

# Noninvasive Tests for Hepatic Fibrosis



INDEPENDENT CARE HEALTH PLAN

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## Medicare Advantage Medical Coverage Policy

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#### Disclaimer

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## Related Medicare Advantage Medical/Pharmacy Coverage Policies

None

## Related Documents

Please refer to [CMS website](#) for the most current applicable CMS Online Manual System (IOMs)/National Coverage Determination (NCD)/ Local Coverage Determination (LCD)/Local Coverage Article (LCA)/ Transmittals.

There are no NCDs and/or LCDs for noninvasive tests for hepatic fibrosis.

## Description

Chronic liver disease is the progressive destruction of the essential and distinctive tissue of the liver. Causes of liver disease include, but may not be limited to, alcohol use, nonalcoholic fatty liver disease or either of the viruses that cause hepatitis (hepatitis B virus [HBV] or hepatitis C virus [HCV]). If the disease is left untreated, it can result in hepatic fibrosis, cirrhosis, and eventually liver failure.

Hepatic fibrosis is the excessive accumulation of fibrotic connective tissue resulting from prolonged inflammation and progressive scarring of the liver due to a sustained wound-healing response to liver injury. The increased fibrosis and liver stiffness reduces blood flow through the liver, which leads to hardening and death of liver cells.

Liver biopsy is considered the gold standard for diagnosis and management of chronic liver disease. However, it is an invasive procedure that may result in complications. For that reason, noninvasive hepatic fibrosis tests have been introduced. Examples of these tests include, but may not be limited to:

### Elastography

Elastography is a noninvasive method for measuring liver stiffness or elasticity utilizing ultrasound and low frequency elastic waves. There are several ways this type of testing may be performed which include, but may not be limited to:

- **Acoustic radiation forced impulse (ARFI) elastography (eg, Virtual Touch Imaging – Acuson S2000-3000)** utilizes ultrasound detection of shear waves, which is created by the focusing of waves from the ultrasound transducer as the waves move through the liver (may also be referred to as a pushing pulse). This technique purportedly provides single one-dimensional measures of tissue elasticity; however, the area can be positioned on a two-dimensional B mode image. The measurements are expressed as meters per second (m/s), which supposedly indicates the shear wave speed traveling perpendicular to the shear wave source.
- **Magnetic resonance elastography (MRE)** uses wave propagation and tissue deformation analysis to assess changes to tissue viscoelasticity caused by disease. MRE is purportedly based on principles similar to ultrasound transient elastography and ARFI; however, MRE reportedly assesses wave propagation and tissue displacement in three dimensions rather than one dimension. This form of imaging involves placing a probe against the individual's back which emits low frequency vibrations that pass through the liver and can reportedly be measured by the MRI spin echo sequence.
- **Real-time shear wave elastography (SWE) (eg, Aixplorer MACH 20-30, Aplio)**, which may also be known as 2D-SWE, is a form of elastography similar to ARFI in that it uses a pushing pulse to generate shear waves. This method uses a very fast (5,000 frames per second) signal transmission and acquisition sequence to measure the propagation speed of the shear waves; therefore, it reportedly can generate the shear waves in the tissue and simultaneously produce an image and calculate the velocity of the waves.
- **Spleen stiffness measurements (SSM) (eg, FibroScan 630 Expert)** is a technique that reportedly expands capabilities of assessing liver fibrosis. Purportedly, measuring SSM along with liver stiffness using elastography may aid in the diagnosis and monitoring of fibrosis as well as portal hypertension (PH) and risk of esophageal varices. PH is an increase in the pressure within the portal vein, which is caused by a

blockage in the blood flow to the liver. This increased pressure can cause varices (enlarged veins) to develop across the esophagus and stomach.

- **Ultrasound transient elastography (eg, FibroScan)** consists of a control unit (computer-based), a low-frequency vibration emitter and a high-frequency ultrasound probe. When the vibration emitter is pressed between the ribs on the right side of the body, an ultrasonic low-frequency elastic shear wave is propagated through the liver. The stiffness is proportional to the square of the velocity of the shear wave, which is measured in kilopascals (kPa). There are approximately 5 to 10 readings taken and the median is used as the final value.

**Quantitative magnetic resonance for analysis of tissue composition (eg, LiverMultiScan)** has been developed for noninvasive liver evaluation. The system uses multiparametric magnetic resonance imaging (MRI) to reportedly quantify liver tissue. Post-processing software via a cloud-based service is also utilized to reportedly provide quantitative measures of liver fat and correlates of iron, fibrosis and inflammation in nonalcoholic fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH) to aid in the diagnosis.

#### Liver Fibrosis Serum Panels

Blood serum laboratory tests have been developed as an alternative to liver biopsy to purportedly determine the extent of liver damage that has occurred in an individual with liver disease. Examples of these panels include, but may not be limited to:

- **ASH FibroSure (ASH test)** is utilized to reportedly assess the liver fibrosis in an individual with alcoholic liver disease. The **NASH FibroSure** test is utilized in an individual with NAFLD. These tests include the [biomarkers listed for FibroTest](#) with the addition of total cholesterol, triglycerides and fasting glucose in combination with age, gender, height and weight and generate a fibrosis score utilizing proprietary algorithms.
- **Enhanced liver fibrosis (ELF) test** reportedly assesses the risk of progression to cirrhosis in NAFLD by measuring the following 3 markers: hyaluronic acid (HA), tissue inhibitor of matrix metalloproteinase 1 (TIMP-1) and procollagen III amino-terminal peptide (PIIINP). The ELF test is also purportedly being utilized to assess the likelihood of progression to cirrhosis and liver-related clinical events due to NASH using a generated proprietary algorithm.
- **FibroMeter** is utilized to measure liver fibrosis in individuals with NAFLD. It measures platelet count, prothrombin index, AST, ALT, blood urea nitrogen, HA and age. Using a proprietary algorithm, the results of the measurements are converted into a score to determine an individual's fibrosis score.
- **FibroSpect II** measures 3 markers for liver fibrosis: serum HA, TIMP-1 and alpha2-macroglobulin (A2M). Using a proprietary algorithm, the results of the measurements are converted into a score to determine an individual's fibrosis score.
- **FibroTest (also known as FibroSure)** measures markers for liver fibrosis. These measurements consist of a proprietary algorithm of fibrosis markers combined with an individual's age and gender to determine

liver fibrosis severity. **ActiTest** has been added to FibroTest, which uses the scores from FibroTest with the addition of the biomarker ALT to reportedly measure necroinflammatory activity. The biomarkers for these tests include the following:

- A2M
  - ALT (ActiTest)
  - Apolipoprotein A1
  - Gamma-glutamyl transpeptidase (GGT)
  - Haptoglobin
  - Total bilirubin
- **HepaScore** measures 4 markers for liver fibrosis: bilirubin, GGT, HA, A2M and applies the results to a proprietary algorithm, combined with an individual's age and sex, to determine a liver fibrosis score.
  - **LiverFASt** combines 10 biomarkers along with a proprietary algorithm that reportedly measures fibrosis as well as inflammatory activity and steatosis. The biomarkers included in the test are A2M, ALT, haptoglobin, AST, apolipoprotein, fasting glucose, total bilirubin, triglyceride, GGT and total cholesterol.
  - **NIS4** is an emerging test that is designed to reportedly identify the presence of at-risk NASH. Supposedly, an individual who is determined to be at-risk for NASH could face increased likelihood of progression to more severe complications such as cirrhosis or cancer. The test purportedly uses a multimarker-based proprietary algorithm that integrates the following biomarkers: miR-34a-5p, A2M, YKL-40 and HbA1c.
  - **OWLiver test** for fatty liver disease is a noninvasive test that combines 28 biomarkers (metabolites) from a blood sample that are analyzed together in 2 proprietary algorithms to reportedly determine or approximate an individual's liver status regarding fibrosis.

## Coverage Determination

*iCare follows the CMS requirements that only allows coverage and payment for services that are reasonable and necessary for the diagnosis and treatment of illness or injury or to improve the functioning of a malformed body member except as specifically allowed by Medicare.*

*In interpreting or supplementing the criteria above and in order to determine medical necessity consistently, iCare may consider the following criteria.*

### Noninvasive Tests for Hepatic Fibrosis

*The use of the criteria in this Medicare Advantage Medical Coverage Policy provides clinical benefits highly likely to outweigh any clinical harms. Services that do not meet the criteria above are not medically necessary and thus do not provide a clinical benefit. Medically unnecessary services carry risks of adverse outcomes and may interfere with the pursuit of other treatments which have demonstrated efficacy.*

## Coverage Limitations

[US Government Publishing Office. Electronic code of federal regulations: part 411 – 42 CFR § 411.15 - Particular services excluded from coverage](#)

**Coding Information**

Any codes listed on this policy are for informational purposes only. Do not rely on the accuracy and inclusion of specific codes. Inclusion of a code does not guarantee coverage and/or reimbursement for a service or procedure.

CPT® Code(s)	Description	Comments
76391	Magnetic resonance (eg, vibration) elastography	
76498	Unlisted magnetic resonance procedure (eg, diagnostic, interventional)	
76981	Ultrasound, elastography; parenchyma (eg, organ)	
76982	Ultrasound, elastography; first target lesion	
76983	Ultrasound, elastography; each additional target lesion (List separately in addition to code for primary procedure)	
81596	Infectious disease, chronic hepatitis C virus (HCV) infection, six biochemical assays (ALT, A2-macroglobulin, apolipoprotein A-1, total bilirubin, GGT, and haptoglobin) utilizing serum, prognostic algorithm reported as scores for fibrosis and necroinflammatory activity in liver	
81599	Unlisted multianalyte assay with algorithmic analysis	
82172	Apolipoprotein, each	
82247	Bilirubin; total	
82977	Glutamyltransferase, gamma (GGT)	
83010	Haptoglobin; quantitative	
83520	Immunoassay for analyte other than infectious agent antibody or infectious agent antigen; quantitative, not otherwise specified	
83883	Nephelometry, each analyte not elsewhere specified	
91200	Liver elastography, mechanically induced shear wave (eg, vibration), without imaging, with interpretation and report	
0002M	Liver disease, ten biochemical assays (ALT, A2-macroglobulin, apolipoprotein A-1, total bilirubin, GGT, haptoglobin, AST, glucose, total cholesterol and triglycerides) utilizing serum, prognostic algorithm reported as quantitative scores for fibrosis, steatosis and alcoholic steatohepatitis (ASH)	

0003M	Liver disease, ten biochemical assays (ALT, A2-macroglobulin, apolipoprotein A-1, total bilirubin, GGT, haptoglobin, AST, glucose, total cholesterol and triglycerides) utilizing serum, prognostic algorithm reported as quantitative scores for fibrosis, steatosis and nonalcoholic steatohepatitis (NASH)	
0014M	Liver disease, analysis of 3 biomarkers (hyaluronic acid [HA], procollagen III amino terminal peptide [PIIINP], tissue inhibitor of metalloproteinase 1 [TIMP-1]), using immunoassays, utilizing serum, prognostic algorithm reported as a risk score and risk of liver fibrosis and liver-related clinical events within 5 years	
0166U	Liver disease, 10 biochemical assays (A2-macroglobulin, haptoglobin, apolipoprotein A1, bilirubin, GGT, ALT, AST, triglycerides, cholesterol, fasting glucose) and biometric and demographic data, utilizing serum, algorithm reported as scores for fibrosis, necroinflammatory activity, and steatosis with a summary interpretation	
0344U	Hepatology (nonalcoholic fatty liver disease [NAFLD]), semiquantitative evaluation of 28 lipid markers by liquid chromatography with tandem mass spectrometry (LC-MS/MS), serum,	
<b>CPT® Category III Code(s)</b>	<b>Description</b>	<b>Comments</b>
0648T	Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained without diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure) during the same session; single organ	
0649T	Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained with diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure); single organ (List separately in addition to code for primary procedure)	
<b>HCPCS Code(s)</b>	<b>Description</b>	<b>Comments</b>
No code(s) identified		

## Change Summary

- 01/01/2024 New Policy.