



# **Cohere Medicare Advantage Policy – Magnetic Resonance Imaging (MRI), Lower Extremity**

*Clinical Guidelines for Medical Necessity Review*

**Version:** 1  
**Effective Date:** October 3, 2024

# 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.**

Cohere Health, Inc. ("**Cohere**") has published these clinical guidelines to determine the medical necessity of services (the "**Guidelines**") for informational purposes only, and solely for use by Cohere's authorized "**End Users**". These Guidelines (and any attachments or linked third-party content) are not intended to be a substitute for medical advice, diagnosis, or treatment directed by an appropriately licensed healthcare professional. These Guidelines are not in any way intended to support clinical decision-making of any kind; their sole purpose and intended use is to summarize certain criteria Cohere may use when reviewing the medical necessity of any service requests submitted to Cohere by End Users. Always seek the advice of a qualified healthcare professional regarding any medical questions, treatment decisions, or other clinical guidance. The Guidelines, including any attachments or linked content, are subject to change at any time without notice. This policy may be superseded by existing and applicable Centers for Medicare & Medicaid Services (CMS) statutes.

©2024 Cohere Health, Inc. All Rights Reserved.

## Other Notices:

HCPCS® and CPT® copyright 2024 American Medical Association. All rights reserved.

Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

HCPCS and CPT are registered trademarks of the American Medical Association.

## Guideline Information:

**Specialty Area:** Diagnostic Imaging

**Guideline Name:** Cohere Medicare Advantage Policy - Magnetic Resonance Imaging (MRI), Lower Extremity

**Date of last literature review:** 10/2/2024

**Document last updated:** 10/3/2024

**Type:** ☒ Adult (18+ yo) | ☐ Pediatric (0-17yo)

## **Table of Contents**

<b>Important Notices</b>	<b>2</b>
<b>Medical Necessity Criteria</b>	<b>4</b>
<b>Service: Magnetic Resonance Imaging (MRI), Lower Extremity</b>	<b>4</b>
Benefit Category	4
Related CMS Documents	4
Recommended Clinical Approach	4
Evaluation of Clinical Harms and Benefits	4
Medical Necessity Criteria	6
Indications	6
Non-Indications	10
Level of Care Criteria	10
Procedure Codes (CPT/HCPCS)	10
<b>Medical Evidence</b>	<b>12</b>
<b>References</b>	<b>13</b>
<b>Clinical Guideline Revision History/Information</b>	<b>16</b>

# Medical Necessity Criteria

**Service: Magnetic Resonance Imaging (MRI), Lower Extremity**

## **Benefit Category**

Diagnostic Services in Outpatient Hospital  
Diagnostic Tests (other)

Please Note: This may not be an exhaustive list of all applicable Medicare benefit categories for this item or service.<sup>1</sup>

## **Related CMS Documents**

Please refer to [CMS Medicare Coverage Database](#) for the most current applicable CMS National Coverage.<sup>1</sup>

- [National Coverage Determination \(NCD\). Magnetic resonance imaging \(MRI\) \(220.2\)](#)

## **Recommended Clinical Approach**

Magnetic resonance imaging (MRI) is segmented into joint and non-joint distribution and may be performed without or with contrast (intravenous or intra-articular). Metal hardware in the bone can limit certain exams and is generally inappropriate for imaging by 3 Tesla scanners. Based on the clinician and supervising radiologist's discussion, alternate modalities may sometimes be more clinically appropriate.

## **Evaluation of Clinical Harms and Benefits**

Cohere Health uses the criteria below to ensure consistency in reviewing the conditions to be met for coverage of magnetic resonance imaging (MRI) of the lower extremities. This process helps to prevent both incorrect denials and inappropriate approvals of medically necessary services. Specifically, limiting incorrect approvals reduces the risks associated with unnecessary procedures, such as complications from surgery, infections, and prolonged recovery times.

The potential clinical harms of using these criteria may include:

- There is a risk of malfunction of implanted medical devices (e.g., implanted pacemakers, cochlear implants).
- A potential exists for allergic reactions to contrast material, if used in the study. The MRI department staff will monitor the patient for an allergic reaction and treat as recommended by a physician.<sup>2-3</sup>
- Use of gadolinium-based contrast is not recommended during pregnancy or in patients with acute or chronic kidney injury or disease.<sup>2-3</sup>
- If sedation is used for the study (for anxiety or claustrophobia), there is a risk of over-sedation. The patient will be monitored during the procedure to reduce this risk.
- There is uncertain risk for MR imaging in pregnant patients. The decision to image in a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.<sup>4</sup>
- There is a risk of increased healthcare costs and complications from the inappropriate use of additional interventions.<sup>5</sup>

The clinical benefits of using these criteria include:

- Analyzing soft tissue: MRI is the "gold standard" for imaging of lower extremity soft tissue and detection of abnormal tissue.<sup>6</sup>
- Ability to quantify changes: MRI can detect changes in the musculoskeletal system following a spinal cord injury.<sup>6</sup>
- Diagnosis of low back pain: MRI aids in the diagnosis of radiculopathy that does not respond to conservative management, neurogenic claudication, myelopathy, or when "red flag" symptoms are present.<sup>7</sup>
- Enhanced overall patient satisfaction and healthcare experience.

This policy includes provisions for expedited reviews and flexibility in urgent cases to mitigate risks of delayed access. Evidence-based criteria are employed to prevent inappropriate denials, ensuring that patients receive medically necessary care. The criteria aim to balance the need for effective treatment with the minimization of potential harms, providing numerous clinical benefits in helping avoid unnecessary complications from inappropriate care.

In addition, the use of these criteria is likely to decrease inappropriate denials by creating a consistent set of review criteria, thereby supporting optimal patient outcomes and efficient healthcare utilization.

## **Medical Necessity Criteria**

### **Indications**

→ **Magnetic resonance imaging (MRI), lower extremity** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ Neoplastic conditions (including masses or mass-like conditions) when the arterial blood supply needs to be evaluated (e.g., for treatment planning, treatment response, or prognostication), including **ANY** of the following:
  - Malignant or aggressive primary musculoskeletal tumor<sup>8</sup>; **OR**
  - Malignant or aggressive primary soft tissue tumor<sup>7</sup>; **OR**
  - Malignant or aggressive bone tumor<sup>8</sup>; **OR**
  - Nonsuperficial (deep) soft tissue mass<sup>9</sup>; **OR**
  - Soft tissue mass<sup>9</sup>; **OR**
  - A primary bone tumor is suspected with **ANY** of the following<sup>10</sup>:
    - Lesion is suspected on plain radiograph; **OR**
    - “Incidental” osseous lesion on MRI or CT of another region and not fully evaluated by other imaging; **OR**
  - Presence of a mass with **ANY** of the following<sup>9</sup>:
    - Absence of trauma; **OR**
    - Rapid growth; **OR**
    - Recurrence after prior surgery; **OR**
    - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
  - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial imaging study<sup>9-10</sup>; **OR**
  - Known malignancy with localized lower extremity pain or swelling and **ANY** of the following are required:
    - Monitor response to treatment; **OR**
    - Surveillance after treatment or surgery; **OR**
  - Persistent palpable abnormality with a non-diagnostic radiograph or ultrasound; **OR**
  - Routine surveillance of known malignancy; **OR**

- ◆ Acute traumatic lower extremity injury (e.g., fracture, dislocation) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**:
  - Bony injury and **ANY** of the following is **TRUE**:
    - Acute injury with occult fracture suspected; **OR**
    - Joint dislocation or instability; **OR**
    - Internal derangement; **OR**
    - Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
    - Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
  - Suspected soft tissue injury (e.g., peroneal tendon injury, meniscal tear); **OR**
- ◆ Chronic injury with ongoing symptoms for greater than or equal to 6 weeks and **ALL** of the following is **TRUE**:
  - The patient has failed conservative management (e.g., rest, analgesics, physical therapy, oral or injectable corticosteroids) must be documented for a period of greater than 6 weeks; **AND**
  - Radiographs are negative for osseous injury, and an alignment injury is suspected based on physical exam, including **ANY** of the following:
    - Dislocation; **OR**
    - Syndesmotic injury; **OR**
    - Other ligamentous or soft tissue injury; **OR**
- ◆ Infection or an infectious disorder, including **ANY** of the following:
  - Septic arthritis is suspected with initial radiographs that are normal or with findings suggestive of joint effusion or soft tissue swelling<sup>11-12</sup>; **OR**
  - Osteomyelitis, suspected<sup>11,13</sup>; **OR**
  - Soft tissue infection suspected with **ANY** of the following<sup>11</sup>:
    - Normal initial radiographs or with findings suggestive of joint effusion or soft tissue swelling; **OR**
    - History of puncture wound with possible retained foreign body; **OR**
    - High clinical suspicion of necrotizing fasciitis; **OR**
- ◆ Vascular conditions, known or suspected, including **ANY** of the following:

- Osteonecrosis, known or suspected, with negative radiographs<sup>14</sup>; **OR**
- Vascular malformation (with or without pain) and **ANY** of the following findings of physical deformity are suspected<sup>15</sup>:
  - Diffuse or focal enlargement; **OR**
  - Discoloration; **OR**
  - Soft-tissue mass; **OR**
  - Ulceration; **OR**
  - Vascular bruit or thrill; **OR**
- Neuropathy, nerve entrapment, or nerve lesion with **ANY** of the following<sup>16</sup>:
  - Clinically suspected nerve entrapment and **ALL** of the following are **TRUE**:
    - ◆ Abnormal EMG; **AND**
    - ◆ MRI is to assist in diagnosis and treatment options; **OR**
  - Known peripheral nerve sheath tumor or syndrome and **ANY** of the following:
    - ◆ Enlarging mass; **OR**
    - ◆ New or worsening localized pain; **OR**
    - ◆ Recurrence after prior resection; **OR**
  - Persistent symptoms following conservative treatment and localized EMG abnormality; **OR**
  - Trauma/ injury with suspected nerve injury or laceration based on site of injury and associated neurological deficits; **OR**
- ◆ Pre and post-intervention evaluation (including the diagnosis of postoperative complications) when **ANY** of the following is **TRUE**:
  - Imaging after hip arthroplasty and **ANY** of the following is **TRUE**<sup>17</sup>:
    - Hardware fracture; **OR**
    - Infection; **OR**
    - Pain with **ANY** of the following (infection excluded):
      - ◆ Aseptic loosening; **OR**
      - ◆ Instability; **OR**
      - ◆ Osteolysis; **OR**
      - ◆ Periprosthetic fracture; **OR**
    - History of acute injury; **OR**



- Metal-on-metal prosthesis with an adverse reaction to metal debris; **OR**
  - Trunnionosis (corrosion or metallosis), suspected; **OR**
- Imaging after knee arthroplasty and **ANY** of the following are suspected (with or without pain)<sup>13</sup>:
  - Hardware fracture; **OR**
  - Infection; **OR**
  - Periprosthetic fracture; **OR**
  - Pain with **ANY** of the following (infection excluded):
    - ◆ Aseptic loosening; **OR**
    - ◆ Instability; **OR**
    - ◆ Osteolysis; **OR**
    - ◆ Acute injury with suspected extensor mechanism involvement; **OR**
- ◆ Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable<sup>18</sup>:
  - Marrow abnormalities<sup>14</sup>; **OR**
  - Pain or weakness of a lower extremity as indicated by **ALL** of the following:
    - Joint-specific orthopedic evaluation and maneuvers suggesting **ANY** of the following:
      - ◆ Tear; **OR**
      - ◆ Tendonitis; **OR**
      - ◆ Other abnormality; **OR**
      - ◆ Other injury; **AND**
    - Radiographs and/or ultrasound are nondiagnostic or indeterminate; **AND**
    - Failure of conservative management (e.g., rest, analgesics, physical therapy, oral or injectable corticosteroids) must be documented for a period of greater than 6 weeks; **AND**
    - Concern for rupture or high-grade tear based on **ALL** of the following:
      - ◆ Clinical history; **AND**
      - ◆ Physical exam; **OR**
  - Screening, surveillance, or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)<sup>12</sup>; **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), lower extremity** may not be considered appropriate if **ANY** of the following is **TRUE**:
- ◆ 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<sup>1</sup>; **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**
  - ◆ Imaging of cortical bone and calcifications<sup>1</sup>; **OR**
  - ◆ Procedures involving spatial resolution of bone and calcifications.<sup>1</sup>

\*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.<sup>1</sup>

### Level of Care Criteria

Inpatient or Outpatient

### Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
73718	Magnetic resonance imaging (MRI) (e.g., proton), lower extremity other than joint; without contrast

	material(s)
73719	Magnetic resonance imaging (MRI) (e.g., proton), of lower extremity (other than joint); with contrast material(s)
73720	Magnetic resonance imaging (MRI) (e.g., proton), lower extremity other than joint; without contrast material(s), followed by contrast material(s) and further sequences
73721	Magnetic resonance imaging (MRI) (e.g., proton), any joint of lower extremity; without contrast material
73722	Magnetic resonance imaging (MRI) (e.g., proton), any joint of lower extremity; with contrast material(s)
73723	Magnetic resonance imaging (MRI) (e.g., proton), any joint of lower extremity; without contrast material(s) followed by contrast material(s) and further sequences

**Disclaimer:** G, S, I, and N Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

## Medical Evidence

Drake et al. (2022) conducted a systematic review and meta-analysis of observational studies comparing medical imaging (specifically magnetic resonance imaging [MRI]) of adults with plantar heel pain. A total of 42 studies were included. Patients with PHP had higher rates of thickened plantar fascia (greater than 4 mm) as well as abnormal plantar fascia tissue, a thicker loaded plantar heel fat pad on ultrasound, and a plantar calcaneal spur on plain film x-ray. Continued research is needed on high-quality imaging to increase the accuracy of MRI.<sup>19</sup>

Lansdown and Ma (2020) review the clinical utility of advanced imaging of the knee. MRI excels in sensitivity and specificity for diagnosing injuries such as ligament, meniscus, and full-thickness cartilage defects in the knee. High-resolution qualitative assessment ensures accurate detection and characterization of these conditions. Utilizing compositional MRI sequences enables an assessment of the biochemical characteristics of cartilage, meniscus, and ligaments, providing additional insights into pathology beyond traditional imaging. Progress in image processing, shape modeling, and dynamic studies is an innovative approach to assess conditions of the lower extremities and to track post-treatment outcomes.<sup>20</sup>

Warner et al. (2019) conducted a study to compare the diagnostic efficacy of injury (non-stress) and stress radiographs vs MRI to identify deep deltoid ligament ruptures among patients with operative supination-external rotation (SER) ankle fractures. The medial clear space (MCS) was considered to be positive if measurements exceeded 5 mm on either injury or stress mortise radiographs. Compared to intra-operative visualization, MCS measurements and MRI exhibited differential diagnostic capabilities for identifying deep deltoid ruptures. When MCS measured less than 5 mm on injury radiographs with subsequent stress testing, MCS assessments proved less accurate than MRI in predicting deltoid ruptures (46% vs 79%, respectively), with a notably high false positive rate (80%). An MCS exceeding 5 mm on injury radiographs strongly correlated with deep deltoid rupture diagnosis (accuracy of 95%). In contrast, to direct intra-operative visualization of the deltoid ligament, these findings advocate for surgical intervention when MCS measures greater than 5 mm on injury radiographs without necessitating additional stress tests or advanced imaging. However, MRI analysis is recommended when MCS measures less than 5 mm because of its heightened accuracy and reduced false positive rates. Enhanced diagnostic capabilities promise more effective management of patients with SER ankle fractures.<sup>21</sup>

## References

1. Centers for Medicare and Medicaid Services (CMS). National coverage determination: Magnetic resonance imaging (220.2). Revision Effective Date April 10, 2018. Accessed September 23, 2024. <https://www.cms.gov/medicare-coverage-database/search.aspx>.
2. American College of Radiology (ACR). ACR manual on contrast media. 2024. [https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast\\_Media.pdf](https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf).
3. American College of Radiology (ACR). ACR practice parameter for performing and interpreting magnetic resonance imaging (MRI). 2022. <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/MR-Perf-Interpret.pdf?la=en>.
4. American College of Obstetricians and Gynecologists (ACOG). Guidelines for diagnostic imaging during pregnancy and lactation: Committee opinion (no. 723). Published October 2017. Accessed September 23, 2024. <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/10/guidelines-for-diagnostic-imaging-during-pregnancy-and-lactation>.
5. Kjelle E, Brandsæter IØ, Andersen ER, Hofmann BM. Cost of low-value imaging worldwide: a systematic review. *Applied Health Economics and Health Policy*. 2024 Mar 1:1-7.
6. Lester RM, Johnson K, Khalil RE, et al. MRI analysis and clinical significance of lower extremity muscle cross-sectional area after spinal cord injury. *Neural Regen Res*. 2017 May;12(5):714-722. doi: 10.4103/1673-5374.206634. PMID: 28616021; PMCID: PMC5461602.
7. Rao D, Scuderi G, Scuderi C, et al. The use of imaging in management of patients with low back pain. *J Clin Imaging Sci*. 2018 Aug 24;8:30. doi: 10.4103/jcis.JCIS\_16\_18. PMID: 30197821; PMCID: PMC6118107.
8. Expert Panel on Musculoskeletal Imaging, Stanborough R, Demertzis JL, et al. ACR appropriateness criteria – malignant or aggressive primary musculoskeletal tumor-staging and surveillance: 2022 update. *J Am Coll Radiol*. 2022 Nov;19(11S):S374-S389. doi: 10.1016/j.jacr.2022.09.015. PMID: 36436964.

9. Expert Panel on Musculoskeletal Imaging, Garner HW, Wessell DE, et al. ACR appropriateness criteria – soft tissue masses: 2022 update. *J Am Coll Radiol*. 2023 May;20(5S):S234–S245. doi: 10.1016/j.jacr.2023.02.009. PMID: 37236746.
10. Expert Panel on Musculoskeletal Imaging, Bestic JM, Wessell DE, et al. ACR appropriateness criteria – primary bone tumors. *J Am Coll Radiol*. 2020 May;17(5S):S226–S238. doi: 10.1016/j.jacr.2020.01.038. PMID: 32370967.
11. Expert Panel on Musculoskeletal Imaging, Pierce JL, Perry MT, et al. ACR appropriateness criteria – suspected osteomyelitis, septic arthritis, or soft tissue infection (excluding spine and diabetic foot): 2022 update. *J Am Coll Radiol*. 2022 Nov;19(11S):S473–S487. doi: 10.1016/j.jacr.2022.09.013. PMID: 36436971.
12. Expert Panel on Musculoskeletal Imaging, Subhas N, Wu F, et al. ACR appropriateness criteria – chronic extremity joint pain – suspected inflammatory arthritis, crystalline arthritis, or erosive osteoarthritis: 2022 update. *J Am Coll Radiol*. 2023 May;20(5S):S20–S32. doi: 10.1016/j.jacr.2023.02.020. PMID: 37236743.
13. Expert Panel on Musculoskeletal Imaging, Walker EA, Beaman FD, et al. ACR appropriateness criteria – suspected osteomyelitis of the foot in patients with diabetes mellitus. *J Am Coll Radiol*. 2019 Nov;16(11S):S440–S450. doi: 10.1016/j.jacr.2019.05.027. PMID: 31685111.
14. Expert Panel on Musculoskeletal Imaging, Ha AS, Chang EY, et al. ACR appropriateness criteria – osteonecrosis: 2022 update. *J Am Coll Radiol*. 2022 Nov;19(11S): S409–S416. doi: 10.1016/j.jacr.2022.09.009. PMID: 36436966.
15. Expert Panel on Vascular Imaging, Obara P, McCool J, et al. ACR appropriateness criteria – clinically suspected vascular malformation of the extremities. *J Am Coll Radiol*. 2019 Nov;16(11S):S340–S347. doi: 10.1016/j.jacr.2019.05.013. PMID: 31685102.
16. Roberts CC, Kransdorf MJ, Beaman FD, et al. ACR appropriateness criteria – follow-up of malignant or aggressive musculoskeletal tumors. *J Am Coll Radiol*. 2016 Apr;13(4):389–400. doi: 10.1016/j.jacr.2015.12.019. PMID: 26922595.
17. Expert Panel on Musculoskeletal Imaging, Weissman BN, Palestro CJ, et al. ACR appropriateness criteria – imaging after total hip arthroplasty. *J Am Coll Radiol*. 2023 Nov;20(11S):S413–S432. doi: 10.1016/j.jacr.2023.08.015. PMID: 38040462.

18. Expert Panel on Musculoskeletal Imaging, Tafur M, Bencardino JT, et al. ACR appropriateness criteria – chronic foot pain. *J Am Coll Radiol*. 2020 Nov;17(11S):S391–S402. doi: 10.1016/j.jacr.2020.09.015. PMID: 33153552.
19. Drake C, Whittaker GA, Kaminski MR, et al. Medical imaging for plantar heel pain: a systematic review and meta-analysis. *J Foot Ankle Res*. 2022 Jan 22;15(1):4. doi: 10.1186/s13047-021-00507-2. PMID: 35065676, PMCID: PMC8783477.
20. Lansdown DA, Ma CB. Clinical utility of advanced imaging of the knee. *J Orthop Res*. 2020 Mar;38(3):473–482. doi: 10.1002/jor.24462. PMID: 31498473.
21. Warner SJ, Garner MR, Fabricant PD, et al. The diagnostic accuracy of radiographs and magnetic resonance imaging in predicting deltoid ligament ruptures in ankle fractures. *HSS J*. 2019 Jul;15(2):115–121. doi: 10.1007/s11420-018-09655-x. PMID: 31327941; PMCID: PMC6609669.

# Clinical Guideline Revision History/Information

Original Date: October 3, 2024		
Review History		