Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging
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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Spine (Cervical, Thoracic, and Lumbar)

Recommended Clinical Approach

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific nuclei in the body, typically hydrogen nuclei, following exposure to a powerful magnetic field. This method allows for the discrimination between normal and abnormal tissues, offering a highly sensitive diagnostic tool for detecting diseases. The effectiveness of MRI stems from the notable contrast inherent in various tissues, both healthy and diseased, owing to differences in their magnetic relaxation properties. MRI of the spine is the preferred imaging modality for pain, radiculopathy, or neurological symptoms. This includes clinical suspicion of cancer, infection, autoimmune disease, persistent symptoms following six weeks of conservative management, or new or worsening symptoms with a history of spine surgery.[1]

Contrast should be used at the discretion of the ordering clinician, with guidance from the radiologist as needed. Common indications for administering contrast for an MRI of the spine include infection, prior spine surgery, demyelinating diseases, or tumor. A detailed patient history and indication will ensure the appropriate region is covered when ordering an MRI of the spine. For many patients with neck or back pain, symptoms resolve after a trial of conservative treatment without performing imaging, especially patients with low back pain.

Medical Necessity Criteria

Indications

- ➔ **Magnetic resonance imaging (MRI), spine (cervical/thoracic/ lumbar)** is considered appropriate if **ANY** of the following is **TRUE***:
  - ◆ Neoplastic conditions (including masses or mass-like conditions) including **ANY** of the following[1-3]:
    - Bone tumors; **OR**

- Intradural-extramedullary masses, including leptomeningeal disease; **OR**
- Intramedullary masses; **OR**
- Other extradural soft-tissue neoplasms of **ANY** of the following:
    - Connective tissues; **OR**
    - Muscles; **OR**
    - Regional nerves; **OR**
- Initial diagnosis of suspected tumor or malignancy as indicated by **ANY** of the following:
    - Abnormal laboratory values; **OR**
    - Inconclusive or abnormal prior imaging; **OR**
- Primary or metastatic lesion to the spinal cord (including the spinal canal or vertebral bodies) for **ANY** of the following scenarios:
    - Known tumor or malignancy with worsening symptoms or pain; **OR**
    - To monitor response to treatment; **OR**

◆ Concern for infection or an infectious disorder in the spine, with **ANY** of the following[2-5]:

- **ANY** of the following[1]:
    - Discitis; **OR**
    - Epidural abscess; **OR**
    - Postoperative infections; **OR**
    - Surrounding soft-tissue infection; **OR**
    - Vertebral osteomyelitis; **OR**
- Spinal cord infection and inflammation, including abscess[1]; **OR**
- Pain (including back and neck) with elevated laboratory markers suspicious of infection; **OR**
- Follow-up to abnormal initial imaging with suspected infection; **OR**

◆ Trauma-related conditions, including **ANY** of the following[1,3,5-6]:

- Follow-up to initial imaging (e.g., radiograph, CT) with positive findings; **OR**
- High suspicion for **ANY** of the following injury types:
    - Fracture; **OR**
    - Ligamentous; **OR**

        - Nerve; **OR**
        - Spine; **OR**
    - Post-traumatic radiculopathy or neurological deficit (myelopathy) following accident, surgery, injury, or intervention with **ANY** of the following[3,7]:
        - Severe radiculopathy; **OR**
        - Bladder dysfunction; **OR**
        - Bowel dysfunction; **OR**
        - Fecal incontinence; **OR**
        - Loss of anal sphincter tone; **OR**
        - Physical exam finding of major muscle weakness; **OR**
        - Saddle anesthesia; **OR**
        - Severe sciatic/dermatomal sensory loss; **OR**
        - Urinary retention or overflow incontinence; **OR**
        - Weakness (bilateral or progressive) in the lower extremities; **OR**
    - Persistent or worsening pain without acute findings on initial imaging among patients who are high-risk (including patients who are elderly, osteoporotic, or have chronic steroid use); **OR**
- Vascular conditions, known or suspected, including **ANY** of the following[1]:
    - Extraspinal vascular malformations; **OR**
    - Spinal cord infarction; **OR**
    - Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**
- Autoimmune, collagen vascular diseases, or inflammatory conditions including **ANY** of the following[1]:
    - Connective tissue disorders (systemic lupus erythematosus); **OR**
    - Muscular dystrophies and myopathies; **OR**
    - **ANY** of the following demyelinating diseases:
        - Transverse myelitis; **OR**
        - Acute disseminated encephalomyelitis; **OR**
        - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barre syndrome); **OR**

        - Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**
        - Multiple sclerosis (MS) and its variants (cervical or thoracic); **OR**
        - Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
        - Neuromyelitis optica spectrum disorder; **OR**
- For evaluation of **ANY** of the following uncategorized/ miscellaneous symptoms when applicable:
    - **ALL** of the following[1,3]:
        - **ANY** of the following[1,3]:
            - Pain or radiculopathy (without trauma or known malignancy); **OR**
            - Neurological deficit (myelopathy) and **ANY** of the following[4]:
                - Abnormal electromyography (EMG); **OR**
                - **ANY** of the following new or worsening symptoms:
                    - Radiculopathy (including sciatica); **OR**
                    - Bladder dysfunction; **OR**
                    - Bowel dysfunction; **OR**
                    - Dermatomal sensory loss; **OR**
                    - Objective muscle weakness; **OR**
                    - Saddle anesthesia; **OR**
                    - Objective reduction or loss of fine motor skills; **OR**
                    - Sexual dysfunction; **AND**
        - **ANY** of the following:
            - Severe or rapid progression of myelopathy; **OR**
            - At least 6 weeks of conservative treatment, including **ALL** of the following[19-22]:
                - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**

- Physical therapy, including a self-directed home exercise program; **OR**

- Degenerative conditions with **ALL** of the following[1]:
  - **ANY** of the following:
    - Degenerative disc disease and its sequelae in the lumbar, thoracic, and cervical spine (including myelopathy); **OR**
    - Symptomatic radiculopathy; **AND**
  - At least 6 weeks of conservative treatment, including **ALL** of the following[19-22]:
    - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
    - Physical therapy, including a self-directed home exercise program; **OR**
- Compression (suspected) in **ANY** of the following[7]:
  - Spinal cord; **OR**
  - Cauda equina; **OR**
  - Nerve root; **OR**
- **ANY** of the following[1]:
  - Amyloid deposition in the spine; **OR**
  - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension); **OR**
  - Gout; **OR**
  - Spinal cord herniation[8]; **OR**

◆ Preoperative, postoperative, or pre-treatment evaluation for **ANY** of the following:

- Planning for treatment fields for radiation therapy; **OR**
- Postradiation changes (e.g., myelopathy); **OR**
- Epidural and subdural fluid collection[1]; **OR**
- Follow-up of incidental or concerning findings seen on other imaging examinations[1]; **OR**
- Pre-procedure assessment for vertebroplasty and kyphoplasty[9]; **OR**
- Postoperative fluid collections and soft-tissue changes (extradural and intradural)[1]; **OR**

- Postoperative with new or worsening neurological symptoms[2-3]; **OR**

◆ **ANY** of the following congenital conditions[1,10]:
- Chiari malformation; **OR**
- Scoliosis with **ANY** of the following[11]:
  - Neurological symptoms; **OR**
  - Requiring preoperative assessment; **OR**
  - Worsening pain not previously imaged; **OR**
- Syringohydromyelia (syrinx); **OR**

◆ Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
- New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
- One-time clarifying follow-up of a prior indeterminate finding; **OR**
- In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

➔ **Magnetic resonance imaging (MRI), spine (cervical/thoracic/lumbar)** is not considered appropriate if **ANY** of the following is **TRUE**:
◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[12]; **OR**
◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
◆ The patient has metallic clips on vascular aneurysms; **OR**
◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern; **OR**
◆ Evaluation of the lumbar spine for patients with multiple sclerosis.

*NOTE: It is common to request multi-level spine imaging. Parts of the spine may be evaluated separately or in combination. It is necessary to justify the

region to be imaged, including physical exam findings (e.g., localization of symptoms to a particular segment of the spine), patient history, prior imaging, or other information.
**NOTE: MRI in patients with claustrophobia should be requested at the discretion of the ordering provider.
***NOTE: MRI in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
72141	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, cervical; without contrast material
72142	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents; with contrast material(s)
72146	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; without contrast material
72147	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, thoracic; with contrast material(s)
72148	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; without contrast material
72149	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, lumbar; with contrast material(s)
72156	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
72157	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
72158	Magnetic resonance imaging (MRI) (e.g., proton), spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar

Medical Evidence

Mathieu and Talbotts (2022) review using magnetic resonance imaging (MRI) to assess spinal emergencies. As an adjunct to CT, MRI proves to be most valuable in situations where additional imaging is necessary to assess spinal stability or compromise of neural elements. Vessel wall imaging techniques and MRA may also be utilized in cases of blunt traumatic cerebrovascular injury, mainly when findings from CTA are inconclusive. The American College of Radiology (ACR) has established guidelines outlining the appropriateness of MRI usage in various clinical scenarios related to spinal injuries and emergencies. MRI is considered 'usually appropriate' for patients with confirmed or suspected spinal cord or nerve root injuries.[6]

Suri et al. (2021) report on a randomized control trial (RCT) that investigated the impact of inserting epidemiological benchmarks into lumbar spine imaging reports as part of the Lumbar Imaging with Reporting of Epidemiology (LIRE) trial. The trial analyzed secondary outcomes, focusing on subsequent nonsurgical and surgical procedures involving the thoracolumbosacral spine and sacroiliac joints. The study included 238,886 adult patients from primary care clinics across four integrated healthcare systems in the United States. All participants underwent lumbar diagnostic imaging between 2013 and 2016. Results indicate that including epidemiological benchmarks (the 'LIRE intervention') did not significantly affect the utilization of non-surgical procedures (e.g., lumbosacral epidural steroid injections, facet joint injections, or facet joint radiofrequency ablation). In addition, the intervention did not impact surgical procedures such as decompression surgery, spinal fusion, or other spine surgeries involving the lumbar, sacral, or thoracic spine. The intervention also did not significantly affect any specific spine procedure.[9]

Ghaffari-Rafi et al. (2021) performed a systematic review and meta-analysis on the role of MRI in clinical decision-making in acute spinal cord injury. Obtaining MRI scans significantly influences the clinical management of patients experiencing acute spinal cord injury (SCI) across all presentations. Guidelines support MRI scans in adult patients with acute SCI before surgical intervention, when feasible, to enhance clinical decision-making. Additional research is needed to establish the utility and efficacy of MRI in various types of SCI further.[8]

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Clinical Guideline Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	8/29/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	• Expanded conservative care requirement to better capture appropriate patient population • Provided "out" from conservative care requirement for patients with progressive or severe myelopathy • Added references