

# MR ELASTOGRAPHY A NON-INVASIVE APPROACH FOR DETECTION OF HEPATIC FIBROSIS

Magnetic Resonance Elastography (MRE) is a rapidly developing, accurate and reproducible imaging technique to assess the fibrosis of tissue. MRE serves as a technique to quantitatively evaluate the propagation of mechanical shear waves through tissue. A non-invasive alternative to liver biopsy, MRE is indicated for the detection and staging of chronic liver fibrosis.

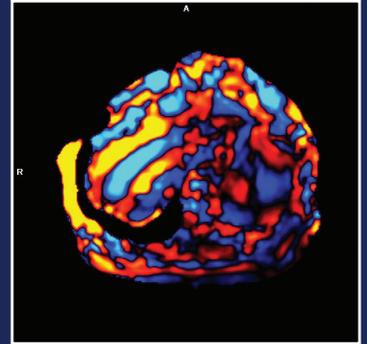
*MR elastography is the most accurate method to date for detecting and staging liver fibrosis.*

## MRE INDICATIONS:

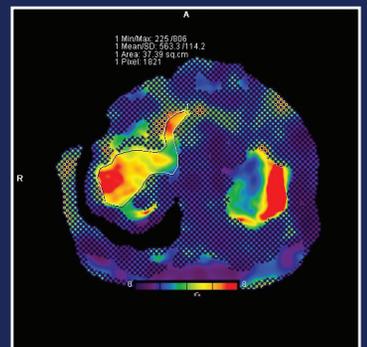
- Chronic liver disease
- Cirrhosis
- Nonalcoholic fatty liver disease (NAFLD) and Nonalcoholic steatohepatitis (NASH)
- Autoimmune disease
- Metabolic/genetic disorders
- Hepatic tumors
- Pediatric fibrosis
- Liver transplant

## ABOUT THE MR ELASTOGRAPHY PROCEDURE:

There is no specific preparation for the MRE procedure. During the procedure, the patient lies on the table in a supine position and a plastic acoustic passive driver is positioned on the patient's abdomen. The driver will create vibrations through the tissue and the MRE sequence acquires images of wave propagation within the liver.



Wave image shows the propagation of the shear waves through the hepatic parenchyma. Thicker wave represents area of increased tissue stiffness.



Color coded elastogram shows elevated stiffness within the liver.

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**Charter Radiology is the only outpatient radiology center  
in Maryland to offer MR Elastography (MRE).**

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## ACR APPROPRIATENESS CRITERIA® CHRONIC LIVER DISEASE:

Variant 1. Chronic liver disease. Diagnosing liver fibrosis.

PROCEDURE	APPROPRIATENESS CATEGORY	RRL
MR elastography abdomen	Usually Appropriate	○
US elastography ARFI abdomen	Usually Appropriate	○
1D transient elastography abdomen	Usually Appropriate	○
MRI abdomen without IV contrast	May Be Appropriate	○
MRI abdomen without and with IV contrast	May Be Appropriate	○
MRI abdomen without and with hepatobiliary contrast	May Be Appropriate	○
US abdomen	May Be Appropriate	○
CT abdomen with IV contrast multiphase	May Be Appropriate	⊗⊗⊗⊗
CT abdomen without IV contrast	May Be Appropriate	⊗⊗⊗
CT abdomen without and with IV contrast	Usually Not Appropriate	⊗⊗⊗⊗

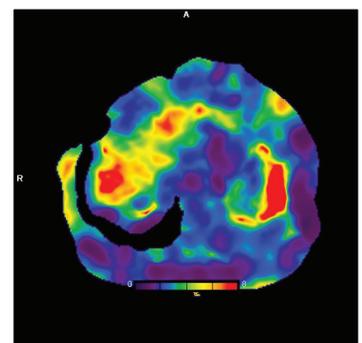
ARFI = acoustic radiation force impulse; IV = intravenous; RRL = relative radiation level; US = ultrasound.

[Source: <https://www.sciencedirect.com/science/article/pii/S1546144017311006>]

### CHARTER RADIOLOGY – EXCELLENCE IN RADIOLOGY, COMMITMENT TO RESEARCH:

Charter Radiology has earned a reputation for excellence in radiologic skill and accuracy. As the only outpatient radiology center in Maryland offering MR Elastography, Charter Radiology has been participating in clinical trials for MRE since 2015 and is an active participant in multiple research trials including:

- A collaborative research trial with Gilead utilizing MR Elastography in the study of liver fibrosis and the drug Harvoni.
- A collaborative research trial with Novartis utilizing MR Elastography in the NASH study of nonalcoholic fatty liver disease.
- A collaborative research trial with Gilead utilizing MR Elastography in the NASH study of nonalcoholic fatty liver disease.



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