Cohere Medicare Advantage Policy - Magnetic Resonance Imaging (MRI), Spine (Cervical and Thoracic)

Clinical Policy for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

GUIDELINES ARE SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION-MAKING OF END USERS.

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Other Notices:

Policy Information:

Specialty Area: Diagnostic Imaging
Policy Name: Cohere Medicare Advantage Policy - Magnetic Resonance Imaging (MRI), Spine (Cervical and Thoracic)
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

Table of Contents

Medical Necessity Criteria

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

Related CMS Documents

Please refer to CMS Medicare Coverage Database for the most current applicable CMS National Coverage.[1-3]

- National Coverage Determination (NCD) Magnetic Resonance Imaging (MRI) (220.2)
- Local Coverage Determination (LCD) Multiple Imaging in Oncology (L35391)
  - Billing and Coding: Multiple Imaging in Oncology (A56848)

Description

Magnetic resonance imaging (MRI) is a versatile imaging technique that operates on the interaction between radiofrequency electromagnetic fields and specific atomic 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.[4]

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.[5]

Medical Necessity Criteria

Indications

Magnetic resonance imaging (MRI), spine (cervical/thoracic) is considered appropriate if **ANY** of the following is **TRUE**:

- New onset pain or radiculopathy without trauma or significant mechanism of injury with **ALL** of the following:
  - Documented failure of at least 6 weeks of conservative treatment within the past 6 months, including **ALL** of the following[6-7]:
    - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
    - Physical therapy, chiropractic care, or a provider-directed home exercise program (HEP)[A]; **OR**
- New-onset symptoms without trauma or significant mechanism of injury and **ANY** of the following[4,10]:
  - Myelopathic symptoms[B]; **OR**
  - Bladder dysfunction; **OR**
  - Bowel dysfunction; **OR**
  - Dermatomal sensory loss not related to peripheral neuropathy; **OR**
  - Objective muscle weakness not related to peripheral neuropathy; **OR**
  - Saddle anesthesia; **OR**
  - Sexual dysfunction; **OR**
  - Suspected amyloid deposition in the spine[4]; **OR**
  - Cerebrospinal fluid (CSF) leak (may include spontaneous intracranial hypotension)[4]; **OR**
  - Suspected gout[4]; **OR**
  - Suspected atlantoaxial instability in a patient with rheumatoid arthritis (RA) with abnormal or inconclusive radiographs of the cervical spine; **OR**
- Known or suspected axial spondyloarthropathy (axSpA) (e.g., ankylosing spondylitis [AS], reactive arthritis, psoriatic spondyloarthritis, enteropathic

spondyloarthritis, juvenile spondyloarthritis, undifferentiated spondyloarthritis) and **ALL** of the following[10,11]:
    - Initial imaging with radiographs; **AND**
    - axSpA of unclear disease activity while on biologic medication to assess disease activity; **OR**
- Neoplastic conditions for **ANY** of the following[2]:
    - Initial staging; **OR**
    - Treatment planning; **OR**
    - Response assessment; **OR**
    - Surveillance, and **ANY** of the following[12-14]:
        - The patient is assumed to have either no known disease or disease that is stable or clinically insignificant (every 6-12 months for an overall duration [e.g., 5 years]); **OR**
        - Suspected recurrence/progression; **OR**
        - Evaluation of response to treatment when a change in therapy is contemplated (no more often than after 2 cycles of chemotherapy and/or 6-8 weeks since the prior imaging evaluation); **OR**
- Suspected or known infection involving the spine, with **ANY** of the following[15]:
    - **ALL** of the following:
        - Signs or symptoms (e.g., new/worsening back or neck pain with or without fever); **AND**
        - **ANY** of the following:
            - Abnormal laboratory evaluation (i.e., abnormal white blood cell count, ESR, or CRP); **OR**
            - "Red flag" risk factor (diabetes mellitus, current or prior IV drug use, cancer, HIV, or dialysis); **OR**
            - Wound overlying the spine; **OR**
    - Prior imaging findings concerning for infection; **OR**
    - History of surgical or interventional procedure to the spine with clinical suspicion for infection; **OR**
    - Follow-up imaging of infection with worsening symptoms/laboratory values (i.e., white blood cell count, ESR/CRP) or radiographic findings; **OR**
- Trauma-related conditions, including **ANY** of the following[16-18]:
    - Follow-up to initial imaging (e.g., CT) with positive findings; **OR**

- Follow-up to inconclusive imaging, with high suspicion for **ANY** of the following injury types:
  - Fracture; **OR**
  - Ligamentous; **OR**
- New-onset post-traumatic radiculopathy with **ANY** of the following:
  - Back pain with or without radiculopathy and **ANY** of the following risk factors[10]:
    - Low-velocity trauma; **OR**
    - Osteoporosis; **OR**
    - Elderly age; **OR**
    - Chronic steroid use; **OR**
  - Follow-up of acute cervical spine blunt trauma without unstable injury on initial imaging; **OR**
  - Acute cervical or thoracic spine blunt trauma with suspected or confirmed ligamentous, spinal cord, or nerve root injury on CT imaging; **OR**
  - Any suspected thoracic spine trauma in a child[17]; **OR**
- New onset post-traumatic neurological deficit (myelopathy) following significant trauma[C] with **ANY** of the following[10,19]:
  - Bladder dysfunction; **OR**
  - Bowel dysfunction; **OR**
  - Fecal incontinence; **OR**
  - Loss of anal sphincter tone; **OR**
  - Objective muscle weakness; **OR**
  - Saddle anesthesia; **OR**
  - Objective dermatomal sensory loss; **OR**
  - Urinary retention or overflow incontinence; **OR**
  - Objective weakness (bilateral or progressive) in the lower extremities that is not related to peripheral neuropathy; **OR**
- Persistent or worsening post-traumatic 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[4]:
  - Extraspinal vascular malformations; **OR**
  - Spinal cord infarction; **OR**
  - Spinal vascular malformations and/or the cause of occult subarachnoid hemorrhage; **OR**

- Myelopathic symptoms, and **ANY** of the following[4]:
  - Connective tissue disorders (e.g., systemic lupus erythematosus)[20,21]; **OR**
  - Muscular dystrophies and myopathies; **OR**
  - **ANY** of the following demyelinating diseases:
    - Transverse myelitis; **OR**
    - Acute disseminated encephalomyelitis; **OR**
    - Acute inflammatory demyelinating polyradiculopathy (Guillain-Barré syndrome); **OR**
    - Chronic inflammatory demyelinating polyradiculopathy (including relapsing polyneuropathy); **OR**
    - Myelin oligodendrocyte glycoprotein antibody-associated disease; **OR**
    - Neuromyelitis optica spectrum disorder; **OR**
- Multiple sclerosis (MS) and its suspected variants, and **ANY** of the following[22]:
  - Diagnosis of MS with **ANY** of the following:
    - Clinically isolated syndrome (CIS)[D] with **ANY** of the following:
      - Establishing a diagnosis according to the 2017 McDonald criteria, including **ANY** of the following clinical scenarios[23]:
        - Evidence of MS on recent baseline brain MRI; **OR**
        - Suspected or known MS with new or changing symptoms compatible with spinal cord disease; **OR**
        - Evaluation of CIS in patients without an established MS diagnosis; **OR**
        - Recent brain MRI has not established another cause and is not sufficient to fulfill the McDonald criteria for diagnosis of MS; **OR**
      - Differential diagnosis in the case of inconclusive brain MRI findings; **OR**
    - Establishing the diagnosis of primary progressive multiple sclerosis; **OR**
  - Follow-up of MS with **ANY** of the following:
    - To evaluate new or recurrent signs or symptoms of myelopathy; **OR**
    - To aid in treatment switch decision-making for inconclusive clinical presentation or findings on brain MRI; **OR**
    - To determine a new baseline prior to starting or changing therapy; **OR**

        - Serial follow-up (6-12 months post-diagnosis) for CIS that is consistent with demyelination; **OR**
        - In the absence of other criteria, regular imaging (e.g., every 2-3 years) for known progressive MS; **OR**
- Preoperative, postoperative, or pretreatment evaluation for **ANY** of the following:
    - Postradiation changes (e.g., myelopathy); **OR**
    - Epidural and subdural fluid collection[4]; **OR**
    - Pre-procedure assessment for vertebroplasty and kyphoplasty, when imaging will impact management[24,25]; **OR**
    - Postoperative fluid collections and soft-tissue changes (extradural and intradural)[2]; **OR**
    - Postoperative with new or worsening neurological symptoms[10,11]; **OR**
- **ANY** of the following congenital conditions[4,26]:
    - Back and neck pain in a child under 16 years of age with red flags (e.g., fevers, chills, malaise, weight loss, decreased appetite, unrelenting pain, night pain that awakens one from sleep, focal neurological signs, loss of bowel or bladder control, neck stiffness, rash, photophobia, confusion)[27]; **OR**
    - Toe walking in a child under 5.5 years of age[28–30]; **OR**
    - Known high-risk disorders affecting the atlantoaxial articulation (e.g., Down syndrome, Marfan syndrome) with abnormal or inconclusive radiographs of the cervical spine; **OR**
    - Chiari malformation with **ANY** of the following[31]:
        - There is concern for clinically relevant pathology, such as hydrocephalus or spine syrinx; **OR**
        - To aid treatment planning prior to surgical decompression; **OR**
    - Scoliosis with **ANY** of the following[32]:
        - Neurological symptoms; **OR**
        - Requiring preoperative assessment; **OR**
        - Worsening pain not previously imaged; **OR**
    - Syringohydromyelia (syrinx); **OR**
- Repeat imaging (defined as a repeat request following recent imaging of the same anatomic region with the same or similar modality) will be considered reasonable and necessary if **ALL** of the following are **TRUE**:
    - There are no established guidelines; **AND**
    - **ANY** of the following:

- There are new or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
- There is need for a 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) 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[33]; **OR**
- Stable axial spondyloarthropathy (axSpA) (i.e., ankylosing spondylitis [AS], reactive arthritis, psoriatic spondyloarthritis, enteropathic spondyloarthritis, juvenile spondyloarthritis, undifferentiated spondyloarthritis) with the intent of seeking subclinical inflammation or confirming disease inactivity.[11]

*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.

Definitions

[A]**Provider-directed home exercise programs (HEP)** should include[34]:

- Patient education of prescribed exercises with written instructions,
- Documentation of patient compliance with the HEP.

[B]**Myelopathic symptoms**: Reduction or loss of fine motor skills, gait abnormality, increased muscular reflexes, pathological reflexes, paresthesia of limb, loss of hand dexterity.[35]

[C]**Trauma**: Blunt trauma, unintentional falls, fall from greater than or equal to 3 ft (0.9 m) or at least 5 stairs, axial load injury, vehicular trauma, high speed MVC/rollover/ejection, bicycle collision, motorized recreational vehicle accident, firearms injury, or sports-related injury.[36,37]

[D]**Clinically isolated syndrome (CIS)**: A single episode of inflammation that attacks the brain or spinal cord, developing suddenly or over a short period of time and lasting at least 24 hours, with or without recovery, and in the absence of fever or infection. This attack is similar to a typical multiple sclerosis relapse (attack and exacerbation), but it occurs in a patient not known to have multiple sclerosis. Symptoms may include vision loss in one eye, problems with eye movement, problems with balance or coordination, or weakness or numbness in part of the body. Less common symptoms may include vision loss in both eyes, total loss of movement in eyes, confusion, headache, neck stiffness, fatigue, or complete paralysis.[23]

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)
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

Disclaimer: S Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Evaluation of Clinical Harms and Benefits

Clinical determinations for Medicare Advantage beneficiaries are made in accordance with 42 CFR 422.101 guidance outlining CMS's required approach to decision hierarchy in the setting of NCDs/LCDs identified as being "not fully established". When clinical coverage criteria are "not fully established" Medicare Advantage organizations are instructed to create publicly accessible clinical coverage criteria based on widely-accepted clinical guidelines and/or scientific studies backed by a robust clinical evidence base. Clinical coverage criteria provided by Cohere Health in this manner include coverage rationale and risk/benefit analysis.

The potential clinical harms of using these criteria may include:

- The use of contrast agents (e.g., gadolinium-based contrast agents) cause side effects in a few patients. These may include nausea, headache, and pain at the site of injection. Rarely, patients experience hives, itchy eyes, or other allergic reactions to the contrast material.[38]
- Dynamic magnetic fields during MRI scanning create loud knocking noises which may harm hearing if adequate ear protection is not used. They may also cause peripheral muscle or nerve stimulation that may feel like a twitching sensation.[38]
- MRI scanning could lead to heating of the body, particularly during long MRA scans, due to radiofrequency energy used in the procedure.[38]
- Increased healthcare costs and complications from the inappropriate use of emergency services and additional treatments.

The clinical benefits of using these criteria include:

- MRI of the spinal canal allows for the non-invasive visualization of the spinal cord.[1]
- Compared to computed tomography (CT) and radiography, MRI provides for the best evaluation of soft tissue pathology. MRI of the soft tissues in the cervical spine is typically indicated when there is neurologic deficit or clinical suspicion of a vascular abnormality following trauma. Pulse sequence, a short-tau inversion-recovery sequence in MRI, can highlight undetected fractures, bone bruising, and tumors using fat suppression.[39]

- MRI without and with contrast of the affected spine segment is the initial diagnostic test of choice when spinal infection is clinically suspected. The sensitivity, specificity, and accuracy of MRI in spine infection are 96%, 94%, and 92%, respectively.[15]
- MRI allows timely diagnosis and treatment for spine emergencies. Traumatic spine injury classification systems provide an algorithm for clinical decision-making. Diagnostic considerations for atraumatic spine emergencies are broad, and MRI is the first line imaging modality for detecting compressive pathology.[18]
- Enhanced overall patient satisfaction and healthcare experience.

Medical Evidence

Mathieu and Talbotts (2022) assessed the use of magnetic resonance imaging (MRI) in spinal emergencies. As an adjunct to CT, MRI has proven to be most valuable when 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.[18]

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.[40]

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Policy Revision History/Information

Original Date: October 3, 2024		
Review History		
Version 2	10/02/2025	Annual review. Further refined conservative care indications. Added new indications for spondylosis/spondylolisthesis; axial spondyloarthropathy; toe walking in a child; back/neck pain with red flag symptoms in a child; atlantoaxial instability. Expanded indications for spinal infection, multiple sclerosis, and Chiari malformation. Added non-indication for axial spondyloarthropathy when the disease is stable. Updated indications for neoplastic conditions. Added definitions. Removed relative contraindications (contrast allergy, metallic clips, incompatible implantable devices, metallic foreign body).