has, following clinical examination, completed a minimum of 3-4 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
    - NSAIDs
    - Muscle relaxants
    - Steroids
    - Physical therapy; **AND**
  - After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; **OR**
- In the pediatric population, pain in the cervical spine region may not require completion of the 3-4 week course of conservative treatment; **OR**
- Neck pain not meeting the above criteria but associated with “red flag” symptoms such as unexplained weight loss, history of malignant disease, fever, abnormal serum electrophoresis suggestive of multiple myeloma, history of drug abuse or tuberculosis

NECK PAIN WITH SIGNS OF COMPRESSION
- In a patient with neck or radicular pain and neurologic findings related to the cervical spine such as:
  - Reflex abnormality
  - Objective muscle weakness
  - Objective sensory abnormality in the cervical dermatome distribution
  - Spasticity

MULTIPLE SCLEROSIS AND OTHER WHITE-MATTER DISEASES, WHEN MRI IS CONTRAINDICATED OR NOT TOLERATED
- Initial diagnosis; **OR**
- Periodic scans to assess asymptomatic progression in multiple sclerosis during the course of disease; **OR**
- Tracking the progress of multiple sclerosis to establish a prognosis or evaluation of response to treatment; **OR**
- To evaluate changes in neurologic signs and symptoms

MYELOPATHY

SPINAL CORD INFARCT

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION

*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*

INFECTIOUS PROCESS
- Including but not limited to the following:
  - Abscess
  - Osteomyelitis
  - Discitis
COMMON DIAGNOSTIC INDICATIONS

SPONDYLOARTHROPATHIES

Note: Including but not limited to: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, spondyloarthritis associated with inflammatory bowel disease, juvenile-onset spondyloarthritis

- For diagnosis following non-diagnostic work-up including but not limited to:
  - Radiographs
  - Standard laboratory work-up for spondyloarthritis

RHEUMATOID ARTHRITIS

- For suspected cervical subluxation in a patient with confirmed rheumatoid arthritis

TUMOR EVALUATION

- Including but not limited to the following:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread within the spinal canal
  - Spinal cord neoplasm

ARNOLD CHIARI MALFORMATION

CONGENITAL SPINE ANOMALIES

- Cervical spine dysraphism and other congenital anomalies involving the cervical spine and/or spinal cord
- Congenital vertebral defects for assessment of bony defects such as segmentation and fusion anomalies

SYRINGOHYDROMYELIA (SYRINX)

SEVERE SCOLIOSIS, FOR THE FOLLOWING PATIENT POPULATIONS:

- In patients with a high risk for neural axis abnormalities, such as infantile and juvenile idiopathic scoliosis and congenital scoliosis; OR
- With adolescent idiopathic scoliosis and atypical findings (pain, rapid progression, development of neurologic signs/symptoms); OR
- With scoliosis related to other pathologic processes such as neurofibromatosis; OR
- For pre-operative evaluation of severe scoliosis

Note: For pediatric patients, who may require imaging of significant portions of the spine or the entire spine, MRI should be considered to minimize radiation exposure
Magnetic Resonance Imaging (MRI)
Cervical Spine

CPT CODES

72141 ..................MRI of cervical spine, without contrast
72142 ..................MRI of cervical spine, with contrast
72156 ..................MRI of cervical spine, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Entire cervical spine (C1-C7), from the craniocervical junction through the T1 vertebra.
- Axial images are routinely obtained, with capability for coronal and sagittal reconstructions.

IMAGING CONSIDERATIONS

- For most cervical spine abnormalities, MRI is the examination of choice.
- CT of the cervical spine is often reserved for suspected fracture, follow-up of a known fracture, osseous tumor evaluation, congenital vertebral defects and procedures such as cervical spine CT myelography.
- In most other clinical situations, MRI is the preferred modality for cervical spine imaging, unless contraindicated [due to pacemaker, implantable cardioverter-defibrillator (ICD), and other non-compatible devices unsafe for use in an MRI scanner] or not tolerated by the patient (usually secondary to claustrophobia).
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Authorization requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for cervical spine MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

Unless contraindicated, MRI is the preferred modality for most cervical spine imaging, except for a few indications which include CT evaluation of bony abnormalities (such as suspected fracture or fracture follow-up; osseous tumor assessment; developmental vertebral abnormalities) and CT myelography.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

NON-SPECIFIC NECK PAIN

- In a patient where focused history and physical exam suggest non-specific cervical pain and/or referred upper extremity pain and all of the following are met:
  - Patient is a potential candidate for surgery or epidural steroid injection; AND
  - Patient has, following clinical examination, completed a minimum of 3-4 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
    - NSAIDs
    - Muscle relaxants
    - Steroids
    - Physical therapy; AND
  - After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; OR
- In the pediatric population, pain in the cervical spine region may not require completion of the 3-4 week course of conservative treatment; OR
- Neck pain not meeting the above criteria but associated with “red flag” symptoms such as unexplained weight loss, history of malignant disease, fever, abnormal serum electrophoresis suggestive of multiple myeloma, history of drug abuse or tuberculosis
COMMON DIAGNOSTIC INDICATIONS

NECK PAIN WITH SIGNS OF COMPRESSION
- In a patient with neck or radicular pain and neurologic findings related to the cervical spine such as:
  - Reflex abnormality
  - Objective muscle weakness
  - Objective sensory abnormality in the cervical dermatome distribution
  - Spasticity

MYELOPATHY

SPINAL CORD INFARCT

MULTIPLE SCLEROSIS AND OTHER WHITE-MATTER DISEASES
- Initial diagnosis; OR
- Periodic scans to assess asymptomatic progression in multiple sclerosis during the course of disease; OR
- Tracking the progress of multiple sclerosis to establish a prognosis or evaluation of response to treatment; OR
- To evaluate changes in neurologic signs and symptoms

INFECTIONOUS PROCESS
- Including but not limited to the following:
  - Abscess
  - Osteomyelitis
  - Discitis

SPONDYLOARTHRITOPATHIES
*Note: Including but not limited to: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, spondyloarthritis associated with inflammatory bowel disease, juvenile-onset spondyloarthritis*
- For diagnosis following non-diagnostic work-up including but not limited to:
  - Radiographs
  - Standard laboratory work-up for spondyloarthritis

RHEUMATOID ARTHRITIS
- For suspected cervical subluxation in a patient with confirmed rheumatoid arthritis

TUMOR EVALUATION
- Including but not limited to the following:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread within the spinal canal
  - Spinal cord neoplasm

FRACTURE EVALUATION
- Following initial evaluation with radiographs

SIGNIFICANT ACUTE TRAUMA TO THE CERVICAL SPINE REGION

POST-TRAUMA
- Neurologic deficit with possible spinal cord injury
- Progressively worsening pain

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION
*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*
COMMON DIAGNOSTIC INDICATIONS

ARNOLD CHIARI MALFORMATION

SYRINGOHYDROMYELIA (SYRINX)

SEVERE SCOLIOSIS, FOR THE FOLLOWING PATIENT POPULATIONS:
- In patients with a high risk for neural axis abnormalities, such as infantile and juvenile idiopathic scoliosis and congenital scoliosis; OR
- With adolescent idiopathic scoliosis and atypical findings (pain, rapid progression, development of neurologic signs/symptoms); OR
- With scoliosis related to other pathologic processes such as neurofibromatosis; OR
- For pre-operative evaluation of severe scoliosis

CONGENITAL SPINE ANOMALIES
- Cervical spine dysraphism and other congenital anomalies involving the cervical spine and/or spinal cord
- Congenital vertebral defects for assessment of bony defects such as segmentation and fusion anomalies
Computed Tomography (CT)
Thoracic Spine

CPT CODES

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>72128</td>
<td>CT of thoracic spine, without contrast</td>
</tr>
<tr>
<td>72129</td>
<td>CT of thoracic spine, with contrast</td>
</tr>
<tr>
<td>72130</td>
<td>CT of thoracic spine, without contrast, followed by re-imaging with contrast</td>
</tr>
</tbody>
</table>

STANDARD ANATOMIC COVERAGE

- Entire thoracic spine (T1-T12), from the cervicothoracic region through the thoracolumbar junction
- Axial images are routinely obtained, with capability for coronal and sagittal reconstructions

IMAGING CONSIDERATIONS

- Radiation exposure should be considered when ordering this exam. Please see the patient safety link above for additional information regarding radiation exposure and possible alternatives specific to this exam.
- Advanced diagnostic imaging of the thoracic spine is indicated in selected clinical scenarios and is performed significantly less often than in the lumbar and cervical regions.
- MRI is the modality of choice for most thoracic spine imaging indications, unless contraindicated or not tolerated by the patient (for example, secondary to claustrophobia).
- CT is the preferred technique for certain clinical scenarios such as suspected fracture, osseous tumor evaluation, congenital vertebral defects and interventional procedures such as CT myelography.
- Authorization request for re-imaging, due to technically limited exams, is the responsibility of the imaging provider.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for thoracic spine CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

MRI is the preferred modality for most thoracic spine imaging, except for a few indications which include CT evaluation of bony abnormalities (such as suspected fracture or fracture follow-up; occasional osseous tumor assessment; developmental vertebral abnormalities) and CT myelography.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

FRACTURE EVALUATION
- Following initial evaluation with radiographs

POST-TRAUMA
- Neurologic deficit with possible spinal cord injury
- Progressively worsening pain

POST-MYELOGRAM CT OR CT FOLLOWING OTHER THORACIC SPINE INTERVENTIONAL PROCEDURE

WHEN THE PATIENT’S CONDITION MEETS THE THORACIC SPINE MRI GUIDELINES, BUT THERE IS EITHER A CONTRAINDICATION TO MRI OR THE PATIENT CANNOT TOLERATE MRI EXAMINATION (FOR EXAMPLE, DUE TO CLAUSTROPHOBIA).
COMMON DIAGNOSTIC INDICATIONS

For most other indications, MRI is the preferred modality for advanced thoracic spine imaging, unless contraindicated.

NON-SPECIFIC MID-BACK PAIN

- In a patient where focused history and physical exam suggest non-specific thoracic pain and/or referred posterior chest pain and all of the following are met:
  - Patient is a potential candidate for surgery or epidural steroid injection; **AND**
  - Patient has, following clinical examination, completed a minimum of 4-6 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
    - NSAIDs
    - Muscle relaxants
    - Steroids
    - Physical therapy; **AND**
  - After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; **OR**
- In the pediatric population, pain in the thoracic spine region may not require completion of the 4-6 week course of conservative treatment; **OR**
- Mid-back pain not meeting the above criteria but associated with “red flag” symptoms such as unexplained weight loss, history of malignant disease, fever, abnormal serum electrophoresis suggestive of multiple myeloma, history of drug abuse or tuberculosis

MID-BACK PAIN WITH SIGNS OF COMPRESSION

- In a patient with mid-back or radicular pain and neurologic findings related to the thoracic spine such as:
  - Reflex abnormality
  - Objective muscle weakness
  - Objective sensory abnormality in the thoracic dermatome distribution
  - Spasticity

MULTIPLE SCLEROSIS AND OTHER WHITE-MATTER DISEASES, WHEN MRI IS CONTRAINDICATED OR NOT TOLERATED

- Initial diagnosis; **OR**
- Periodic scans to assess asymptomatic progression in multiple sclerosis during the course of disease; **OR**
- Tracking the progress of multiple sclerosis to establish a prognosis or evaluation of response to treatment; **OR**
- To evaluate changes in neurologic signs and symptoms

MYELOPATHY

SPINAL CORD INFARCT

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION

*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*

INFECTIOUS PROCESS

- Including but not limited to the following:
  - Abscess
  - Osteomyelitis
  - Discitis
COMMON DIAGNOSTIC INDICATIONS

SPONDYLOARTHROPATHIES
Note: Including but not limited to: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, spondyloarthritis associated with inflammatory bowel disease, juvenile-onset spondyloarthritis

- For diagnosis following non-diagnostic work-up including but not limited to:
  - Radiographs
  - Standard laboratory work-up for spondyloarthritis

TUMOR EVALUATION
- Including but not limited to the following:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread within the spinal canal
  - Spinal cord neoplasm

CONGENITAL SPINE ANOMALIES
- Thoracic spine dysraphism and other congenital anomalies involving the thoracic spine and/or spinal cord
- Congenital vertebral defects for assessment of bony defects such as segmentation and fusion anomalies

SYRINGOHYDROMYELIA (SYRINX)

SEVERE SCOLIOSIS, INCLUDING THE FOLLOWING PATIENT POPULATIONS:
- In patients with a high risk for neural axis abnormalities, such as infantile and juvenile idiopathic scoliosis and congenital scoliosis; OR
- With adolescent idiopathic scoliosis and atypical findings (pain, rapid progression, development of neurologic signs/symptoms); OR
- With scoliosis related to other pathologic processes such as neurofibromatosis; OR
- For pre-operative evaluation of severe scoliosis

Note: For pediatric patients, who may require imaging of significant portions of the spine or the entire spine, MRI should be considered to minimize radiation exposure
Magnetic Resonance Imaging (MRI)

Thoracic Spine

CPT CODES

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>72146</td>
<td>MRI of thoracic spine, without contrast</td>
</tr>
<tr>
<td>72147</td>
<td>MRI of thoracic spine, with contrast</td>
</tr>
<tr>
<td>72157</td>
<td>MRI of thoracic spine, without contrast, followed by re-imaging with contrast</td>
</tr>
</tbody>
</table>

STANDARD ANATOMIC COVERAGE

- Entire thoracic spine (T1-T12), from the cervicothoracic region through the thoracolumbar junction.
- Imaging planes generally include sagittal and axial/oblique axial (parallel with the disc spaces) views.

IMAGING CONSIDERATIONS

- Advanced imaging of the thoracic spine is indicated in selected clinical scenarios and is performed significantly less often than in the cervical and lumbar regions.
- CT is the preferred technique for certain indications, including fracture detection, follow-up of a known fracture, osseous tumor assessment, congenital vertebral defects and for interventional procedures, such as CT myelography.
- In most other clinical situations, MRI is the modality of choice for thoracic spine imaging, unless contraindicated or not tolerated by the patient (for example, secondary to claustrophobia).
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for thoracic spine MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

Unless contraindicated, MRI is the preferred modality for most thoracic spine imaging, except for a few indications which include CT evaluation of bony abnormalities (such as suspected fracture or fracture follow-up; occasional osseous tumor assessment; developmental vertebral abnormalities) and CT myelography.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

NON-SPECIFIC MID-BACK PAIN

- In a patient where focused history and physical exam suggest non-specific thoracic pain and/or referred posterior chest pain and all of the following are met:
  - Patient is a potential candidate for surgery or epidural steroid injection; AND
  - Patient has, following clinical examination, completed a minimum of 4-6 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
    - NSAIDs
    - Muscle relaxants
    - Steroids
    - Physical therapy; AND
  - After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; OR
- In the pediatric population, pain in the thoracic spine region may not require completion of the 4-6 week course of conservative treatment; OR
- Mid-back pain not meeting the above criteria but associated with “red flag” symptoms such as unexplained weight loss, history of malignant disease, fever, abnormal serum electrophoresis suggestive of multiple myeloma, history of drug abuse or tuberculosis
COMMON DIAGNOSTIC INDICATIONS

MID-BACK PAIN WITH SIGNS OF COMPRESSION
- In a patient with mid-back or radicular pain and neurologic findings related to the thoracic spine such as:
  - Reflex abnormality
  - Objective muscle weakness
  - Objective sensory abnormality in the thoracic dermatome distribution
  - Spasticity

MULTIPLE SCLEROSIS AND OTHER WHITE-MATTER DISEASES
- Initial diagnosis; OR
- Periodic scans to assess asymptomatic progression in multiple sclerosis during the course of disease; OR
- Tracking the progress of multiple sclerosis to establish a prognosis or evaluation of response to treatment; OR
- To evaluate changes in neurologic signs and symptoms

MYELOPATHY

SPINAL CORD INFARCT

INFECTIONOUS PROCESS
- Including but not limited to the following:
  - Abscess
  - Osteomyelitis
  - Discitis

SPONDYLOARTHROPATHIES
*Note: Including but not limited to: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, spondyloarthritis associated with inflammatory bowel disease, juvenile-onset spondyloarthritis*
- For diagnosis following non-diagnostic work-up including but not limited to:
  - Radiographs
  - Standard laboratory work-up for spondyloarthritis

TUMOR EVALUATION
- Including but not limited to the following:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread within the spinal canal
  - Spinal cord neoplasm

FRACTURE EVALUATION
- Following initial evaluation with radiographs

POST-TRAUMA
- Neurologic deficit with possible spinal cord injury
- Progressively worsening pain

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION
*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*

SEVERE SCOLIOSIS, FOR THE FOLLOWING PATIENT POPULATIONS:
- In patients with a high risk for neural axis abnormalities, such as infantile and juvenile idiopathic scoliosis and congenital scoliosis; OR
- With adolescent idiopathic scoliosis and atypical findings (pain, rapid progression, development of neurologic signs/symptoms); OR
- With scoliosis related to other pathologic processes such as neurofibromatosis; OR
- For pre-operative evaluation of severe scoliosis
COMMON DIAGNOSTIC INDICATIONS

CONGENITAL SPINE ANOMALIES

- Thoracic spine dysraphism and other congenital anomalies involving the thoracic spine and/or spinal cord
- Congenital vertebral defects for assessment of bony defects such as segmentation and fusion anomalies

SYRINGOHYDROMYELIA (SYRINX)
Computed Tomography (CT)
Lumbar Spine

Click Here to learn more about patient safety and estimated radiation dose for this examination.

CPT CODES

- 72131 .............. CT of lumbar spine, without contrast
- 72132 .............. CT of lumbar spine, with contrast
- 72133 .............. CT of lumbar spine, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Entire lumbar spine (L1-L5), from the thoracolumbar region through the lumbosacral junction.
- Axial images are routinely obtained, with capability for coronal and sagittal reconstructions

IMAGING CONSIDERATIONS

- Radiation exposure should be considered when ordering this exam. Please see the patient safety link above for additional information regarding radiation exposure and possible alternatives specific to this exam.
- CT of the lumbar spine is often reserved for suspected fracture, follow-up of a known fracture, skeletal abnormalities such as spondylolysis and spondylolisthesis in operative candidates, congenital vertebral defects, osseous tumor evaluation, and procedures such as lumbar CT myelography.
- For most other lumbar spine abnormalities, MRI is the modality of choice, unless contraindicated or not tolerated by the patient (for example, secondary to claustrophobia).
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for lumbar spine CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

MRI is the preferred modality for most lumbar spine advanced imaging, except for a few indications which include CT evaluation of bony abnormalities (such as suspected fracture or fracture follow-up; skeletal abnormalities such as spondylolysis and spondylolisthesis in operative candidates; osseous tumor assessment; developmental vertebral abnormalities) as well as lumbar CT myelography.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

FRACTURE EVALUATION
- Following initial evaluation with radiographs

POST-TRAUMA
- Neurologic deficit with possible spinal cord injury
- Progressively worsening pain

POST-MYELOGRAM CT OR CT FOLLOWING OTHER LUMBAR SPINE INTERVENTIONAL PROCEDURE

SPONDYLOLYSIS AND SPONDYLOLISTHESIS
- Following non-diagnostic or abnormal lumbar spine radiographs (including oblique views) which require additional clarification to direct treatment in an operative candidate
COMMON DIAGNOSTIC INDICATIONS

WHEN THE PATIENT’S CONDITION MEETS THE LUMBAR SPINE MRI GUIDELINES, BUT THERE IS EITHER A CONTRAINDICATION TO MRI OR THE PATIENT CANNOT TOLERATE MRI EXAMINATION (FOR EXAMPLE, DUE TO CLAUSTROPHOBIA).

For most other indications, MRI is the preferred modality for advanced lumbar spine imaging, unless contraindicated.

NON-SPECIFIC LOW BACK PAIN

● In a patient where focused history and physical exam suggest non-specific lumbar pain and/or referred buttock or lower extremity pain and all of the following are met:
  ○ Patient is a potential candidate for surgery or epidural steroid injection; AND
  ○ Patient has, following clinical examination, completed a minimum of 4-6 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
    ■ NSAIDs
    ■ Muscle relaxants
    ■ Steroids
    ■ Physical therapy; AND
  ○ After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; OR

● In the pediatric population, pain in the lumbar spine region may not require completion of the 4-6 week course of conservative treatment; OR

● Low back pain not meeting the above criteria but associated with “red flag” symptoms such as unexplained weight loss, history of malignant disease, fever, abnormal serum electrophoresis suggestive of multiple myeloma, history of drug abuse or tuberculosis

LOW BACK PAIN WITH SIGNS OF COMPRESSION

● In a patient with low back or radicular pain and neurologic findings related to the lumbar spine such as:
  ○ Reflex abnormality
  ○ Objective muscle weakness
  ○ Objective sensory abnormality in the lumbar dermatome distribution
  ○ Spasticity

MYELOPATHY INVOLVING THE LOWER SPINAL CORD

SPINAL CORD INFARCT

CAUDA EQUINA SYNDROME

INFECTIONOUS PROCESS

● Including but not limited to the following:
  ○ Abscess
  ○ Arachnoiditis
  ○ Discitis
  ○ Osteomyelitis

SPONDYLOARTHRITIDES

Note: Including but not limited to: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, spondyloarthritis associated with inflammatory bowel disease, juvenile-onset spondyloarthritis

● For diagnosis following non-diagnostic work-up including but not limited to:
  ○ Radiographs
  ○ Standard laboratory work-up for spondyloarthritis
COMMON DIAGNOSTIC INDICATIONS

TUMOR EVALUATION

- Including but not limited to the following:
  - Primary or metastatic neoplasm involving the vertebrae
  - Tumor spread within the spinal canal
  - Spinal cord neoplasm

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION

Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.

SEVERE SCOLIOSIS, INCLUDING THE FOLLOWING PATIENT POPULATIONS:

- With high risk for neural axis abnormalities, such as infantile and juvenile idiopathic scoliosis and congenital scoliosis; OR
- With adolescent idiopathic scoliosis and atypical findings (pain, rapid progression, development of neurologic signs/symptoms); OR
- With scoliosis related to other pathologic processes, such as neurofibromatosis; OR
- For pre-operative evaluation of severe scoliosis

Note: For pediatric patients, who may require imaging of significant portions of the spine or the entire spine, MRI should be considered to minimize radiation exposure

CONGENITAL SPINE ANOMALIES

- Lumbar spine dysraphism and other congenital anomalies involving the lumbar spine and/or lower spinal cord (Conus Medullaris), filum terminale or nerve roots, when MRI is contraindicated
- Congenital vertebral defects for assessment of bony defects such as segmentation and fusion anomalies

TETHERED CORD
Magnetic Resonance Imaging (MRI)

Lumbar Spine

CPT CODES

72148 MRI of lumbar spine, without contrast
72149 MRI of lumbar spine, with contrast
72158 MRI of lumbar spine, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Entire lumbar spine (L1-L5), from the thoracolumbar region through the lumbosacral junction.
- Imaging planes generally include sagittal and axial/oblique axial (parallel with disc spaces) views.

IMAGING CONSIDERATIONS

- For most other lumbar spine abnormalities, MRI is the modality of choice, unless contraindicated or not tolerated by the patient (for example, secondary to claustrophobia).
- Lumbar spine CT is often reserved for suspected fracture, follow-up of a known fracture, skeletal abnormalities such as spondyloysis and spondylolisthesis in operative candidates, congenital vertebral defects, osseous tumor evaluation, and procedures such as lumbar CT myelography.
- For the majority of patients with acute low back pain, symptoms and/or physical exam findings will improve or resolve during a trial of conservative treatment and diagnostic imaging is not necessary.
- The spinal cord normally ends at L1-L2, which is seen on thoracic MRI. If the conus medullaris is not seen on thoracic spine imaging, the spinal cord is presumed to be tethered and lumbar MRI is appropriate.
- Definitive diagnosis is not achieved in as many as 85% of patients with low back pain.
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for lumbar spine MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

Unless contraindicated, MRI is the preferred modality for most lumbar spine advanced imaging, except for a few indications which include CT evaluation of bony abnormalities (such as suspected fracture or fracture follow-up; skeletal abnormalities including spondylolisthesis in operative candidates; osseous tumor assessment; and developmental vertebral abnormalities) as well as CT myelography.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

NON-SPECIFIC LOW BACK PAIN

- In a patient where focused history and physical exam suggest non-specific lumbar pain and/or referred buttock or lower extremity pain and all of the following are met:
  - Patient is a potential candidate for surgery or epidural steroid injection; **AND**
  - Patient has, following clinical examination, completed a minimum of 4-6 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
    - NSAIDs
    - Muscle relaxants
    - Steroids
    - Physical therapy; **AND**
COMMON DIAGNOSTIC INDICATIONS

○ After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; OR
● In the pediatric population, pain in the lumbar spine region may not require completion of the 4-6 week course of conservative treatment; OR
● Low back pain not meeting the above criteria but associated with “red flag” symptoms such as unexplained weight loss, history of malignant disease, fever, abnormal serum electrophoresis suggestive of multiple myeloma, history of drug abuse or tuberculosis

LOW BACK PAIN WITH SIGNS OF COMPRESSION

● In a patient with low back or radicular pain and neurologic findings related to the lumbar spine such as:
  ○ Reflex abnormality
  ○ Objective muscle weakness
  ○ Objective sensory abnormality in the lumbar dermatome distribution
  ○ Spasticity

MYELOPATHY INVOLVING THE LOWER SPINAL CORD

SPINAL CORD INFARCT

CAUDA EQUINA SYNDROME

INFECTIONOUS PROCESS

● Including but not limited to the following:
  ○ Abscess
  ○ Arachnoiditis
  ○ Discitis
  ○ Osteomyelitis

SPONDYLOARTHRITIDES

Note: Including but not limited to: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, spondyloarthritis associated with inflammatory bowel disease, juvenile-onset spondyloarthritis

● For diagnosis following non-diagnostic work-up including but not limited to:
  ○ Radiographs
  ○ Standard laboratory work-up for spondyloarthritis

TUMOR EVALUATION

● Including but not limited to the following:
  ○ Primary or metastatic neoplasm involving the vertebrae
  ○ Tumor spread within the spinal canal
  ○ Spinal cord neoplasm

FRACTURE EVALUATION

● Following initial evaluation with radiographs

POST-TRAUMA

● Neurologic deficit with possible spinal cord injury
● Progressively worsening pain

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR POST-PROCEDURE EVALUATION

Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.
COMMON DIAGNOSTIC INDICATIONS

SPONDYLOLYSIS AND SPONDYLOLISTHESIS

● Following non-diagnostic or abnormal lumbar spine radiographs (including oblique views) which require additional clarification to direct treatment, in an operative candidate

SEVERE SCOLIOSIS, FOR THE FOLLOWING PATIENT POPULATIONS:

● In patients with a high risk for neural axis abnormalities, such as infantile and juvenile idiopathic scoliosis and congenital scoliosis; **OR**
● With adolescent idiopathic scoliosis and atypical findings (pain, rapid progression, development of neurologic signs/symptoms); **OR**
● With scoliosis related to other pathologic processes such as neurofibromatosis; **OR**
● For pre-operative evaluation of severe scoliosis

CONGENITAL SPINE ANOMALIES

● Lumbar spine dysraphism and other congenital anomalies involving the lumbar spine and/or lower spinal cord (conus medullaris), filum terminale or nerve roots
● Congenital vertebral defects for assessment of bony defects such as segmentation and fusion anomalies

TETHERED CORD


Computed Tomography (CT)
Upper Extremity

Click Here to learn more about patient safety and estimated radiation dose for this examination.

CPT CODES

73200 ................. CT upper extremity, without contrast
73201 ................. CT upper extremity, with contrast
73202 ................. CT upper extremity, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Scan coverage depends on the specific clinical indication for the exam and varies considerably, based on anatomic considerations (from shoulder through fingers) and clinical manifestations.
- Depending on the protocol used, the CT data acquisition(s) may allow for diagnostic multi-planar reconstructions through the region of interest.

IMAGING CONSIDERATIONS

- Radiation exposure should be considered when ordering this exam. Please see the patient safety link above for additional information regarding radiation exposure and possible alternatives specific to this exam.
- Conventional radiographs should be obtained before advanced imaging.
- CT is often the preferred modality for evaluation of displaced fractures and subluxations, whereas stress fractures and some incomplete and non-displaced fractures may be better imaged with MRI or radionuclide bone scintigraphy.
- If radiographic findings are typical of osteomyelitis, advanced imaging may not be necessary.
- In osteomyelitis, CT may be helpful in defining bone sequestra.
- For evaluation of musculoskeletal tumors, MRI is generally preferred over CT, unless there is a contraindication to performance of an MRI exam.
- Use of contrast (intravenous or intra-articular for CT arthrogram) is at the discretion of both the ordering and imaging physicians.
- A complete CT of the upper extremity includes imaging of the entire arm. When imaging is requested for the right and left extremity, a maximum of two CT exams is allowed.
- Brachial plexus imaging: MRI, when not contraindicated, is the preferred imaging modality for brachial plexus. The brachial plexus is a network of nerves in the neck, passing under the clavicle and into the axilla. Assign either a CT or MRI of the upper extremity for imaging the brachial plexus.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for upper extremity CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

INFECTIOUS PROCESS

- In a patient where focused history and physical exam suggest an underlying soft tissue infection when:
  - Patient is unresponsive to treatment including but not limited to antibiotics or incision/drainage
- Abscess - to determine the location and extent for surgical treatment
- Osteomyelitis – following non-diagnostic radiographs
COMMON DIAGNOSTIC INDICATIONS

SEPTIC ARTHRITIS
● When any of the following risk factors are present:
  ○ Underlying joint disease
  ○ Joint prosthesis
  ○ IV drug abuse
  ○ Diabetes
  ○ Presence of cutaneous ulcers; OR
● Pre-operative planning

TUMOR EVALUATION: PRIMARY NEOPLASM OR METASTATIC DISEASE
● Palpable mass on physical exam:
  ○ Following non-diagnostic ultrasound or radiographs; OR
  ○ Increasing in size since discovery; OR
  ○ Greater than 5cm in size; OR
  ○ Below the deep fascia; OR
  ○ Painful without sign of infection or inflammatory change
● Biopsy-proven malignancy
● When MRI is contraindicated or when evaluating osseous involvement by tumor

SIGNIFICANT TRAUMA
● Usually preceded by initial plain film radiographs

FRACTURE EVALUATION
● To confirm a suspected (occult) fracture following initial radiographs; OR
● To define the extent of an acute fracture and position of fracture fragments; OR
● To assess fracture healing for delayed union or non-union

NEUROPATHIC OSTEODYSTROPHY (CHARCOT JOINT)
● Following conventional radiographs, when there is need for additional diagnostic information from a CT exam to direct treatment decisions (such as concern for an underlying infectious process)

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR POST-PROCEDURE EVALUATION
Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.

CHRONIC SHOULDER PAIN
● In a patient where focused history and physical exam suggest non-specific upper extremity pain, rotator cuff tendinopathy, adhesive capsulitis or subacromial impingement syndrome; AND
● Following non-diagnostic conventional radiographs; AND
● Patient has completed a minimum of six (6) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  ○ Physical therapy (home exercise only if physical therapy is not available); AND
● After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

OSTEONECROSIS [AVASCULAR NECROSIS (AVN); ASEPTIC NECROSIS]
● Requires initial plain films, prior to advanced imaging
● MRI is often the preferred imaging modality, particularly for evaluation in the early stages of osteonecrosis
● Common anatomic locations for osteonecrosis in the upper extremity are:
  ○ Humeral head
  ○ Radial head
  ○ Carpal navicular bone
  ○ Lunate bone (lunate osteonecrosis also referred to as Kienbock’s disease)
COMMON DIAGNOSTIC INDICATIONS

INTRA-ARTICULAR LOOSE BODY, INCLUDING SYNOVIAL OSTEOCHONDROMATOSIS

CT ACCOMPANYING AN ARTHROGRAM (CT ARTHROGRAPHY)

HEMARTHROSIS (BLOODY JOINT EFFUSION), DOCUMENTED BY ARTHROCENESIS

WHEN THE PATIENT'S CONDITION MEETS THE UPPER EXTREMITY MRI GUIDELINES, BUT THERE IS EITHER A CONTRAINDICATION TO MRI OR THE PATIENT CANNOT TOLERATE MRI EXAMINATION (FOR EXAMPLE, DUE TO CLAUSTROPHOBIA)
CPT CODES

73221 ..............MRI upper extremity, any joint, without contrast
73222 ..............MRI upper extremity, any joint, with contrast
73223 ..............MRI upper extremity, any joint, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Scan coverage depends on the specific clinical indication for the exam and varies considerably, based on anatomic (from shoulder joint through hand/digits) and clinical considerations.
- MRI routinely provides multi-planar imaging through the region of interest.

IMAGING CONSIDERATIONS

- Conventional radiographs should be obtained before advanced imaging.
- Use of contrast (intravenous or intra-articular) is at the discretion of both the ordering and imaging physicians.
- CT is often the preferred modality for evaluation of displaced fractures and subluxations, whereas stress fractures and some incomplete and non-displaced fractures may be better imaged with MRI or radionuclide bone scintigraphy.
- MRI is used more often to evaluate internal derangements of the joints and related tendinous, ligamentous and cartilaginous structures.
- MRI is also useful for evaluation of possible osteomyelitis, despite negative or non-diagnostic plain films and/or triple-phase bone scintigraphy. One exception for osteomyelitis is detection of bone sequestra, which may be better depicted with CT.
- If radiographic findings are typical of osteomyelitis, advanced imaging may not be necessary.
- For evaluation of musculoskeletal tumors, MRI is generally preferred over CT, unless there is a contraindication to performance of an MRI exam.
- For suspected osteonecrosis, MRI is often more sensitive than CT and bone scintigraphy.
- Implanted surgical hardware, including joint prostheses, may produce sufficient local artifact to preclude adequate imaging through the region containing hardware.
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.
- When a request is received for a MR arthrogram of the shoulder, enter CPT codes 73221, MRI upper extremity, any joint. Do not enter the MR Angiography (MRA) CPT code 73225.
- When requested, a code for an MRI of the upper extremity, any joint, may be entered for each major joint area of the arm.
  - Shoulder
  - Elbow
  - Wrist
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for upper extremity MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information. This section contains:

- General Indications for Upper Extremity MRI in Joint Evaluation
- Additional Indications for Shoulder Joint
- Additional Indications for Elbow Imaging
- Additional Indications for Wrist and Hand Imaging

General Indications for Upper Extremity MRI in Joint Evaluation

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT
COMMON DIAGNOSTIC INDICATIONS

SIGNIFICANT TRAUMA
- Usually preceded by initial plain film radiographs

FRACTURE EVALUATION
- To confirm a suspected (occult) fracture following initial radiographs; OR
- To define the extent of an acute fracture; OR
- To assess fracture healing for delayed union or non-union

NEUROPATHIC OSTEODYSTROPHY (CHARCOT JOINT)
- Following conventional radiographs, when there is need for additional diagnostic information from an MRI exam to direct treatment decisions (such as concern for an underlying infectious process)

LIGAMENT AND TENDON INJURIES
- In a patient following a focused history and physical exam; AND
- Patient has completed a minimum of six (6) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited:
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

OSTEONECROSIS [AVASCULAR NECROSIS (AVN); ASEPTIC NECROSIS]
- Requires initial plain films, prior to advanced imaging
- Common anatomic locations for osteonecrosis in the upper extremity are:
  - Humeral head
  - Radial head
  - Carpal navicular bone
  - Lunate bone (lunate osteonecrosis also referred to as Kienbock's disease)

OSTEOCHONDROAL LESION

INTRA-ARTICULAR LOOSE BODY, INCLUDING SYNOVIAL OSTEOCHONDROMATOSIS

MRI ACCOMPANYING AN ARTHROGRAM (MR ARTHROGRAPHY)

HEMARTHROSIS (BLOODY JOINT EFFUSION), DOCUMENTED BY ARTHROCENTESIS

INFECTIOUS PROCESSES
- In a patient where focused history and physical exam suggest a underlying soft tissue infection when:
  - Patient is unresponsive to treatment including but not limited to antibiotics or incision/drainage
- Abscess – to determine the location and extent for surgical treatment
- Osteomyelitis – following non-diagnostic radiographs

SEPTIC ARTHRITIS
- When any of the following risk factors are present:
  - Underlying joint disease
  - Joint prosthesis
  - IV drug abuse
  - Diabetes
  - Presence of cutaneous ulcers; OR
  - Pre-operative planning

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION

Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.
COMMON DIAGNOSTIC INDICATIONS

TUMOR EVALUATION: PRIMARY NEOPLASM OR METASTATIC DISEASE
- Palpable mass on physical exam:
  - Following non-diagnostic ultrasound or radiographs; OR
  - Increasing in size since discovery; OR
  - Greater than 5cm in size; OR
  - Below the deep fascia; OR
  - Painful without sign of infection or inflammatory change
- Biopsy-proven malignancy

EMG PROVEN ENTRAPMENT NEUROPATHY AFTER CONSERVATIVE THERAPY TO DIRECT TREATMENT
- Suspected entrapment neuropathy, cubital tunnel detail, and/or carpal tunnel are not considered medically necessary

Additional Indications for the Shoulder Joint

CHRONIC SHOULDER PAIN
- In a patient where focused history and physical exam suggest non-specific upper extremity pain, rotator cuff tendinopathy, adhesive capsulitis or subacromial impingement syndrome; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of six (6) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

ACUTE ROTATOR CUFF TEAR
- Patient is a candidate for surgery; AND
- Exam suggests an acute full thickness traumatic tear in an otherwise normal rotator cuff, findings include but are not limited to:
  - Painful arc sign
  - Drop arm sign
  - Weakness in external rotation
  - Non-diagnostic ultrasound
  - Atrophy of the shoulder girdle

GLENOID LABRAL TEAR

OTHER GLENOID LABRAL AND ASSOCIATED LIGAMENTOUS LESIONS
- Including but not limited to the following:
  - Bankart lesion
  - Bankart variation lesions
  - ALPSA (Anterior Labroligamentous Periosteal Sleeve Avulsion) lesion
  - HAGL (Humeral Avulsion of the Inferior Glenohumeral Ligament) lesion
  - SLAP (Superior Labral tear from Anterior to Posterior) tear/lesion

SUSPECTED OCCULT SHOULDER FRACTURE
- With high clinical suspicion and negative or inconclusive shoulder radiographs

Additional Indications for Elbow Imaging

EPICONDYLITIS
Note: Epicondylitis is generally considered a clinical diagnosis and imaging usually does not change management
Specialist evaluation should be strongly considered prior to advanced imaging
- In a patient following a focused history and physical exam; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of twelve (12) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to any of the following:
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation
COMMON DIAGNOSTIC INDICATIONS

BICEPS TENDON RUPTURE
  ● At insertion onto radial tuberosity

TRICEPS TENDON RUPTURE
  ● From olecranon insertion site

MEDIAL COLLATERAL LIGAMENT TEAR

PRE-OPERATIVE ASSESSMENT HETEROTOPIC OSSIFICATION

CAPITELLAR OSTEOCHONDritis

SUSPECTED OCCULT ELBOW FRACTURE
  ● With high clinical suspicion and negative or inconclusive elbow radiographs

Additional Indications for Wrist and Hand Imaging

TRIANGULAR FIBROCARTILAGE COMPLEX (TFCC) TEAR

SCAPHOID FRACTURE

ULNAR COLLATERAL LIGAMENT TEAR (GAMEKEEPER’S THUMB)
Magnetic Resonance Imaging (MRI)
Upper Extremity (Non-Joint)

CPT CODES

73218 .............MRI upper extremity, non-joint, without contrast
73219 .............MRI upper extremity, non-joint, with contrast
73220 .............MRI upper extremity, non-joint, without contrast, followed by re-imaging with contrast

STANDARD ANATOMIC COVERAGE

- Scan coverage depends on the specific clinical indication for the exam and varies considerably, based on anatomic (from shoulder joint through hand/digits) and clinical considerations.
- MRI routinely provides multi-planar imaging through the region of interest.

IMAGING CONSIDERATIONS

- Conventional radiographs should be obtained before advanced imaging.
- CT is often the preferred modality for evaluation of displaced fractures and subluxations, whereas stress fractures and some incomplete or non-displaced fractures may be better imaged with MRI or radionuclide bone scintigraphy.
- MRI is often the preferred modality for evaluation of soft tissue abnormalities and for interrogation of possible osteomyelitis, despite negative or non-diagnostic plain films and/or triple-phase bone scintigraphy. One exception for osteomyelitis is detection of bone sequestra, which may be better depicted with CT.
- If radiographic findings are typical of osteomyelitis, advanced diagnostic imaging may not be necessary.
- Use of contrast is at the discretion of both the ordering and imaging physicians.
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.
- When requested, a code for a MRI of the upper extremity, non-joint may be entered for each major area of the arm.
  - Upper arm
  - Lower arm (forearm)
  - Hand
- Brachial Plexus Imaging: MRI, when not contraindicated is the preferred imaging modality for brachial plexus. The brachial plexus is a network of nerves in the neck, passing under the clavicle and into the axilla. Assign either a CT or MRI of the upper extremity (non-joint) for imaging the brachial plexus.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for upper extremity MRI (non-joint) are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

INFECTIOUS PROCESS

- In a patient where focused history and physical exam suggest an underlying soft tissue infection when:
  - Patient is unresponsive to treatment including but not limited to antibiotics or incision/drainage
  - Abscess - to determine the location and extent for surgical treatment
  - Osteomyelitis – following non-diagnostic radiographs
COMMON DIAGNOSTIC INDICATIONS

SEPTIC ARTHRITIS
- When any of the following risk factors are present:
  - Underlying joint disease
  - Joint prosthesis
  - IV drug abuse
  - Diabetes
  - Presence of cutaneous ulcers; OR
- Pre-operative planning

MYOSITIS
- To determine optimal location for biopsy; OR
- To monitor treatment response

TUMOR EVALUATION: PRIMARY NEOPLASM OR METASTATIC DISEASE
- Palpable mass on physical exam:
  - Following non-diagnostic ultrasound or radiographs; OR
  - Increasing in size since discovery; OR
  - Greater than 5cm in size; OR
  - Below the deep fascia; OR
  - Painful without sign of infection or inflammatory change
- Biopsy-proven malignancy

SIGNIFICANT TRAUMA
- Usually preceded by initial plain film radiographs

FRACTURE EVALUATION
- To confirm a suspected (occult) fracture following initial radiographs; OR
- To define the extent of an acute fracture; OR
- To assess fracture healing for delayed union or non-union

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION
Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.

PERSISTENT UPPER EXTREMITY PAIN – UNRESPONSIVE TO SIX (6) WEEKS OF CONSERVATIVE TREATMENT
Note: For suspicion of specific etiology, please refer to corresponding indication
- In a patient where focused history and physical exam suggest non-specific upper extremity pain; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of six (6) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  - NSAIDs or steroids (oral or injection) – unless contraindicated; OR
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

EMG PROVEN ENTRAPMENT NEUROPATHY AFTER CONSERVATIVE THERAPY TO DIRECT TREATMENT
- Suspected entrapment neuropathy, cubital tunnel detail, and/or carpal tunnel are not considered medically necessary

BRACHIAL Plexopathy

BRACHIAL PLEXUS MASS

ULNAR COLLATERAL LIGAMENT TEAR (GAMEKEEPER’S THUMB)
### Bibliography


41. Margaretten ME, Kohlkes J, Moore D, Bent S. Does this adult patient have septic arthritis? JAMA. 2007;297(13):1478-88. PMID:17405973
CPT CODES

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<tr>
<th>CPT Code</th>
<th>Description</th>
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<td>73700</td>
<td>CT lower extremity without contrast</td>
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<tr>
<td>73701</td>
<td>CT lower extremity with contrast</td>
</tr>
<tr>
<td>73702</td>
<td>CT lower extremity without contrast, followed by re-imaging with contrast</td>
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STANDARD ANATOMIC COVERAGE

- Scan coverage depends on the anatomic area of concern and varies considerably, based on anatomic (from hip through toes) and clinical considerations.
- Depending on the protocol used, the CT data acquisition(s) may allow for diagnostic multi-planar reconstructions through the region of interest.

IMAGING CONSIDERATIONS

- Radiation exposure should be considered when ordering this exam. Please see the patient safety link above for additional information regarding radiation exposure and possible alternatives specific to this exam.
- Conventional radiographs should be obtained before advanced imaging.
- CT is often the preferred modality for evaluation of displaced fractures and subluxations, whereas stress fractures and some incomplete and non-displaced fractures may be better imaged with MRI or radionuclide bone scintigraphy.
- If radiographic findings are typical of osteomyelitis, advanced imaging may not be necessary.
- In osteomyelitis, CT may be helpful in defining bony sequestra.
- Use of contrast (intravenous and intra-articular) is at the discretion of both the ordering and imaging physicians.
- A complete CT of the lower extremity includes imaging of the entire leg. When imaging is requested for the right and left extremity, a maximum of two CT exams is allowed.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATION

The following diagnostic indications for lower extremity CT are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information.

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

INFECTIOUS PROCESS

- In a patient where focused history and physical exam suggest an underlying soft tissue infection when:
  - Patient is unresponsive to treatment including but not limited to antibiotics or incision/drainage
- Abscess - to determine the location and extent for surgical treatment
- Osteomyelitis – following non-diagnostic radiographs

SEPTIC ARTHRITIS

- When any of the following risk factors are present:
  - Underlying joint disease
  - Joint prosthesis
  - IV drug abuse
  - Diabetes
  - Presence of cutaneous ulcers; OR
- Pre-operative planning

Click Here to learn more about patient safety and estimated radiation dose for this examination.
COMMON DIAGNOSTIC INDICATIONS

TUMOR EVALUATION: PRIMARY NEOPLASM OR METASTATIC DISEASE

- Palpable mass on physical exam:
  - Following non-diagnostic ultrasound or radiographs; OR
  - Increasing in size since discovery; OR
  - Greater than 5cm in size; OR
  - Below the deep fascia; OR
  - Painful without sign of infection or inflammatory change
- Biopsy-proven malignancy
- When MRI is contraindicated or when evaluating osseous involvement by tumor

SIGNIFICANT TRAUMA

- Usually preceded by initial plain film radiographs

FRACTURE EVALUATION

- To confirm a suspected (occult) fracture following initial radiographs; OR
- To define the extent of an acute fracture and position of fracture fragments; OR
- To assess fracture healing for delayed union or non-union

OSTEONECROSIS [AVASCULAR NECROSIS (AVN); ASEPTIC NECROSIS]

- Requires initial plain films, prior to advanced imaging
- MRI is often the preferred imaging modality, particularly for evaluation during the early stages of osteonecrosis

PERSISTENT LOWER EXTREMITY PAIN (EXCLUDING KNEE JOINT) – UNRESPONSIVE TO SIX (6) WEEKS OF CONSERVATIVE TREATMENT

*Note: For suspicion of specific etiology, please refer to corresponding indication*

- In a patient where focused history and physical exam suggest non-specific lower extremity pain; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of six (6) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  - NSAIDs or steroids (oral or injection) – unless contraindicated; AND
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

TARSAL COALITION

- Following foot radiographs

NEUROPATHIC OSTEODYSTROPHY (CHARCOT JOINT)

- Following conventional radiographs, when there is need for additional diagnostic information from a CT exam to direct treatment decisions (such as concern for an underlying infectious process)

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION

*Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.*

CT ACCOMPANYING AN ARTHROGRAM (CT ARTHROGRAPHY)

WHEN THE PATIENT’S CONDITION MEETS THE LOWER EXTREMITY MRI GUIDELINES, BUT THERE IS EITHER A CONTRAINDICATION TO MRI OR THE PATIENT CANNOT TOLERATE MRI EXAMINATION (FOR EXAMPLE, DUE TO CLAUSTROPHOBIA)
CPT CODES

<table>
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<tr>
<td>73718</td>
<td>MRI lower extremity, other than joint, without contrast</td>
</tr>
<tr>
<td>73719</td>
<td>MRI lower extremity, other than joint, with contrast</td>
</tr>
<tr>
<td>73720</td>
<td>MRI lower extremity, other than joint, without contrast followed by re-imaging with contrast</td>
</tr>
<tr>
<td>73721</td>
<td>MRI lower extremity, any joint, without contrast</td>
</tr>
<tr>
<td>73722</td>
<td>MRI lower extremity, any joint, with contrast</td>
</tr>
<tr>
<td>73723</td>
<td>MRI lower extremity, any joint, without contrast followed by re-imaging with contrast</td>
</tr>
</tbody>
</table>

STANDARD ANATOMIC COVERAGE

- Scan coverage depends on the specific clinical indication and varies considerably, based on anatomic and clinical considerations.
- If medically appropriate, an MRI exam may be requested for each major area of the right and left lower extremities: hip, thigh, knee, lower leg (calf), ankle, or foot (includes toes).
- Routine MRI examinations provide multi-planar imaging of the joint or non-joint region(s) of interest.

IMAGING CONSIDERATIONS

- Conventional radiographs should be obtained before advanced imaging.
- Use of contrast (intravenous and intra-articular) is at the discretion of both the ordering and imaging physicians.
- CT is often the preferred modality for evaluation of displaced fractures and subluxations, whereas stress fractures and some incomplete and non-displaced fractures may be better imaged with MRI or radionuclide bone scintigraphy.
- MRI is often used to evaluate soft tissue abnormalities and to interrogate for possible osteomyelitis, despite negative or non-diagnostic plain films and/or triple-phase bone scintigraphy. One exception for osteomyelitis is detection of bone sequestra, which may be better depicted with CT.
- If radiographic findings are typical of osteomyelitis, advanced imaging may not be necessary.
- For suspected osteonecrosis, MRI is often more sensitive than CT or bone scintigraphy.
- Implanted surgical hardware, including joint prostheses, may produce sufficient local artifact to preclude adequate imaging through the region containing hardware.
- For suspected Baker’s cysts, ultrasound should be performed before advanced imaging exams.
- The CPT code assignment for an MRI procedure is based on the anatomic area imaged. Requests for multiple MRI imaging of the same anatomic area to address patient positional changes, additional sequences or equipment are not allowed. These variations or extra sequences are included within the original imaging request.
- MRI lower extremity (joint or non-joint) is appropriate for imaging the hip joint. For imaging both hips, a MRI of the pelvis may be sufficient to answer the diagnostic question. See CPT codes 72195-72197.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for lower extremity MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information. This section contains:

- General Indications for Lower Extremity MRI
- Additional Indications for the Hip Joint
- Additional Indications for Knee Imaging
- Additional Indications for Ankle and/or Foot Imaging

General Indications for Lower Extremity MRI:

ABNORMALITIES DETECTED ON OTHER IMAGING STUDIES WHICH REQUIRE ADDITIONAL CLARIFICATION TO DIRECT TREATMENT

SIGNIFICANT TRAUMA

- Usually preceded by initial plain film radiographs
COMMON DIAGNOSTIC INDICATIONS

FRACTURE EVALUATION
- To confirm a suspected (occult) fracture following initial radiographs; OR
- To define the extent of an acute fracture; OR
- To assess fracture healing for delayed union or non-union

OSTEONECROSIS [AVASCULAR NECROSIS (AVN); ASEPTIC NECROSIS]
- Requires initial plain films, prior to advanced imaging
- MRI is often the preferred imaging modality, particularly for evaluation during the early stages of osteonecrosis

OSTEOCHONDRAL LESION

INFECTIOUS PROCESS
- In a patient where focused history and physical exam suggest an underlying soft tissue infection when:
  - Patient is unresponsive to treatment including but not limited to antibiotics or incision/drainage
- Abscess - to determine the location and extent for surgical treatment
- Osteomyelitis – following non-diagnostic radiographs

SEPTIC ARTHRITIS
- When any of the following risk factors are present:
  - Underlying joint disease
  - Joint prosthesis
  - IV drug abuse
  - Diabetes
  - Presence of cutaneous ulcers; OR
- Pre-operative planning

MYOSITIS
- To determine optimal location for biopsy; OR
- To monitor treatment response

INTRA-ARTICULAR LOOSE BODY, INCLUDING SYNOVIAL OSTEOCHONDROMATOSIS

HEMARTHROSIS (BLOODY JOINT EFFUSION), DOCUMENTED BY ARTHROCENTESIS

TUMOR EVALUATION: PRIMARY NEOPLASM OR METASTATIC DISEASE
- Palpable mass on physical exam:
  - Following non-diagnostic ultrasound or radiographs; OR
  - Increasing in size since discovery; OR
  - Greater than 5cm in size; OR
  - Below the deep fascia; OR
  - Painful without sign of infection or inflammatory change
- Biopsy-proven malignancy

PERSISTENT LOWER EXTREMITY PAIN (EXCLUDING KNEE JOINT) – UNRESPONSIVE TO SIX (6) WEEKS OF CONSERVATIVE TREATMENT

Note: For suspicion of specific etiology, please refer to corresponding indication
- In a patient where focused history and physical exam suggest non-specific lower extremity pain; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of 6-8 consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  - NSAIDs or steroids (oral or injection) – unless contraindicated; AND
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation
- Not medically necessary for plantar fasciitis unless surgery is being considered after a failure of six (6) months of physician supervised conservative treatment
COMMON DIAGNOSTIC INDICATIONS

MRI ACCOMPANYING AN ARTHROGRAM (MR ARTHROGRAPHY)

POST-OPERATIVE OR POST-PROCEDURE EVALUATION

PRE-OPERATIVE OR PRE-PROCEDURE EVALUATION

Note: This indication is to be used for pre-operative evaluation of conditions not specifically referenced elsewhere in this guideline.

Additional Indications for the Hip Joint:

OCCULT HIP FRACTURE
● With high clinical suspicion and negative or inconclusive hip radiographs

LEGG-CALVÉ PERTHES DISEASE
● Eponym for osteonecrosis (infarction) of bony epiphysis in femoral heads, usually in 4-8 year old age range
● Requires initial radiographic evaluation

SLIPPED CAPITAL FEMORAL EPIPHYSIS
● Atraumatic fracture through the physeal plate; affected population is often overweight teenagers
● Requires initial radiographic evaluation

LABRAL TEAR

Additional Indications for Knee Imaging:

MENISCAL TEAR/INJURY
● In a patient where focused history and physical exam suggests a meniscal tear; AND
● Patient has completed a minimum of four (4) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
   ○ NSAIDs or steroids (oral or injection) – unless contraindicated; AND
   ○ Physical therapy (home exercise only if physical therapy is not available); AND
● After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; OR
● For pre-operative evaluation, based on physical exam findings which may include one of the following:
   ○ Positive McMurray test with minimal knee flexion; OR
   ○ A severe twisting injury after which activity could not be resumed; OR
   ○ An anterior cruciate ligament tear is present; OR
   ○ Locking; OR
   ○ Swelling and symptoms develop immediately after an acute injury; OR
   ○ Inability to bear weight; OR
   ○ Inability to fully extend knee

LIGAMENT TEAR
● In a patient where focused history and physical exam suggests a ligament tear; AND
● Patient has completed a minimum of four (4) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
   ○ Physical therapy (home exercise only if physical therapy is not available); AND
● After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation; OR
● For pre-operative evaluation, based on physical exam findings which may include one of the following:
   ○ Positive Lachman test; OR
   ○ Positive pivot shift test; OR
   ○ Positive anterior or posterior drawer test; OR
   ○ Positive medial or lateral stress tests

POST-OPERATIVE EVALUATION FOLLOWING REPAIR OF A LIGAMENTOUS OR TENDINOUS TEAR, WITH NEW SYMPTOMS
COMMON DIAGNOSTIC INDICATIONS

CHONDROMALACIA PATELLA
- In a patient following a focused history and physical exam; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of twelve (12) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

OSTEOCHONDritis DISSECANS

Additional Indications for Hip, Knee, Ankle and/or Foot Imaging:

LIGAMENT AND TENDON INJURIES
- In a patient following a focused history and physical exam; AND
- Following non-diagnostic conventional radiographs; AND
- Patient has completed a minimum of six (6) consecutive weeks of physician supervised conservative therapy for the current episode of pain, including but not limited to:
  - Physical therapy (home exercise only if physical therapy is not available); AND
- After trial of conservative therapy as listed above, patient fails to show substantial improvement on clinical re-evaluation

ACHILLES TENDON RUPTURE
- For pre-operative evaluation based on
  - Severe muscle weakness from the involved tendon; OR
  - Non-diagnostic X-ray for bone avulsion; OR
  - Non-diagnostic ultrasound evaluation

TARSAL COALITION

Note: CT may be preferred for bony coalition
- Following foot radiographs

TARSAL TUNNEL
- Following EMG nerve conduction study if not responsive to four weeks of conservative therapy
- Neuropathy secondary to entrapment or compression of the posterior tibial nerve or its branches in the fibro-osseous tunnel, deep to the flexor retinaculum

MORTON’S NEUROMA
- When the diagnosis is not clear on physical examination or ultrasound

NEUROPATHIC OSTEODYSTROPHY (CHARCOT JOINT)
- Following foot radiographs, when there is need for additional diagnostic information from an MRI exam to direct treatment decisions (such as concern for an underlying infectious process)

DIABETIC FOOT DISEASE
- Osteomyelitis – following non-diagnostic radiographs


41. Ho VB, Corse WR. MR angiography of the abdominal aorta and peripheral vessels. Radiol Clin N Am. 2003;41:115-144.


49. Margaretten ME, Kohlwes J, Moore D, Bent S. Does this adult patient have septic arthritis? *JAMA*. 2007 Apr 4;297(13):1478-88. PMID:17405973
Magnetic Resonance Imaging (MRI)
Breast
Also referred to as MR Mammography (MRM)

CPT CODES

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>77058</td>
<td>MRI of breast, without and/or with contrast material(s); unilateral</td>
</tr>
<tr>
<td>77059</td>
<td>MRI of breast, without and/or with contrast material(s); bilateral</td>
</tr>
</tbody>
</table>

IMAGING CONSIDERATIONS

TECHNIQUE:
- It is strongly recommended that breast MRI examinations be performed with a dedicated breast coil.

LIMITATIONS:
- Breast MRI is not recommended as a screening technique in patients with average-risk for breast cancer.
- Breast MRI is not recommended to assess suspicious breast lesions in order to avoid a biopsy.
- Breast MRI should not be used to differentiate cysts from solid lesions, which is well evaluated with ultrasound.

ADDITIONAL COMMENTS:
- A bilateral MRI study of the breast is correctly coded to CPT 77059. Requesting two unilateral studies (77058) to perform a bilateral exam is inappropriate. Billing 77058 two times for the same date of service or separately over subsequent days in order to describe a bilateral procedure fragments the service into its component parts and is not allowed.
- For additional imaging considerations please see the administrative guideline document.

COMMON DIAGNOSTIC INDICATIONS

The following diagnostic indications for breast MRI are accompanied by pre-test considerations as well as supporting clinical data and prerequisite information. This section contains:
- For Breast Carcinoma: Diagnostic Evaluation
- For Breast Carcinoma: Annual Screening
- For Breast Implant Rupture: Not Requiring Breast Carcinoma Diagnosis

For Breast Carcinoma: Diagnostic Evaluation

LESION CHARACTERIZATION
- When other imaging examinations, such as ultrasound and mammography, and physical examination are inconclusive for the presence of breast cancer, and biopsy could not be performed (e.g., possible distortion on only one mammographic view without a sonographic correlate)

INVASIVE CARCINOMA AND DUCTAL CARCINOMA IN SITU (DCIS)
- To determine the extent of disease and the presence of multifocality and multicentricity

INVASION OF BREAST CANCER DEEP TO FASCIA
- MRI evaluation of breast prior to surgical treatment may be useful in both mastectomy and breast conservation candidates to define the relationship of the tumor to the fascia and its extension into the pectoralis major, serratus anterior, and/or intercostal muscles

METASTATIC CANCER
- Primary is unknown and suspected to be of breast origin
- In patients presenting with metastatic disease and/or axillary adenopathy and no mammographic or physical findings of primary breast carcinoma
COMMON DIAGNOSTIC INDICATIONS

NEOADJUVANT CHEMOTHERAPY
● MR mammography may be performed before, during and after chemotherapy to assess response to treatment and extent of residual disease, prior to surgery

RECURRENCE OF BREAST CANCER
● In women with a prior history of breast cancer and suspicion of recurrence when clinical, mammographic, and/or sonographic findings are inconclusive

POST-LUMPECTOMY WITH POSITIVE MARGINS
● To evaluate for residual disease in patients whose pathology specimens demonstrate close or positive margins for residual disease

POST-OPERATIVE TISSUE RECONSTRUCTION
● To evaluate suspected cancer recurrence in patients with tissue transfer flaps (rectus, latissimus, dorsi, and gluteal)

DIFFERENTIATION OF PALPABLE MASS(ES) FROM SURGICAL SCAR TISSUE
● Following breast surgery, breast reconstruction or radiation therapy

AT 6 MONTHS FOLLOWING A PREVIOUS BREAST MRI WITH BI-RADS CATEGORY 3 FINDINGS
  ○ BI-RADS category 3 breast MRI is defined as a result recommended for short term follow-up, usually six months

  For Breast Carcinoma: Annual Screening

HIGH-RISK INDIVIDUALS WITH A BREAST CANCER GENETIC MUTATION, WHICH INCLUDE THE FOLLOWING:
● BRCA1 AND BRCA2 – including BRCA mutation or first degree relative of BRCA carrier
● LI-FRAUMENI SYNDROME – including first degree relatives
● COWDEN SYNDROME – including first degree relatives
● BANNAYAN-RILEY-RUVALCABA SYNDROME – including first degree relatives

LIFETIME RISK ~ 20-25% OR GREATER
● As defined by BRCAPRO or other models that are largely dependent on family history

HISTORY OF LOBULAR CARCINOMA IN SITU (LCIS) ON BIOPSY OR DUCTAL CARCINOMA IN SITU (DCIS) ON BIOPSY

FOR AN INDIVIDUAL WHO RECEIVED RADIATION TO CHEST BETWEEN THE AGES 10-30 YEARS

  For Breast Implant Rupture: Not Requiring Breast Carcinoma Diagnosis

BREAST MRI IS INDICATED TO SCREEN FOR ASYMPTOMATIC RUPTURE OF A SILICONE BREAST IMPLANT BEGINNING 3 YEARS AFTER IMPLANTATION AND EVERY OTHER YEAR THEREAFTER

EVALUATION OF SYMPTOMATIC PATIENTS WITH BREAST IMPLANTS, FOR DETECTION OF IMPLANT RUPTURE