Evolent Clinical Guideline 2007~~059~~ for Bone Marrow Magnetic Resonance Imaging (MRI)~~MRI~~

Guideline ~~or Policy~~ Number:	Applicable Codes	
Evolent_CG_2007~~059~~		
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Original Date:	**Last Revised Date:**	**Implementation Date:**
July 2008	~~May~~July 2025~~4~~	January 2026~~5~~

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STATEMENT

General Information

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*
- *The guideline criteria in the following sections were developed utilizing evidence-based and peer-reviewed resources from medical publications and societal organization guidelines as well as from widely accepted standard of care, best practice recommendations.*

Purpose

~~MRI~~

~~Magnetic Resonance Imaging (MRI) is currently used for the detection of disease in the bone marrow.~~ Bone marrow MRI is primarily used for detection of tumor in the bone marrow (metastatic or primary) or for disorders of the bone marrow. The study covers from the top of the skull to the heels.

INDICATIONS FOR BONE MARROW MRI

Hematologic Malignancies [1–4]

- Bone Marrow MRI is indicated for the evaluation of the following conditions:
  - Multiple Myeloma - monoclonal proliferation of plasma cells with myeloma-defining CRAB (Calcium level elevation, Renal failure, Anemia, or Bone lesions) findings
  - Monoclonal Gammopathy of Undetermined Significance (MGUS) - monoclonal proliferation of plasma cells without myeloma-defining CRAB
  - Solitary Plasmacytoma - monoclonal plasma cells manifesting as a single tumor

- Smoldering Multiple Myeloma - monoclonal proliferation of plasma cells in bone marrow and/or serum/urine with abnormal levels of monoclonal protein (asymptomatic precursor state of MM)~~(1)~~
- Leukemia and other related hematological malignancies~~(2,3,4)~~

- Bone Marrow MRI for the **above conditions** is indicated at the following intervals:
  - Suspected Disease
  - Initial Staging of Known Disease
  - Restaging on Active Treatment
  - Surveillance
    - Annually if ~~in~~ asymptomatic
    - More frequent imaging as clinically indicated by signs/symptoms, laboratory, or radiographic concern for disease relapse or progression

Bone Marrow MRI using CPT 77084 is used for evaluation of the bone marrow. For conditions where imaging of the soft tissue and bone is needed (such as screening for genetic predisposition syndromes such as Li-Fraumeni syndrome (LFS) with whole body MRI using CPT 76498), see indications for Whole Body MRI (Evolent_CG_2061~~063~~ for Unlisted Study)

Bone Marrow Disorders

- Diagnosis and assessment of treatment response in diffuse or multifocal marrow disorders (e.g., chronic recurrent multifocal osteomyelitis; marrow involvement in storage diseases, such as Gaucher's, or hematologic malignancies/ processes (e.g., Waldenström macroglobulinemia) when the diagnosis is in doubt). (2,5)~~(3,5)~~

CODING AND STANDARDS

~~Coding~~

~~CPT~~ Codes

77084

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial

☒	Exchange/Marketplace
☒	Medicaid
☒	Medicare Advantage

BACKGROUND

Contraindications and Preferred Studies

- Contraindications and reasons why a CT/CTA cannot be performed may include: impaired renal function, significant allergy to IV contrast, pregnancy (depending on trimester)
- Contraindications and reasons why an MRI/MRA cannot be performed may include: impaired renal function, claustrophobia, non-MRI compatible devices (such as non-compatible defibrillator or pacemaker), metallic fragments in a high-risk location, patient exceeds wight limit/dimensions of MRI machine.

SUMMARY OF EVIDENCE

International Myeloma Working Group risk stratification model for smoldering myeloma (SMM) [3]

- **Study Design**: This study involved a large cohort of 1996 patients with smoldering multiple myeloma (SMM) to develop a new risk stratification system.
- **Target Population**: Patients with SMM meeting the revised International Myeloma Working Group (IMWG) criteria.
- **Key Factors**: The study identified three independent factors predicting progression risk at 2 years: serum M-protein >2 g/dL, involved to uninvolved free light-chain ratio >20, and marrow plasma cell infiltration >20%. The study also included cytogenetic abnormalities to further stratify risk.

Imaging of Multiple Myeloma: Present and Future [1]

- **Study Design**: This review article provides an overview of the current and future imaging techniques for multiple myeloma, focusing on the role of MRI.
- **Target Population**: Patients with multiple myeloma, including those at different stages of the disease.

- **Key Factors**: The review highlights the advantages of MRI in detecting small focal lesions and diffuse marrow infiltration, its prognostic significance, and its role in therapy response assessment. It also discusses the limitations and future directions of MRI in multiple myeloma imaging.

International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma [2]

- **Study Design**: This consensus update by the International Myeloma Working Group (IMWG) revises the diagnostic criteria for multiple myeloma to include validated biomarkers.
- **Target Population**: Patients with multiple myeloma and smoldering multiple myeloma.
- **Key Factors**: The update includes the use of MRI to detect more than one focal lesion as a myeloma-defining event. It emphasizes the importance of MRI in identifying patients at high risk of progression and the need for early intervention.

ANALYSIS OF EVIDENCE

Shared Conclusions [1–3]

All three articles agree on the importance of MRI in the diagnosis, risk stratification, and management of multiple myeloma. They highlight the sensitivity and specificity of MRI in detecting bone marrow abnormalities and its role in predicting disease progression and assessing treatment response. MRI is recognized as a valuable tool for identifying high-risk patients and guiding early intervention strategies.

Summary [1–3]

In summary, these studies collectively provide strong evidence for the use of bone marrow MRI in the diagnosis, risk stratification, and management of multiple myeloma. They highlight the advantages of MRI in detecting bone marrow abnormalities, predicting disease progression, and assessing treatment response, while also discussing the limitations and future directions of MRI in multiple myeloma imaging.

POLICY HISTORY

~~SUMMARY~~

Date	Summary
July 2025	• Guideline renamed to Bone Marrow Magnetic Resonance Imaging (MRI)
June 2025	• This guideline replaces Evolent Clinical Guideline 059 for Bone Marrow MRI • Updated citations • Added third bullet to General Information • Added Summary of Evidence and Analysis of Evidence
May 2024	• Clarified purpose of Bone Marrow MRI vs Whole Body MRI • Hematologic Malignancies re-structured • Reduced the Background section • Added Contraindications and Preferred studies section to background
~~March 2023~~	~~Removed duplicate statement for treatment follow up~~ ~~Updated references~~ ~~Removed additional resources~~ ~~Added statement on clinical indications not addressed in this guideline~~

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

Disclaimer

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Evolent Clinical Guidelines are comprehensive and inclusive of various procedural applications for each service type. Our guidelines may be used to supplement Medicare criteria when such criteria is not fully established. When Medicare criteria is determined to not be fully established, we only reference the relevant portion of the corresponding Evolent Clinical Guideline that is applicable to the specific service or item requested in order to determine medical necessity.

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