



**Cohere Medical Policy -  
Magnetic Resonance Imaging (MRI), Bone Marrow**  
*Clinical Guidelines for Medical Necessity Review*

**Version:** 4  
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## Guideline Information:

**Specialty Area:** Diagnostic Imaging

**Guideline Name:** Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Bone Marrow

**Date of last literature review:** 9/25/2024

**Document last updated:** 10/30/2024

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

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# Medical Necessity Criteria

**Service: Magnetic Resonance Imaging (MRI), Bone Marrow**

## Recommended Clinical Approach

Magnetic resonance imaging (MRI) of the bone marrow is recommended in patients with known or suspected multiple myeloma, plasmacytoma, and Gaucher Disease.

## Medical Necessity Criteria

### Indications

- **Magnetic resonance imaging (MRI), bone marrow** is considered appropriate if **ANY** of the following is **TRUE**<sup>2-8</sup>:
- ◆ Multiple myeloma, including **ANY** of the following<sup>2,3</sup>:
    - Monoclonal gammopathy of uncertain significance (MGUS) (low dose CT, whole body is preferred); **OR**
    - Solitary bone plasmacytoma<sup>4</sup>; **OR**
    - Systemic multiple myeloma, suspected or confirmed<sup>5</sup>; **OR**
    - Smoldering multiple myeloma, suspected or confirmed<sup>5</sup>; **OR**
  - ◆ Diagnosis and assessment of treatment response of marrow involvement in storage diseases (e.g., Gaucher Disease); **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), bone marrow** 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<sup>9</sup>; **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**

Outpatient

**Procedure Codes (CPT/HCPCS)**

CPT/HCPCS Code	Code Description
77084	Magnetic resonance imaging (MRI) (e.g., proton); bone marrow blood supply

## Medical Evidence

Karampinos et al. (2018) reviewed quantitative magnetic resonance imaging (MRI) and spectroscopy of bone marrow. Due to its exceptional soft-tissue contrast capability, MRI is the preferred imaging method for tracking certain bone marrow alterations. MRI of the bone marrow is routinely utilized to diagnose and visualize marrow lesions and monitor response to treatment (e.g., plasmacytoma, multiple myeloma). Innovative quantitative MRI techniques and magnetic resonance spectroscopy (MRS) can accurately measure changes in bone marrow composition, including water-fat distribution, cellularity, and perfusion across various pathologies.<sup>6</sup>

Shah et al. (2014) conducted a retrospective cohort study on the evaluation of incidental abnormal bone marrow signals on MRI. Among 49,678 MRI scans conducted, 110 patients over 18 met the inclusion criteria. Of note, 22% underwent additional evaluation, primarily consisting of complete blood counts, serum protein electrophoresis, or bone scans. Over a median follow-up period of 41 months, 6% of patients received diagnoses of malignancies, including multiple myeloma, non-Hodgkin's lymphoma, metastatic non-small cell lung cancer, and metastatic adenocarcinoma. Furthermore, one patient who had not undergone evaluation was diagnosed with breast cancer 24 months post-MRI. Abnormal or heterogeneous bone marrow signals on MRI should not be dismissed, as they often warrant further investigation.<sup>7</sup>

## References

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# Clinical Guideline Revision History/Information

Original Date: April 1, 2022

## Review History

Version 2	8/15/2024	Annual review and policy restructure.
Version 3	10/3/2024	Updated Medical Evidence section and reference list.
Version 4	10/30/2024	Edited repeat imaging criteria language.