Cohere Medicare Advantage Policy - Magnetic Resonance (MR) Elastography

Clinical Policy for Medical Necessity Review

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Important Notices

Notices & Disclaimers:

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Other Notices:

Policy Information:

Specialty Area: Diagnostic Imaging
Policy Name: Cohere Medicare Advantage Policy - Magnetic Resonance (MR) Elastography
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Magnetic Resonance (MR) Elastography

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.

- There are no applicable NCDs and/or LCDs for MR Elastography.

Description

Magnetic resonance elastography (MRE) is a noninvasive imaging technique that measures the mechanical properties of tissues, particularly stiffness, which can indicate the presence of fibrosis and other pathologies. This technique is primarily used in the assessment of liver diseases, but it also has applications in diagnosing conditions affecting the brain, muscles, and other organs. MRE provides a quantitative measure of tissue elasticity, which is valuable in evaluating the extent of disease, monitoring disease progression, and guiding treatment decisions.[1]

MRE is a valuable tool in tumor diagnosis by measuring tissue stiffness across various cancers. MRE can detect changes in tissue stiffness before clinical symptoms appear, making it essential for early tumor detection, treatment planning, and assessing resistance to chemoradiotherapy.[2]

Medical Necessity Criteria

Indications

Magnetic resonance elastography (MRE) is considered appropriate if **ANY** of the following is **TRUE**[1-6]:

- The patient has metabolic dysfunction-associated steatotic liver disease (MASLD), and hepatic fibrosis or cirrhosis is known or suspected; **OR**
- **ALL** of the following are **TRUE**:
  - The patient has a chronic liver disease (e.g., chronic hepatitis C virus infection, chronic hepatitis B virus infection), and hepatic fibrosis or cirrhosis is known or suspected; **AND**
  - Ultrasound elastography cannot be performed or is nondiagnostic; **OR**
- Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same or similar modality) will be considered reasonable and necessary if **ALL** of the following are **TRUE**:
  - There are no established guidelines; **AND**
  - **ANY** of the following:
    - There are no new or worsening symptoms not addressed in the guidelines, such that repeat imaging would influence treatment; **OR**
    - There is need for a 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 elastography (MRE)** 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.

*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
76391	Magnetic resonance (e.g., vibration) elastography

Disclaimer: S Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Evaluation of Clinical Harms and Benefits

Clinical determinations for Medicare Advantage beneficiaries are made in accordance with 42 CFR 422.101 guidance outlining CMS's required approach to decision hierarchy in the setting of NCDs/LCDs identified as being "not fully established". When clinical coverage criteria are "not fully established" Medicare Advantage organizations are instructed to create publicly accessible clinical coverage criteria based on widely-accepted clinical guidelines and/or scientific studies backed by a robust clinical evidence base. Clinical coverage criteria provided by Cohere Health in this manner include coverage rationale and risk/benefit analysis.

The potential clinical harms of using these criteria for magnetic resonance (MR) elastography may include:

- Adverse effects from delayed or denied treatment, such as a risk of malfunction of implanted medical devices (e.g., implanted pacemakers, cochlear implants) and allergic reaction to contrast material, if used in the study.[7,8]
- Gadolinium-based contrast is not recommended during pregnancy or in patients with acute or chronic kidney injury or disease.[7,8]
- If sedation is used for the study (for anxiety or claustrophobia), there is a risk of over-sedation. The patient will be monitored during the procedure to reduce this risk.

- There is an uncertain risk for MR imaging in pregnant patients. The decision to image in a pregnant patient should be made on an individual basis in consultation with the patient's obstetric provider.[9]
- There is a risk of increased healthcare costs and complications from the inappropriate use of additional interventions.[10]

The clinical benefits of using these criteria for magnetic resonance (MR) elastography may include:

- Improved patient selection results in better long-term outcomes, including early detection and staging of liver fibrosis. MRE is a safe, non-invasive alternative to liver biopsy. One study included patients with chronic hepatitis B, chronic hepatitis C, metabolic dysfunction-associated steatotic liver disease, autoimmune liver disease, or iron overload. The success rate following MRE was 98%. For patients who required additional evaluation, a biopsy was still recommended for 22% of the patients. Of this percentage, 12.5% MRE showed minimal fibrosis, and biopsy allowed for further evaluation (e.g., steatohepatitis), to identify the origin of abnormal transaminase levels.[1,3,5,11]
- Demonstrated technology advances, including overall precision of MRE and the use of biomarkers to differentiate various diagnoses (e.g., fibrosis versus inflammation or hepatic venous congestion).[12,13]
- Enhanced overall patient satisfaction and healthcare experience.
- Appropriate allocation of healthcare resources at the individual beneficiary and population levels.

Medical Evidence

Feuille et al. (2024) analyzed clinical situations where magnetic resonance elastography (MRE) of the liver is indicated. A total of 96 MRE exams and respective follow-ups were included over 14 months. The primary indication for all MREs was noninvasive assessment of liver fibrosis, with one additional indication identified in every case. Liver biopsy decreased after MRE. However, when a liver biopsy was indicated, the patient was very likely to undergo the procedure. MRE is a safe alternative for patients, although rare but serious risks may occur.[3]

In a review of the clinical utility of MRE in assessing liver fibrosis, Moura Cunha et al. (2024) noted that the diagnostic performance of MRE for advanced (greater than or equal to F3) fibrosis was excellent; most studies reported greater than 80% sensitivity and greater than 90% specificity. The study also included a review of thresholds for staging and advances in technology that will enhance the use of MRE.[2]

A large meta-analysis by Singh et al. (2015) included 12 studies and 697 individual patients from Europe and the United States with different chronic liver diseases. The mean values for the area under the receiver operating characteristic curve (AUROC) were 0.84 (greater than or equal to stage 1), 0.88 (greater than or equal to stage 2), 0.93 (greater than or equal to stage 3), and 0.92 (cirrhosis).[5]

Venkatesh et al. (2013) reviewed the utilization of MRE of the liver. While adequate to detect and stage liver fibrosis, the authors noted that future research is needed to improve three-dimensional imaging quality and resolution to aid in characterizing liver lesions and fibrosis. MRE also showed promise for evaluating patient response to antifibrotic treatments.[1]

References

1. Venkatesh SK, Yin M, Ehman RL. Magnetic resonance elastography of liver: Clinical applications. *J Comput Assist Tomogr*. 2013 Nov-Dec;37(6):887-96. doi:10.1097/RCT.0000000000000032
2. Moura Cunha G, Fan B, Navin PJ, et al. Interpretation, reporting, and clinical applications of liver MR elastography. *Radiology*. 2024 Mar;310(3):e231220. doi:10.1148/radiol.231220
3. Feuille C, Kari S, Patel R, et al. Utility and impact of magnetic resonance elastography in the clinical course and management of chronic liver disease. *Sci Rep*. 2024;14:1765. https://doi.org/10.1038/s41598-024-51295-1
4. Kaplan JM, Alexis J, Grimaldi G, Islam M, Izard SM, Lee TP. A comparison of magnetic resonance elastography (MRE) to biomarker testing for staging fibrosis in non-alcoholic fatty liver disease (NAFLD). *Transl Gastroenterol Hepatol*. 2023 Jan 25;8:7. doi: 10.21037/tgh-22-27
5. Singh S, Venkatesh SK, Wang Z, et al. Diagnostic performance of magnetic resonance elastography in staging liver fibrosis: A systematic review and meta-analysis of individual participant data. *Clin Gastroenterol Hepatol*. 2015 Mar;13(3):440-451.e6. doi:10.1016/j.cgh.2014.09.046
6. Younossi ZM, Zelber-Sagi S, Lazarus JV, et al. Global consensus recommendations for metabolic dysfunction-associated steatotic liver disease and steatohepatitis. *Gastroenterology*. 2025 Oct;169(5):1017-1032.e2. doi:10.1053/j.gastro.2025.02.044
7. American College of Radiology (ACR) Committee on Drugs and Contrast Media. ACR manual on contrast media [Internet] American College of Radiology (ACR). Updated 2025. http://www.acr.org
8. American College of Radiology (ACR). ACR practice parameter for performing and interpreting magnetic resonance imaging (MRI) (resolution 8). Updated 2022. http://www.acr.org
9. American College of Obstetricians and Gynecologists (ACOG). Guidelines for diagnostic imaging during pregnancy and lactation: Committee opinion (no. 723). Published October 2017.

https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/10/guidelines-for-diagnostic-imaging-during-pregnancy-and-lactation

10. Kjelle E, Brandsæter IØ, Andersen ER, Hofmann BM. Cost of low-value imaging worldwide: A systematic review. *Appl Health Econ Health Policy.* 2024;22(4):485-501. doi:10.1007/s40258-024-00876-2
11. Loomba R, Wolfson T, Ang B, et al. Magnetic resonance elastography predicts advanced fibrosis in patients with nonalcoholic fatty liver disease: A prospective study. *Hepatology*. 2014 Dec;60(6):1920-8. doi:10.1002/hep.27362
12. Yin M, Ehman RL. MR elastography: Practical questions, from the AJR Special Series on Imaging of Fibrosis. *AJR Am J Roentgenol*. 2024 Jan;222(1):e2329437. doi:10.2214/AJR.23.29437
13. Hsu C, Caussy C, Imajo K, et al. Magnetic resonance vs transient elastography analysis of patients with nonalcoholic fatty liver disease: A systematic review and pooled analysis of individual participants. *Clin Gastroenterol Hepatol*. 2019 Mar;17(4):630-637.e8. doi:10.1016/j.cgh.2018.05.059

Policy Revision History/Information

Original Date: October 17, 2024		
Review History		
Version 2	10/02/2025	Annual review. Added indications for chronic liver disease when hepatic fibrosis or cirrhosis is known or suspected, and ultrasound elastography cannot be performed or is nondiagnostic. Clarified the indication for repeat imaging to improve usability and organization. Removed relative contraindications (contrast allergy, metallic clips, incompatible implantable devices, metallic foreign body). Removed CPT code 75565. Updated medical evidence summaries for clarity.