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## Subject: Magnetic Resonance Imaging (MRI) Bone Marrow

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

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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. This guideline addresses the use of MRI of the bone marrow in the outpatient setting.

### POSITION STATEMENT:

#### Documentation Requirements

Documentation containing the medical necessity of the magnetic resonance imaging (MRI) of the bone marrow and imaging results (e.g., images, clinical reports) should be maintained in the member's medical record. Documentation may be requested as part of the review process.

Magnetic resonance imaging (MRI) of the bone marrow **meets the definition of medical necessity** for the following indications:

- Diagnosis, staging and follow-up of members with multiple myeloma, leukemia and other related hematological malignancies.
- Suspected progression of smoldering multiple myeloma (SMM) to multiple myeloma (MM) or high risk SMM members.
- Diagnosis and assessment of treatment response in diffuse or multifocal marrow when the diagnosis is in doubt.

- A follow-up study may be needed to help evaluate a member's progress after treatment, procedure, intervention, or surgery. Documentation required.

**Summary and Analysis of Evidence:** For the correct staging of patients with multiple myeloma sensitive detection is mandatory in order to estimate prognosis and to decide for adequate therapy. Magnetic resonance imaging (MRI) is superior to radiography for both, focal and diffuse involvement. Five different infiltration patterns can be differentiated: (1) normal appearance of bone marrow despite minor microscopic plasma cell infiltration, (2) focal involvement, (3) homogeneous diffuse infiltration, (4) combined diffuse and focal infiltration, (5) "salt-and-pepper" pattern with inhomogeneous bone marrow with interposition of fat islands. Patients without bone marrow infiltration have a significantly longer survival than patients with bone marrow infiltration in MRI at the time of diagnosis. However, even in stage I disease and negative X-ray films bone marrow infiltration in MRI may be detected in 29-50% of patients. Those patients typically show an earlier disease progression. Recently, MRI has been implemented in the clinical staging of patients with multiple myeloma. MRI may also monitor response to therapy. Signs of good response in cases with focal involvement are reduction of signal intensity on T2-weighted spin echo images, lack or rim-like enhancement after contrast material injection or even a normalization of bone marrow signal. In case of diffuse involvement, a partly patchy reconversion to fatty marrow can be seen (Baur-Melnyk, 2005).

## BILLING/CODING INFORMATION:

### CPT Coding:

77084	Magnetic resonance (e.g., proton) imaging, bone marrow blood supply
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## REIMBURSEMENT INFORMATION:

Refer to section entitled [POSITION STATEMENT](#).

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

### 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) of the bone marrow.

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: Magnetic Resonance Imaging (MRI), (220.2) located at [cms.gov](https://www.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:

None applicable.

## OTHER:

None applicable.

## REFERENCES:

1. ACR Practice Parameter for Performing and Interpreting Magnetic Resonance Imaging (MRI), Revised 2022.
2. ACR–SPR–SSR Practice Parameter for the Performance and Interpretation of Magnetic Resonance Imaging (MRI) of Bone and Soft Tissue Tumors, Revised 2020.
3. Angtuaco EJ, Fasses AB, Walker R, et al. Multiple myeloma: clinical review and diagnostic imaging. *Radiology* 2004; 231(1):11-13.
4. Baur-Melnyk A, Buhmann S, Dürr HR, et al. Role of MRI for the diagnosis and prognosis of multiple myeloma. *Eur J Radiol.* 2005 Jul;55(1):56-63. [Abstract]
5. Caers J, Fernández de Larrea C et al. The changing landscape of smoldering multiple myeloma: a European perspective. *Oncologist.* 2016 Mar;21(3):333-342.
6. Dutoit JC, Verstraete KL. MRI in multiple myeloma: a pictorial review of diagnostic and post-treatment findings. *Insights Imaging.* 2016 Aug;7(4):553-569.
7. Navarro SM, Matcuk GR, Patel DB et al. Musculoskeletal imaging findings of hematologic malignancies. *Radiographics.* 2017 May-Jun;37(3):881-900.
8. Rajkumar SV, Dimopoulos MA, Palumbo A et al. International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma. *Lancet Oncol.* 2014 Nov;15(12): e538-e548.
9. Schmidt GP, Reiser MF, Baur-Melnyk A. Whole-body imaging of the musculoskeletal system: the value of MR imaging. *Skeletal Radiology* 2007; 36(12): 1109-1119.
10. Simpson WL, Hermann G, Balwani M. Imaging of Gaucher disease. *World J Radiol.* 2014 Sep 28;6(9):657-668.

## COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 03/27/25.

## GUIDELINE UPDATE INFORMATION:

12/15/13	New Medical Coverage Guideline.
03/15/15	Annual review; position statement unchanged.
02/15/20	Review/revision; deleted vertebral fractures with suspected bone metastasis. Added suspected progression of smoldering multiple myeloma (SMM) to multiple myeloma or

	high risk SMM. Added diagnosis and assessment of treatment response in diffuse or multifocal marrow disorders. Added indication for follow-up study. Updated references.
05/15/22	Review/revision; revised position statement. Updated references.
07/01/22	Revision to Program Exceptions section.
12/09/23	Review: position statements and references updated.
04/15/24	Review; maintain position statements. Updated references.
04/15/25	Review; maintain position statements.