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

Clinical Guidelines for Medical Necessity Review

Version: 2
Effective Date: August 20, 2024

Important Notices

Notices & Disclaimers:

GUIDELINES ARE SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION-MAKING OF END USERS.

Cohere Health, Inc. ("**Cohere**") has published these clinical guidelines to determine the medical necessity of services (the "**Guidelines**") for informational purposes only, and solely for use by Cohere's authorized "**End Users**". These Guidelines (and any attachments or linked third-party content) are not intended to be a substitute for medical advice, diagnosis, or treatment directed by an appropriately licensed healthcare professional. These Guidelines are not in any way intended to support clinical decision-making of any kind; their sole purpose and intended use is to summarize certain criteria Cohere may use when reviewing the medical necessity of any service requests submitted to Cohere by End Users. Always seek the advice of a qualified healthcare professional regarding any medical questions, treatment decisions, or other clinical guidance. The Guidelines, including any attachments or linked content, are subject to change at any time without notice.

Other Notices:

Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein.

Guideline Information:

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

Date of last literature review: 8/16/2024
Document last updated: 8/19/2024
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

Table of Contents

Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Chest

Recommended Clinical Approach

Imaging analysis utilizing magnetic resonance imaging (MRI) of the chest can be performed based on clinical suspicion of disease presence or exclusion to direct value-based care. Contrast may or may not be necessary depending upon the clinical indication at the referring physician's request and the discretion of the supervising radiologist. Staging, presurgical planning, and screening are recommendations for a clinical approach.[1]

Medical Necessity Criteria

Indications

- ➔ **Magnetic resonance imaging (MRI), chest** is considered appropriate if **ANY** of the following is **TRUE**:
  - ◆ MR-preferred indications, including **ANY** of the following:
    - Brachial Plexus pathology, suspected due to anatomic (e.g. cervical rib) or clinical symptoms (e.g. positive EMG results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), Includes but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g, Chronic inflammatory demyelinating polyneuropathy(CIDP)), or suspected or known mass; **OR**
    - Evaluation of non-bony musculoskeletal abnormalities, congenital or acquired, such as muscle tear, tendon or cartilage injury[1]; **OR**
    - Inflammatory myopathies (e.g. polymyositis); **OR**
    - Fetal lung or chest wall anomaly is needed to determine further management; **OR**
  - ◆ CT is contraindicated or inconclusive, chest radiographs were inadequate for diagnosis or determination of management, and **ANY** of the following is **TRUE**:
    - Chest wall abnormalities including **ANY** of the following:
      - Anatomic abnormalities, congenital or acquired, such

as pectus excavatum or rib abnormalities; **OR**
        - Palpable chest wall mass with non-diagnostic or indeterminate radiograph or ultrasound; **OR**
        - Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
        - Suspected or known chest wall abscess and further evaluation is needed; **OR**
    - Congenital pulmonary malformations such as pulmonary sequestration, when MRA/CTA is contraindicated or cannot be done; **OR**
    - Persistent lymphadenopathy for initial evaluation; **OR**
    - Neoplastic conditions, Initial staging, treatment planning, response assessment, and surveillance[3,4-5]; **OR**
    - Screening for thymoma in myasthenia gravis; **OR**
    - Herniation into thorax of abdominal contents including diaphragmatic hernias, and hiatal hernias; **OR**
    - Hoarseness, dysphonia, and vocal cord weakness/paralysis after laryngoscopy completed with **ANY** of the following:
        - Findings suggest recurrent laryngeal nerve dysfunction; **OR**
        - Suspicious lesion identified and needs further evaluation; **OR**
        - Symptoms persisting longer than 1 month which are unexplained by laryngoscopy; **OR**
    - Preoperative, postoperative, and pre-treatment evaluation for procedure, surgery, radiation, or chemotherapy; **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

➔ **Magnetic resonance imaging (MRI), chest** 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; **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
71550	Magnetic resonance imaging (MRI) (e.g., proton), chest; without contrast material(s)
71551	Magnetic resonance imaging (MRI) (e.g., proton), chest; with contrast material(s)
71552	Magnetic resonance imaging (MRI) (e.g., proton), chest

	(e.g., for evaluation of hilar and mediastinal lymphadenopathy); with contrast material(s), followed by contrast material(s) and further sequences
C9791	Magnetic resonance imaging with inhaled hyperpolarized xenon-129 contrast agent, chest, including preparation and administration of agent

Medical Evidence

Archer et al. (2023) reviewed the utilization of cross-sectional imaging techniques such as computed tomography (CT) or magnetic resonance imaging (MRI) is essential for assessing mediastinal pathologies. Precisely localizing lesions within specific compartments and analyzing their morphology, density/intensity, enhancement patterns, and any mass effect on adjacent structures can significantly aid in narrowing down diagnostic possibilities. While CT is readily available and fast, MRI does not use radiation and can delineate soft tissue contrasts. Precise imaging allows for identifying masses across tissue planes (e.g., chest wall, diaphragm) and the involvement of neurovascular structures. MRI also provides dynamic sequences that enable the assessment of mass motion relative to neighboring structures during free-breathing or cinematic cardiac gating. Finally, MRI can distinguish between cystic and solid lesions and detect fat, which aids in differentiating thymic hyperplasia from thymic malignancy.[12]

Cavanna et al. (2022) conducted a literature review on thoracic outlet syndrome (TOS). Plain chest and cervical region radiographs often exclude anatomical anomalies and structural irregularities (e.g., cervical ribs, clavicular fracture malunion, elongated transverse processes, or thoracic cavity tumors). Conditions such as compressive effects on the brachial plexus need imaging beyond ultrasound, which may overlook regional pathologies (e.g., Pancoast tumor, cervical spondylopathy). Non-contrast MRI may help diagnose neurogenic TOS (nTOS). However, MR or CT angiography is preferred for confirming venous or arterial TOS.[13]

Bueno et al. (2018) reviewed MR imaging of primary chest wall neoplasms, representing a rare and diverse array of lesions. MR imaging allows detailed insights into tissue composition, disease extent, and the integrity of surrounding structures. Utilization of this modality has increased due to its superior contrast resolution versus CT scans, which are free of radiation. MR imaging allows clinicians to distinguish tumors, identify infectious and inflammatory conditions, and visualize internal components (e.g., fat, fluid, soft tissue, vascularity post-intravenous contrast administration).[14]

References

1. American College of Radiology (ACR). ACR practice parameter for performing and interpreting magnetic resonance imaging (MRI) - resolution 8. Updated 2022. Accessed February 13, 2024. https://www.acr.org/-/media/ACR/Files/Practice-Parameters/MR-Perf-Interpret.pdf.
2. Boulter DJ, Job J, et al. ACR appropriateness criteria - plexopathy: 2021 update. *J Am Coll Radiol*. 2021;18(11S):S423-S441. doi: 10.1016/j.jacr.2021.08.014. PMID: 34794598.
3. Ackman JB, Chung JH, et al. ACR appropriateness criteria - imaging of mediastinal masses. *J Am Coll Radiol*. 2021;18(5S):S37-S51. doi: 10.1016/j.jacr.2021.01.007. PMID: 33958117.
4. de Groot PM, Chung JH, et al. ACR appropriateness criteria - noninvasive clinical staging of primary lung cancer. *J Am Coll Radiol*. 2019;16(5S):S184-S195. doi: 10.1016/j.jacr.2019.02.008. PMID: 31054745.
5. Raptis CA, Goldstein A, et al. ACR appropriateness criteria - staging and follow-up of esophageal cancer. *J Am Coll Radiol*. 2022;19(11S): S462-S472. doi: 10.1016/j.jacr.2022.09.008. PMID: 36436970.
6. Little BP, Gilman MD, Humphrey KL, et al. Outcome of recommendations for radiographic follow-up of pneumonia on outpatient chest radiography. *AJR Am J Roentgenol*. 2014;202(1):54-9. doi: 10.2214/AJR.13.10888. PMID: 24370128.
7. Kirsch J, Wu CC, et al. ACR appropriateness criteria - suspected pulmonary embolism: 2022 update. *J Am Coll Radiol*. 2022;19(11S):S488-S501. doi: 10.1016/j.jacr.2022.09.014. PMID: 36436972.
8. Morris MF, Henry TS, et al. ACR appropriateness criteria - workup of pleural effusion or pleural disease. Published 2023. Accessed March 22, 2024. https://acsearch.acr.org/docs/3158179/Narrative.
9. Sirajuddin A, Mirmomen SM, et al. ACR appropriateness criteria - suspected pulmonary hypertension: 2022 update. *J Am Coll Radiol*. 2022;19(11S):S502-S512. doi: 10.1016/j.jacr.2022.09.018. PMID: 36436973.
10. Zurkiya O, Ganguli S, et al. ACR appropriateness criteria - thoracic outlet syndrome. *J Am Coll Radiol*. 2020;17(5S):S323-S334. doi: 10.1016/j.jacr.2020.01.029. PMID: 32370976.
11. Stowell JT, Walker CM, et al. ACR appropriateness criteria - nontraumatic chest wall pain. *J Am Coll Radiol*. 2021;18(11S):S394-S405. doi: 10.1016/j.jacr.2021.08.004. PMID: 34794596.

12. Archer JM, Ahuja J, Strange CD, et al. Multimodality imaging of mediastinal masses and mimics. *Mediastinum*. 2023 May 8:7:27. doi: 10.21037/med-22-53. PMID: 37701642; PMCID: PMC10493620.
13. Cavanna AC, Giovanis A, Daley A, et al. Thoracic outlet syndrome: A review for the primary care provider. *J Osteopath Med*. 2022;122(11):587-599. doi: 10.1515/jom-2021-0276. PMID: 36018621.
14. Bueno J, Lichtenberger 3rd JP, Rauch G, et al. MR imaging of primary chest wall neoplasms. *Top Magn Reson Imaging*. 2018;27(2):83-93. doi: 10.1097/RMR.0000000000000164. PMID: 29613963.

Clinical Guideline Revision History/Information

Original Date: April 8, 2022		
Review History		
Version 2	8/20/2024	Annual review and policy restructure.