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Medical Policies

Print

Policy Number:	L-5041		
Policy Name:	Noninvasive Techniques for the Evaluation and Monitoring of Patients With Chronic Liver Disease		
Policy Type:	Medical	**Policy Subtype:**	Laboratory
Effective Date:	09-15-2025	**End Date:**	11-02-2025

Description

The diagnosis of non-neoplastic liver disease is often made from needle biopsy samples. Noninvasive monitoring alternatives to liver biopsy in individuals with chronic liver disease are; specialized radiologic methods, including magnetic resonance elastography, transient elastography, acoustic radiation force impulse imaging, and real-time transient elastography.

Noninvasive Imaging Technologies

Noninvasive imaging technologies to detect liver fibrosis or cirrhosis among individuals with chronic liver disease are being evaluated as alternatives to liver biopsy. The noninvasive imaging technologies include transient elastography (e.g., FibroScan), magnetic resonance elastography, acoustic radiation force impulse (ARFI) imaging (e.g., Acuson S2000), and real-time tissue elastography (e.g., HI VISION Preirus).

Transient Elastography

Transient elastography (FibroScan) uses a mechanical vibrator to produce mild amplitude and low-frequency (50 Hz) waves, inducing an elastic shear wave that propagates throughout the liver. Ultrasound tracks the wave, measuring its speed in kilopascals, which correlates with liver stiffness. Increases in liver fibrosis also increase liver stiffness and resistance of liver blood flow. Transient elastography does not perform as well in individuals with ascites, higher body mass index, or narrow intercostal margins. Although FibroScan may be used to measure fibrosis (unlike liver biopsy), it does not provide information on necroinflammatory activity and steatosis, nor is it accurate during acute hepatitis or hepatitis exacerbations.

Acoustic Radiation Force Impulse Imaging

ARFI imaging uses an ultrasound probe to produce an acoustic 'push' pulse, which generates shear waves that propagate in tissue to assess liver stiffness. ARFI elastography evaluates the wave propagation speed (measured

in meters per second) to assess liver stiffness. The faster the shear wave speed, the harder the object. ARFI technologies include Virtual Touch Quantification and Siemens Acuson S2000 system. ARFI elastography can be performed at the same time as a liver sonographic evaluation, even in individuals with a significant amount of ascites.

Magnetic Resonance Elastography

Magnetic resonance elastography uses a driver to generate 60-Hz mechanical waves on the individual's chest wall. The magnetic resonance equipment creates elastograms by processing the acquired images of propagating shear waves in the liver using an inversion algorithm. These elastograms represent the shear stiffness as a pixel value in kilopascals. Magnetic resonance elastography has several advantages over ultrasound elastography, including: (1) the ability to analyze larger liver volumes; (2) the ability to analyze liver volumes of obese individuals or individuals with ascites; and (3) the ability to precisely analyze viscoelasticity using a three (3)-dimensional displacement vector.

Real-Time Tissue Elastography individuals

Real-time tissue elastography is a type of strain elastography that uses a combined autocorrelation method to measure tissue strain caused by manual compression or a person's heartbeat. The relative tissue strain is displayed on conventional color B mode ultrasound images in real-time. Hitachi manufactures real-time tissue elastography devices, including the HI VISION Preirus. The challenge is to identify a region of interest while avoiding areas likely to introduce artifacts, such as large blood vessels, the area near the ribs, and the surface of the liver. Areas of low strain increase as fibrosis progresses and strain distribution becomes more complex. Various subjective and quantitative methods have been developed to evaluate the results. Real-time tissue elastography can be performed in individuals with ascites or inflammation. This technology does not perform as well in severely obese individuals.

Policy Application

For Date of Processing (DOP): All claims submitted for this policy will be processed according to the policy effective date and associated revision effective dates in effect on the date of processing, regardless of service date.

For Date of Service (DOS): All claims submitted for this policy will be processed according to the policy effective date and associated revision effective dates in effect on the date of service.

*See below to determine whether the policy rules apply to initial and adjustment claims based on date of processing (DOP) or Date of Service (DOS).

Criteria

Transient elastography (FibroScan) imaging may be considered **medically necessary** for the evaluation of individuals with chronic liver disease

Transient elastography (FibroScan) imaging is considered **investigational** for monitoring of individuals with chronic liver disease.

The use of other noninvasive imaging, including but not limited to magnetic resonance elastography, acoustic radiation force impulse imaging (e.g., Acuson S2000), or real-time tissue elastography, is considered

investigational for the evaluation or monitoring of individuals with chronic liver disease.

Procedure Codes

76391	76981	76982	76983	91200

A single FibroSURE multianalyte assay may be considered medically necessary for the evaluation of individuals with chronic liver disease.

FibroSURE multianalyte assays are considered investigational for monitoring of individuals with chronic liver disease.

Other multianalyte assays with algorithmic analyses are considered investigational for the evaluation or monitoring of individuals with chronic liver disease.

Summary of Evidence

Multianalyte Serum Assays

For individuals who have chronic liver disease who receive FibroSURE serum panels, the evidence includes systematic reviews of more than 30 observational studies (greater than 5000 individuals). Relevant outcomes are test validity, morbid events, and treatment-related morbidity. FibroSURE has been studied in populations with viral hepatitis, nonalcoholic fatty liver disease (NALFD), and alcoholic liver disease (ALD). There are established cutoffs, although they were not consistently used in validation studies. Given these limitations and the imperfect reference standard, it is difficult to interpret performance characteristics. However, for the purposes of deciding whether an individual has severe fibrosis or cirrhosis, FibroSURE results provide data sufficiently useful to determine therapy. Specifically, FibroSURE has been used as an alternative to biopsy to establish eligibility regarding the presence of fibrosis or cirrhosis in several randomized controlled trials that showed the efficacy of hepatitis C virus treatments, which in turn demonstrated that the test can identify individuals who would benefit from therapy. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have chronic liver disease who receive multianalyte serum assays for liver function assessment other than FibroSURE, the evidence includes a number of observational studies and systematic reviews of those studies. Relevant outcomes are test validity, morbid events, and treatment-related morbidity. Studies have frequently included varying cutoffs, some of which were standardized and others not validated. Cutoff thresholds have often been modified over time, may be specific to certain individual populations, and in some cases, guideline recommendations differ from cutoffs designated by manufacturers and those utilized in studies. A comparison of transient elastography to various serum-based tests found that the former was superior in detecting fibrosis, and a meta-analysis of four (4) studies found higher multianalyte scores associated with an increased risk of mortality relative to lower scores, but the evidence is limited by the small number of included studies and high heterogeneity and imprecision for some estimates. Given these limitations and the imperfect reference standard, it is difficult to interpret performance characteristics. There is no direct evidence that other multianalyte serum assays improve health outcomes; further, it is not possible to construct a chain of evidence for clinical utility due to the lack of sufficient evidence on clinical validity. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Professional Statements and Societal Positions Guidelines

Practice Guidelines and Position Statements

Nonalcoholic Fatty Liver Disease

American Gastroenterological Association et al

The practice guidelines on the diagnosis and management of NAFLD, developed by the American Gastroenterological Association, the American Association for the Study of Liver Diseases, and the American College of Gastroenterology (2018) stated that 'NFS [NAFLD fibrosis score] or FIB-4 [Fibrosis-4] index are clinically useful tools for identifying NAFLD individuals with higher likelihood of having bridging fibrosis (stage 3) or cirrhosis (stage 4).' It also cited VCTE [vibration-controlled transient elastography] and MRE [magnetic resonance elastography] as 'clinically useful tools for identifying advanced fibrosis in individuals with NAFLD.'

National Institute for Health and Care Excellence

The NICE (2016) published guidance on the assessment and management of NAFLD. The guidance did not reference elastography. The guidance recommended the enhanced liver fibrosis test to test for advanced liver fibrosis, utilizing a cut-off enhanced liver fibrosis score of 10.51.

American Gastroenterological Association Institute

The American Gastroenterological Association Institute (2017) published guidelines on the role of elastography in chronic liver disease. The guidelines indicated that, in adults with NAFLD, VCTE has superior diagnostic sensitivity and specificity for diagnosing cirrhosis than the APRI or FIB-4 tests (very low quality of evidence). Moreover, the guidelines stated that, in adults with NAFLD, magnetic resonance-guided elastography has little or no increased diagnostic accuracy for identifying cirrhosis compared with VCTE in individuals who have cirrhosis, and has higher diagnostic accuracy than VCTE in individuals who do not have cirrhosis (very low quality of evidence).

Hepatitis B and C Viruses

National Institute for Health and Care Excellence

The NICE (2013) published guidance on the management and treatment of individuals with hepatitis B. The guidance recommended offering transient elastography as the initial test in adults diagnosed with chronic hepatitis B, to inform the antiviral treatment decision.

Antiviral Treatment Recommendations by Transient Elasticity Score

Transient Elasticity Score	Antiviral Treatment
greater than 11 kPa	Offer antiviral treatment
six (6)-10 kPa	Offer liver biopsy to confirm fibrosis level prior to offering antiviral treatment

less than six (6) kPa plus abnormal (ALT)	Offer liver biopsy to confirm fibrosis level prior to offering antiviral treatment
less than six (6) plus normal ALT	Do not offer antiviral treatment

ALT: alanine aminotransferase; kPa: kilopascal.

As of September 2016, the NICE had placed a pause on the development of the guidance on hepatitis C, citing instability and costs in the availability of treatments for the condition.

American Association for the Study of Liver Diseases and Infectious Diseases Society of America

The American Association for the Study of Liver Diseases and Infectious Diseases Society of America (2018) guidelines for testing, managing, and treating hepatitis C virus (HCV) recommended that, for counseling and pretreatment assessment purposes, the following should be completed:

'Evaluation for advanced fibrosis using liver biopsy, imaging, and/or noninvasive markers is recommended in all persons with HCV infection to facilitate an appropriate decision regarding HCV treatment strategy and determine the need for initiating additional measures for the management of cirrhosis (e.g., hepatocellular carcinoma screening).
Rating: Class I, Level A [evidence and/or general agreement; data derived from multiple randomized trials, or meta-analyses]'

The guidelines noted that there are several noninvasive tests to stage the degree of fibrosis in individuals with HCV. Tests included indirect serum biomarkers, direct serum biomarkers, and VCTE. The guidelines asserted that no single method is recognized to have high accuracy alone and careful interpretation of these tests is required.

American Gastroenterological Association Institute

Guidelines published by the American College of Gastroenterology Institute (2017) on the role of elastography in chronic liver disease indicated that, in adults with chronic hepatitis B virus and chronic HCV, VCTE has superior diagnostic performance for diagnosing cirrhosis than the APRI and FIB-4 tests (moderate quality of evidence for HCV, low quality of evidence for hepatitis B virus). In addition, the guidelines stated that, in adults with HCV, magnetic resonance-guided elastography has little or no increased diagnostic accuracy for identifying cirrhosis compared with VCTE in individuals who have cirrhosis, and has lower diagnostic accuracy than VCTE in individuals who do not have cirrhosis (very low quality of evidence).

Chronic Liver Disease

American College of Radiology

The American College of Radiology (2017) appropriateness criteria rated one (1)-dimensional transient elastography as a seven (7) (usually appropriate) for the diagnosis of liver fibrosis in individuals with chronic liver disease. The criteria noted, 'This procedure is less reliable in diagnosing liver fibrosis and cirrhosis in individuals with obesity or ascites.'

European Association for the Study of Liver Disease et al

The European Association for the Study of Liver Disease and the Asociacion Latinoamericana para el Estudio del Higado (2015) convened a panel of experts to develop clinical practice guidelines on the use of noninvasive tests to evaluate liver disease severity and prognosis. The publication summarized the advantages and disadvantages

of noninvasive techniques (serum biomarkers, imaging techniques). Table 9 summarized the joint recommendations for serum biomarkers and transient elastography.

Table 9. Recommendations for Serum Biomarkers and Transient Elastography

Biomarkers	QOE	SOR
'Serum biomarkers can be used in clinical practice due to high applicability (greater than 95%) and good reproducibility.'	High	Strong
'TE can be considered the non-invasive standard for the measure of LS'	High	Strong
'Serum biomarkers are well-validated for chronic viral hepatitis.... They are less well-validated for NAFLD not validated in other chronic kidney diseases.'	High	Strong
'For the diagnosis of significant fibrosis a combination of tests with concordance may provide the highest diagnostic accuracy'	High	Weak
'All HCV individuals should be screened to exclude cirrhosis by TE [or]... serum biomarkers....'	High	Strong
'Non-invasive assessment including serum biomarkers or TE can be used as first-line procedure for the identification of individuals at low risk of severe fibrosis/cirrhosis'	High	Strong
'Follow-up assessment by either serum biomarkers or TE for progression of liver fibrosis should be used for NAFLD individuals at a three (3)-year interval'	Moderate	Strong

HCV: hepatitis C virus; LS: liver stiffness; NAFLD: nonalcoholic fatty liver disease; QOE: quality of evidence; SOR: strength of recommendation; TE: transient elastography.

Diagnosis Codes

Not Applicable

CURRENT CODING

CPT:

76391	MAGNETIC RESONANCE ELASTOGRAPHY	Commercial

76981	ULTRASOUND ELASTOGRAPHY PARENCHYMA	Commercial
76982	ULTRASOUND ELASTOGRAPHY FIRST TARGET LESION	Commercial
76983	ULTRASOUND ELASTOGRAPHY EA ADDL TAGET LESION	Commercial
91200	LIVER ELASTOGRAPHY W/O IMAG W/I&R	Commercial
76391	MAGNETIC RESONANCE ELASTOGRAPHY	Medicaid Expansion
76981	ULTRASOUND ELASTOGRAPHY PARENCHYMA	Medicaid Expansion
76982	ULTRASOUND ELASTOGRAPHY FIRST TARGET LESION	Medicaid Expansion
76983	ULTRASOUND ELASTOGRAPHY EA ADDL TAGET LESION	Medicaid Expansion
91200	LIVER ELASTOGRAPHY W/O IMAG W/I&R	Medicaid Expansion

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ND Committee Review

Internal Medical Policy Committee 1-22-2020 Annual Review *Effective March 2, 2020*

- *Removed* all FibroSure info in separate policy 2-28-2020

Internal Medical Policy Committee 3-17-2021 Annual Review - *Effective May 3, 2021*

- *Updated* language

Internal Medical Policy Committee 3-23-2022 Annual Review - no changes in criteria *Effective May 2, 2022*

Internal Medical Policy Committee 3-23-2023 Revision - *Effective May 01, 2023*

- *Added* Summary of Evidence
- *Updated* References

Internal Medical Policy Committee 5-14-2024 Annual Review - no changes in criteria *Effective July 1, 2024*

- *Added* Policy Application

Disclaimer

Current medical policy is to be used in determining a Member's contract benefits on the date that services are rendered. Contract language, including definitions and specific inclusions/exclusions, as well as state and federal law, must be considered in determining eligibility for coverage. Members must consult their applicable benefit plans or contact a Member Services representative for specific coverage information. Likewise, medical policy, which addresses the issue(s) in any specific case, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and the Company reserves the right to review and update medical policy periodically.