Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Lower Extremity

Clinical Guidelines for Medical Necessity Review

Version: 4
Revision Date: February 20, 2025

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.

Other Notices:

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.

Guideline Information:

Specialty Area: Diagnostic Imaging
Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Lower Extremity

Date of last literature review: 9/3/2024
Document last updated: 2/19/2025
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17yo)

Table of Contents

Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Lower Extremity

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.

Medical Necessity Criteria

Indications

- ➔ **Magnetic resonance imaging (MRI), lower extremity** is considered appropriate if **ANY** of the following is **TRUE**[1-23]:
  - ◆ 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[1]; **OR**
    - Malignant or aggressive primary soft tissue tumor[1]; **OR**
    - Malignant or aggressive bone tumor[1]; **OR**
    - Nonsuperficial (deep) soft tissue mass[2]; **OR**
    - Soft tissue mass[2]; **OR**
    - A primary bone tumor is suspected with **ANY** of the following[3]:
      - 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[2]:
      - 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[2-3]; **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**

◆ Preoperative imaging prior to surgical management of congenital condition, injury, recurrent instability, malignancy, mass, infectious disorder, or vascular abnormality; **OR**

◆ Chronic injury with ongoing symptoms for greater than or equal to 6 weeks and **ALL** of the following are **TRUE**:
- Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
  - 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; **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 injury; **OR**
- Infection or an infectious disorder, including **ANY** of the following[10,12]:
    - Septic arthritis is suspected with initial radiographs that are normal or with findings suggestive of joint effusion or soft tissue swelling[13-14]; **OR**
    - Osteomyelitis, suspected[13,15]; **OR**
    - Soft tissue infection suspected with **ANY** of the following:
        - Normal initial radiographs or with findings suggestive of joint effusion or soft tissue swelling[13]; **OR**
        - History of puncture wound with possible retained foreign body[13]; **OR**
        - High clinical suspicion of necrotizing fasciitis[13]; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
    - Osteonecrosis, known or suspected, with negative radiographs[18]; **OR**
    - Vascular malformation (with or without pain) and **ANY** of the following findings of physical deformity are suspected[16]:
        - 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[1,17]:
        - 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**

- Post-intervention evaluation when **ANY** of the following is **TRUE**:
    - Imaging after hip arthroplasty and **ANY** of the following is **TRUE**[19]:
        - 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)[20]:
        - 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[11]:
    - Marrow abnormalities[18]; **OR**
    - Evaluation of known osteochondritis dissecans[26]; **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**
    - Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
        - 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; **AND**
    - Concern for rupture or tear based on **ALL** of the following:
        - Clinical history; **AND**
        - Physical exam; **AND**
- Screening, surveillance, or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)[14]; **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**:

- The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[24]; **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.

*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
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

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 (PHP). 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.[21]

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 extremity and to track post-treatment outcomes.[22]

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.[23]

References

1. 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.
2. 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.
3. 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.
4. Expert Panel on Musculoskeletal Imaging, Ross AB, Lee KS, et al. ACR appropriateness criteria -acute hip pain, suspected fracture. *J Am Coll Radiol*. 2019 May;16(5S):S18-S25. doi: 10.1016/j.jacr.2019.02.028. PMID: 31054744.
5. Expert Panel on Musculoskeletal Imaging, Bencardino JT, Stone TJ, et al. ACR appropriateness criteria - stress (fatigue/insufficiency) fracture, including sacrum, excluding other vertebrae. *J Am Coll Radiol*. 2017 May;14(5S):S293-S306. doi: 10.1016/j.jacr.2017.02.035. PMID: 28473086.
6. Expert Panel on Musculoskeletal Imaging, Smith SE, Chang EY, et al. ACR appropriateness criteria - acute trauma to the ankle. *J Am Coll Radiol*. 2020 Nov;17(11S):S355-S366. doi: 10.1016/j.jacr.2020.09.014. PMID: 33153549.
7. Expert Panel on Musculoskeletal Imaging, Gorbachova T, Chang EY, et al. ACR appropriateness criteria - acute trauma to the foot. *J Am Coll Radiol*. 2020 May;17(5S):S2-S11. doi: 10.1016/j.jacr.2020.01.019. PMID: 32370964.
8. Expert Panel on Musculoskeletal Imaging, Taljanovic MS, Chang EY, et al. ACR appropriateness criteria - acute trauma to the knee. *J Am Coll Radiol*. 2020 May;17(5S):S12-S25. doi: 10.1016/j.jacr.2020.01.041. PMID: 32370956.
9. Expert Panel on Major Trauma Imaging, Shyu JY, Khurana B, et al. ACR appropriateness criteria - major blunt trauma. *J Am Coll Radiol*. 2020 May;17(5S):S160-S174. doi: 10.1016/j.jacr.2020.01.024. PMID: 32370960.
10. Expert Panel on Musculoskeletal Imaging, Jawetz ST, Fox MG, et al. ACR appropriateness criteria - chronic hip pain: 2022 update. *J Am Coll Radiol*. 2023 May;20(5S):S33-S48. doi: 10.1016/j.jacr.2023.02.019. PMID: 37236751.

11. 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.
12. Expert Panel on Musculoskeletal Imaging, Fox MG, Chang EY, et al. ACR appropriateness criteria - chronic knee pain. *J Am Coll Radiol*. 2018 Nov;15(11S):S302-S312. doi: 10.1016/j.jacr.2018.09.016. PMID: 30392599.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. Expert Panel on Musculoskeletal Imaging, Walker EA, Fox MG, et al. ACR appropriateness criteria - imaging after total knee arthroplasty: 2023 update. *J Am Coll Radiol*. 2023 Nov;20(11S):S433-S454. doi: 10.1016/j.jacr.2023.08.014. PMID: 38040463.
21. 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.

22. 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.
23. 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.
24. Wasser EJ, Prevedello LM, Sodickson A, Mar W, Khorasani R. Impact of a real-time computerized duplicate alert system on the utilization of computed tomography. *JAMA Intern Med*. 2013;173(11):1024-1026. doi: 10.1001/jamainternmed.2013.543. PMID: 23609029.
25. American Academy of Orthopaedic Surgeons Management of Acute Meniscal Pathology Evidence-Based Clinical Practice Guideline. aaos.org/ampcpg Published June 10, 2024
26. American Academy of Orthopaedic Surgeons Diagnosis and Treatment of Osteochondritis Dissecans Evidence-Based Clinical Practice Guideline. AAOS.org/ocdcpg.org Published December 1, 2023

Clinical Guideline Revision History/Information

Original Date: April 1, 2022		
Review History		
Version 2	9/5/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	Replaced conservative care requirement with current standard language. Provided avenue for approval for preoperative imaging. Loosened requirement for injury evaluation - no longer requires suspicion of “high-grade” tear.