04-70540-16

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Reviewed: 04/24/25

Revised: 05/15/25

Subject: Magnetic Resonance Imaging (MRI) Lower Extremity

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DESCRIPTION:

Magnetic resonance imaging (MRI) is a radiation-free, noninvasive, technique used to produce high quality sectional images of the inside of the body in multiple planes. MRI uses natural magnetic properties of the hydrogen atoms in the body that emit radiofrequency signals when exposed to radio waves within a strong magnetic field. These signals are processed and converted by a computer into high-resolution, three-dimensional, tomographic images. Images and resolution produced by MRI is quite detailed. For some MRI, contrast materials (e.g., gadolinium, gadoteridol, non-ionic and low osmolar contrast media, ionic and high osmolar contrast media) are used to enable visualization of a body system or body structure.

The U.S. Food and Drug Administration's (FDA) cleared MRI systems for marketing through the 510(k) process. The Fonar Stand-Up MRI system received FDA marketing clearance in October 2000.

Summary and Analysis of Evidence: Magnetic resonance imaging (MRI) is a multiplanar imaging method based on an interaction between radiofrequency electromagnetic fields and certain nuclei in the body (usually hydrogen nuclei) after the body has been placed in a strong magnetic field. MRI differentiates between normal and abnormal tissues, providing a sensitive examination to detect disease. This sensitivity is based on the high degree of inherent contrast due to variations in the magnetic relaxation properties of different tissues, both normal and diseased, and the dependence of the MRI signal on these tissue properties. MRI is a proven imaging modality for the detection, evaluation, staging, and follow-up of disorders of the ankle and hindfoot, musculoskeletal (MSK) conditions of the hip and pelvis and disorders of the knee. MRI is a proven and well-established imaging modality in the detection, evaluation, assessment, staging, and follow-up of tumors of the musculoskeletal system. MRI is useful in the evaluation of MSK infections. In the extremities, MRI is usually the study to confirm or exclude clinically suspected infections, to stage the local extent of disease, and to follow-up after treatment

(ACR 2020, 2021, 2022).

POSITION STATEMENT:

MRI of the lower extremity (foot, ankle, knee, leg, hip) **meets the definition of medical necessity** for the following:

Joint or muscle pain without positive findings on an orthopedic exam as listed below (after x-ray completed)

- Persistent joint or musculotendinous pain unresponsive to conservative therapy, within the last 6 months which includes active medical therapy (physical therapy, chiropractic treatments, and/or physician supervised exercise) of at least four (4) weeks; **OR**
- With progression or worsening of symptoms during the course of conservative treatment (see above statement).
- Persistent hip mechanical symptoms including clicking, locking, catching, giving way or hip instability with a clinical suspicion of labral tear, with or without clinical findings suggestive of impingement.

Joint specific provocative orthopedic examination

- Ankle
  - Unstable syndesmotic injury (high ankle injury)
    - With inconclusive stress x-rays (standing CT preferred)
    - Can have positive fibular translation, squeeze or cotton test, but imaging may be needed to confirm diagnosis
- Knee
  - Any of the following positive test:
    - McMurray's
    - Thessaly
    - Apley's
    - Lachman's
    - Anterior or posterior drawer sign
    - Varus or valgus stress
    - Acute mechanical locking of the knee not due to guarding
- Hip and any of the following positive test:
  - Anterior impingement sign (labral tear)
  - Posterior impingement sign (labral tear)

Ankle instability and suspected anterior talofibular ligament rupture

- Positive anterior and posterior drawer tests.
- As a result of a sprain, requires initial active conservative therapy and x-ray.

Painful acquired or congenital flatfoot deformity in an adult

- After failure of active conservative therapy and x-ray.

Extremity mass

- Mass or lesion after non-diagnostic x-ray or ultrasound.

Known cancer of the extremity

- Cancer staging
- Cancer restaging
- Signs or symptoms of recurrence.

Infection of bone or joint

- Abnormal imaging.
- Negative x-ray but with a clinical suspicion of infection.
- Ulcer with signs of infection that is not improving despite treatment and bone or deep infection is suspected.
- Neuropathic foot with friable or discolored granulation tissue, foul odor, non-purulent discharge, and delayed wound healing.

Osteonecrosis (avascular necrosis (AVN), Legg-Calve-Perthes disease)

- Abnormal x-ray.
- Normal or indeterminate x-rays, but symptomatic and high risk.

Evaluation of known or suspected autoimmune disease (e.g. rheumatoid arthritis)

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging.
- Initial imaging of a single joint for diagnosis or response to therapy after plain films and appropriate lab tests.
- To determine change in treatment or when diagnosis is uncertain prior to start of treatment.
- Follow-up to determine treatment efficacy of early rheumatoid arthritis.
- Follow-up to determine treatment efficacy of advanced rheumatoid arthritis if x-ray and ultrasound are equivocal or noncontributory.

Bone fracture

- Suspected stress or insufficiency fracture with a negative initial x-ray.
- Pathologic fracture on x-ray.
- Suspected acute hip fracture with initial x-rays negative or non-diagnostic.
- Intra articular fractures that may require surgery.
- Nonunion or delayed union as demonstrated by no healing between two sets of x-rays.

Note: If a fracture has not healed by 4-6 months, there is delayed union. Incomplete healing by 6-8 months is nonunion.

Tendon or muscle rupture

- Clinical suspicion based on mechanism of injury and physical findings and x-ray.

Suspected ACL rupture (knee)

Acute knee injury with physical exam limited by pain and swelling and x-ray completed and injury suspected.

Osteochondral lesions (defects, fractures, osteochondritis dissecans) suspected.

Foreign body

- Indeterminate imaging.

Loose bodies or synovial chondromatosis seen on imaging with joint pain.

Hip impingement (femoroacetabular impingement)

- With negative, equivocal, or non diagnostic x-rays and imaging would change treatment.

Known or suspected inflammatory myopathies

- For diagnosis.
- For biopsy planning.

Peripheral nerve entrapment

- Abnormal electromyogram or nerve conduction study
- Abnormal x-ray or ultrasound
- Clinical suspicion and failed 4 weeks conservative treatment including at least two of the following:
    - Activity modification;

- Rest, ice or heat;
- Splinting or orthotics;
- Medication

Pediatrics

- Painful flatfoot deformity with suspected tarsal coalition, not responsive to active conservative care.
- Slipped capital femoral epiphysis (SCFE) with negative frog leg and AP x-rays of the hips but clinically suspected)
  - Drehman sign
  - Limited internal rotation of the hip
  - Consider imaging the asymptomatic contralateral hip with a normal x-ray to detect early slipped capital femoral epiphysis (SCFE) if prophylactic surgery is planned.
- Chronic recurrent multifocal osteomyelitis after initial work-up (labs and x-ray).
- Acute limp in a child 5 or less years old, concern for infection (initial x-rays not needed).
- Osteoid osteoma.

Pre-operative/procedural evaluation

- Pre-operative evaluation for planned surgery or procedure

Post-operative/procedural evaluation

- When imaging, physical or laboratory findings indicate joint infection, delayed or non-healing or other surgical/procedural complications.
- Joint prosthesis loosening or dysfunction, x-rays non-diagnostic.
- Trendelenburg sign or other indication of muscle or nerve damage after recent hip surgery.

BILLING/CODING INFORMATION:

CPT Coding:

73718	Magnetic resonance (e.g., proton) imaging, lower extremity other than joint; without contrast material(s)
73719	Magnetic resonance (e.g., proton) imaging, lower extremity other than joint; with contrast material(s)
73720	Magnetic resonance (e.g., proton) imaging, lower extremity other than joint; without contrast material(s), followed by contrast material(s) and further sequences
73721	Magnetic resonance (e.g., proton) imaging, any joint of lower extremity; without contrast material
73722	Magnetic resonance (e.g., proton) imaging, any joint of lower extremity; with contrast material(s)

73723	Magnetic resonance (e.g., proton) imaging, any joint of lower extremity; without contrast material(s), followed by contrast material(s) and further sequences

HCPCS Coding:

S8042	Magnetic resonance imaging (MRI), low-field

REIMBURSEMENT INFORMATION:

Reimbursement for MRI imaging (73718-73723) performed on the same anatomical area is limited to one (1) MRI imaging within a 6-month period. MRI imaging (73718-73723) in excess of one (1) within a 6-month period is subject to medical review for medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Additional MRI imaging of the same anatomical area may be appropriate for the following, including, but not limited to: diagnosis, staging or follow-up of cancer, follow-up assessment during or after therapy for known metastases, follow-up of member who have had an operative, interventional or therapeutic procedure (e.g., surgery, embolization), reevaluation due to change in clinical status (e.g., deterioration), new or worsening clinical findings, (e.g., neurologic signs, symptoms), medical intervention which warrants reassessment, reevaluation for treatment planning, follow-up during and after completion of therapy or treatment to assess effectiveness, and evaluation after intervention or surgery.

Reimbursement for MRI imaging (73718-73723) for an oncologic condition undergoing active treatment or active treatment completed within the previous 12 months on the same anatomical area is limited to four (4) MRI imaging (73718-73723) within a 12-month period. MRI imaging (73718-73723) for an oncologic condition in excess of four (4) within a 12-month period are subject to medical review of documentation to support medical necessity. Documentation should include radiology reason for study, radiology comparison study-date and time, radiology comparison study observation, radiology impression, and radiology study recommendation.

Re-imaging or additional imaging due to poor contrast enhanced exam or technically limited exam is the responsibility of the imaging provider.

Stand-Up MRI/Sitting MRI

Stand-up MRI and sitting MRI may be reported like a standard MRI. No additional payment will be made for stand-up MRI or sitting MRI.

LOINC Codes:

The following information may be required documentation to support medical necessity: physician history and physical, physician progress notes, plan of treatment and reason for magnetic resonance imaging (MRI) lower extremity.

Documentation Table	LOINC Codes	LOINC Time Frame Modifier Code	LOINC Time Frame Modifier Codes Narrative

Physician history and physical	28626-0	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Attending physician progress note	18741-9	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Plan of treatment	18776-5	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology reason for study	18785-6	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology comparison study-date and time	18779-9	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology comparison study observation	18834-2	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology-study observation	18782-3	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology-impression	19005-8	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Radiology study-recommendation (narrative)	18783-1	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim

PROGRAM EXCEPTIONS:

Federal Employee Plan (FEP): Follow FEP guidelines.

Medicare Advantage products: No Local Coverage Determination (LCD) was found at the time of the last guideline reviewed date.

The following National Coverage Determination (NCD) was reviewed on the last guideline reviewed date: Magnetic Resonance Imaging, (220.2) located at cms.gov.

If this Medical Coverage Guideline contains a step therapy requirement, in compliance with Florida law 627.42393, members or providers may request a step therapy protocol exemption to this requirement if based on medical necessity. The process for requesting a protocol exemption can be found at Coverage Protocol Exemption Request.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Magnetic Resonance Spectroscopy (MRS), 04-70540-07

Magnetic Resonance Imaging (MRI) of the Breast, 04-70540-09

Magnetic Resonance Imaging (MRI) Brain and Head, 04-70540-11

Magnetic Resonance Imaging (MRI) Orbit, Face, Temporomandibular Joint (TMJ) and Neck, 04-70540-12

Magnetic Resonance Imaging (MRI) Chest & Cardiac, 04-70540-13

Magnetic Resonance Imaging (MRI) Abdomen and Pelvis, 04-70540-14

Magnetic Resonance Imaging (MRI) Upper Extremity, 04-70540-15

Magnetic Resonance Imaging (MRI) Spine (Cervical, Thoracic, Lumbar), 04-70540-17

OTHER:

Other names used to report MRI:

Nuclear Magnetic Resonance (NMR)
Open MRI
Other names used to report Positional MRI:
Position MRI (pMRI)

Sitting MRI
Stand-Up MRI
Standing MRI
Weight-bearing MRI

REFERENCES:

1. American College of Radiology ACR Appropriateness Criteria® Acute Hip Pain-Suspected Fracture, Revised 2018.
2. American College of Radiology ACR Appropriateness Criteria® Acute Trauma to the Foot, Revised 2019.
3. American College of Radiology ACR Appropriateness Criteria® Acute Trauma to the Knee, Revised 2019.
4. American College of Radiology ACR Appropriateness Criteria® Chronic Foot Pain, Revised 2020.
5. American College of Radiology ACR Appropriateness Criteria® Osteonecrosis of the Hip, 2015.
6. American College of Radiology ACR Appropriateness Criteria® Soft-Tissue Masses, Revised 2022.
7. American College of Radiology ACR Appropriateness Criteria® Suspected Osteomyelitis, Septic Arthritis, or Soft Tissue Infection (Excluding Spine and Diabetic Foot), Revised 2022.
8. ACR–SPR-SSR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of the Ankle and Hindfoot, Revised 2021.

9. ACR–SPR-SSR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of Bone and Soft Tissue Tumors, Revised 2020.
10. ACR–SPR-SSR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of Bone, Joint, and Soft Tissue Infections in the Extremities, Revised 2021.
11. ACR–SPR-SSR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of the Hip and Pelvis for Musculoskeletal Disorders, Revised 2021.
12. ACR–SPR-SSR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of the Knee, Revised 2020.
13. Colebatch AN, Edwards CJ, Ostergaard M et al. EULAR recommendations for the use of imaging of the joints in the clinical management of rheumatoid arthritis. Ann Rheum Dis. 2013 Jun;72(6):804-814.
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15. Donovan A, Rosenberg ZS, Cavalcanti CF. MR imaging of entrapment neuropathies of the lower extremity. Part 2. The knee, leg, ankle, and foot. Radiographics. 2010 Jul-Aug;30(4):1001-1019.
16. Expert Panel on Musculoskeletal Imaging: Kransdorf MJ, Murphey MD, Wessell DE, et al. ACR Appropriateness Criteria® Soft-Tissue Masses. J Am Coll Radiol. 2018 May;15(5S):S189-S197.
17. Expert Panel on Musculoskeletal Imaging: Ross AB, Lee KS, Chang EY, et al. ACR Appropriateness Criteria® Acute Hip Pain-Suspected Fracture. J Am Coll Radiol. 2019 May;16(5S):S18-S25.
18. Expert Panel on Musculoskeletal Imaging: Taljanovic MS, Chang EY, Ha AS, et al. ACR Appropriateness Criteria® Acute Trauma to the Knee. J Am Coll Radiol. 2020 May;17(5S):S12-S25.
19. Fritz J, Lurie B, Potter HG. MR Imaging of Knee Arthroplasty Implants. Radiographics. 2015 Sep-Oct;35(5):1483-501.
20. Glaudemans AWJM, Jutte PC, Cataldo MA, et al. Consensus document for the diagnosis of peripheral bone infection in adults: a joint paper by the EANM, EBJIS, and ESR (with ESCMID endorsement). Eur J Nucl Med Mol Imaging. 2019 Apr;46(4): 957-970.
21. Hesper T, Zilkens C, Bittersohl B et al. Imaging modalities in patients with slipped capital femoral epiphysis. J Child Orthop. 2017 Apr; 11(2): 99–106.
22. Laya BF, Restrepo R, Lee EY. Practical Imaging Evaluation of Foreign Bodies in Children: An Update. Radiol Clin North Am. 2017 Jul;55(4):845-867. [Abstract]
23. Mohseni S, Shojaiefard A, Khorgami Z et al. Peripheral lymphadenopathy: approach and diagnostic tools. Iran J Med Sci. 2014 Mar;39(2 Suppl):158-170.
24. Murphey MD, Roberts CC, Bencardino JT, et al. ACR Appropriateness Criteria Osteonecrosis of the Hip. J Am Coll Radiol. 2016 Feb;13(2): 147-55.
25. Peck DM, Voss LM, Voss TT. Slipped Capital Femoral Epiphysis: Diagnosis and Management. Am Fam Physician. 2017 Jun 15;95(12): 779-784.
26. Somerville LE, Willits K, Johnson AM, et al. Clinical Assessment of Physical Examination Maneuvers for Superior Labral Anterior to Posterior Lesions. Surg J (N Y). 2017 Oct 5;3(4): e154-e162.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 04/24/25.

GUIDELINE UPDATE INFORMATION:

07/01/07	New Medical Coverage Guideline.
01/21/08	Updated the Program Exceptions.
07/15/08	Scheduled reviewed. No change in position statement. Revised hip and knee indications; for hip, revise fracture indication (deleted "occult"); for knee, deleted "severe" and add "trauma". Updated references and related Internet links.
05/21/09	Removed Federal Employee Plan (FEP) from BCBSF Radiology Management program exception statement. Added FEP program exception statement: FEP is excluded from the National Imaging Associates (NIA) review; follow FEP guidelines.
07/01/09	Updated BCBSF Radiology Management program exception; added BlueSelect.
01/01/10	Revised BCBSF Radiology Management program exception section.
07/15/10	Annual review: format changes, added indications for bone marrow MRI, added program exception for Medicare Advantage products, and updated references.
10/01/11	Revision; formatting changes.
12/15/12	Annual review; added indications for lower extremity MRI (foot, ankle, knee, leg, hip). Added criteria for imaging which exceed limit and statement for re-imaging or additional imaging. Deleted Medicare Advantage products ICD-9 codes. Added Medicare Advantage program exception (nationally non-covered indications) for MRI of cortical bone and calcifications and procedures involving spatial resolution of bone and calcifications. Updated references.
01/01/14	Review/revision. Updated program exception.
01/01/15	Scheduled review; deleted "when ordered by surgeon/specialist or a primary care provider on behalf of the surgeon/specialist" from pre-operative and post-operative procedural evaluation and indications for bone marrow MRI (included in Magnetic Resonance Imaging Bone Marrow guideline). Added limitation statement for an oncologic condition; limited to four (4) computed tomography within a 12-month period. Updated references.
07/15/18	Revision; revised position statement. Updated references.
02/15/20	Review and revision. Added indication and criteria for: extremity mass, known cancer, osteonecrosis (avascular necrosis, Legg-Calve-Perthes disease), known or suspected autoimmune disease, bone fracture, joint or muscle pain, foreign body, tendon or muscle rupture after x-ray, peripheral nerve entrapment and joint specific provocative orthopedic examination. Added indication: MRI ordered as MR arthrogram and hemarthrosis. Revised criteria for pre-operative and post-operative procedural evaluation. Updated references.
03/30/20	Revised pre-operative/procedural evaluation.
05/15/22	Review/revision. Added indication and criteria for: joint or muscle pain, ankle instability an anterior talofibular ligament rupture, flatfoot deformity in an adult, infection of bone or joint., osteonecrosis, tendon or muscle rupture, suspected ACL rupture (knee),

	osteochondral lesions, loose bodies or synovial chondromatosis, hinge impingement, inflammatory myopathies, and pediatrics. Revised joint specific provocative orthopedic examination, extremity mass, known cancer, peripheral nerve entrapment, pre-operative and post-operative procedural evaluation and conservative therapy. Revised and expanded criteria for: autoimmune disease, and bone fracture. Updated references.
05/20/22	Deleted trauma header.
07/01/22	Revision to Program Exceptions section.
09/30/23	Review: position statements and references updated.
05/15/24	Review; no change in position statement. Updated references.
05/15/25	Review; no change in position statement.