Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Cardiac

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

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

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

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Cardiac

Recommended Clinical Approach

Cardiac magnetic resonance imaging (MRI) offers exquisite anatomic detail and can also provide valuable functional information through various sequences. While not a first-line imaging modality, it proves highly useful when structural abnormalities (congenital or acquired) or functional deficiencies require further investigation of the heart and pericardial structures.

Medical Necessity Criteria

Indications

- ➔ **Cardiac magnetic resonance imaging (MRI)** is considered appropriate if **ALL** of the following are **TRUE:**
  - ◆ First-line cardiac imaging modality such as transthoracic echo is inconclusive/non-diagnostic, and further imaging is indicated for diagnostic and therapeutic purposes; **AND**
  - ◆ **ANY** of the following is **TRUE**:
    - Neoplastic conditions (including masses or mass-like conditions) such as cardiac or para-cardiac mass[1]; **OR**
    - Infection or an infectious disorder, including suspected infective endocarditis, myocarditis, or complications not diagnosable by other imaging modalities[2]; **OR**
    - Cardiovascular conditions, known or suspected, including **ANY** of the following:
      - Chest pain of suspected cardiac origin[3-4]; **OR**
      - Dyspnea (or other ischemic equivalent) of suspected cardiac origin[5-6]; **OR**
      - Suspected pulmonary hypertension[7]; **OR**
      - Presyncope or syncope of suspected cardiac origin[8]; **OR**
      - Intermediate to high probability of coronary artery disease[9-10]; **OR**
      - Cardiac valve dysfunction, stenosis, or regurgitation; **OR**

- For evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
    - Suspected hypertrophic cardiomyopathy[11]; **OR**
    - Suspected infiltrative cardiomyopathy (e.g., amyloidosis, hemochromatosis)[11]; **OR**
    - Suspected or confirmed new-onset heart failure[4,12]; **OR**
- Preoperative or pre-treatment evaluation (e.g., myocardial viability assessment, before cardiac ablation procedures for arrhythmias, etc); **OR**
- Known or suspected congenital heart disease[13]; **OR**
- Repeat imaging of a specific area or structure using the same imaging modality (in the absence of an existing follow-up guideline) is considered appropriate when **ALL** of the following is **TRUE**:
    - There is documented clinical necessity; **AND**
    - Prior imaging results of the specific area or structure, obtained using the same imaging modality, must be documented and available for comparison; **AND**
    - **ANY** of the following is **TRUE**:
        - A change in clinical status, such as worsening symptoms or the emergence of new symptoms, that may influence the treatment approach; **OR**
        - The requirement for interval reassessment, which may alter the treatment plan; **OR**
        - One-time follow-up of a prior indeterminate finding to assess for interval change; **OR**
        - The need for re-imaging either before or after performing an invasive procedure.

Non-Indications

➔ **Cardiac magnetic resonance imaging (MRI)** is not 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; **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
75557	Cardiac magnetic resonance imaging (MRI) without contrast material, for evaluation of morphology and function
75559	Cardiac magnetic resonance imaging (MRI) with stress imaging, without contrast material, for evaluation of morphology and function
75561	Cardiac magnetic resonance imaging (MRI) without contrast material, followed by contrast material and further sequences, for evaluation of morphology and function
75563	Cardiac magnetic resonance imaging (MRI) with stress imaging, without contrast material, followed by contrast material and further sequences, for evaluation of morphology and function
75565	Cardiac magnetic resonance imaging (MRI) for velocity flow mapping (List separately in addition to code for primary procedure)
C9762	Cardiac magnetic resonance imaging (MRI) for morphology and function, quantification of segmental dysfunction; with strain imaging
C9763	Cardiac magnetic resonance imaging (MRI) for

	morphology and function, quantification of segmental dysfunction; with stress imaging
S8042	Magnetic resonance imaging (MRI), low-field

Medical Evidence

Miller et al. (2023) CMR-IMPACT (Cardiac Magnetic Resonance Imaging Strategy for the Management of Patients with Acute Chest Pain and Detectable to Elevated Troponin) trial conducted from September 2013 to July 2018 at four U.S. tertiary care hospitals. The trial involved the management of patients with acute chest pain and detectable elevated troponin levels. The 312 participants were randomized into two care pathways: invasive-based (156 participants) and CMR-based (156 participants), with adjustments permitted based on the patient's condition. The primary outcome measured was a composite of death, myocardial infarction, and cardiac-related hospital readmissions or emergency visits. The study followed 312 participants (mean age 60.6 years, 59.9% women) over a median of 2.6 years. The authors conclude no significant difference between clinical and safety outcomes. Benefits include reducing the long-term utilization of invasive angiography, positive discharge outcomes, and enhanced therapeutic yield of angiography. (Clinicaltrials.gov Identifier NCT01931852).[14]

Alabed et al. (2020) performed a meta-analysis concerning patient mortality due to pulmonary arterial hypertension (PAH). A total of 1938 patients in 22 studies were included. Research indicates that CMR-derived metrics for right ventricular (RV) volume and function, rather than left ventricular (LV) measurements, predict clinical deterioration. This insight is pertinent for regulatory authorities seeking clinically relevant trial endpoints. Further, this meta-analysis reaffirms the prognostic significance of CMR metrics across a large patient cohort, enabling assessment of how changes in these metrics relate to clinical outcomes such as worsening health and mortality. The authors reaffirm CMR as a useful prognostic marker in PAH among a large cohort. The study confirms that RV function, RV, and left ventricular volumes predict mortality and clinical deterioration in PAH. The study underscores the rationale for using CMR as a meaningful clinical endpoint in trials testing PAH therapies.[15]

Kwong et al. (2019) conducted a retrospective study to evaluate the diagnostic and prognostic value. The study enrolled 2349 patients with chest pain syndrome at 13 centers in 11 states. The median follow-up was 5.4 years. A stress CMR showing no ischemia or LGE were linked to a very low incidence of adverse cardiac events in patients with stable intermediate-risk chest pain syndromes. Subsequent cardiac testing also reduced. (Clinicaltrials.gov Identifier NCT03192891).[16]

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Clinical Guideline Revision History/Information

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