The MASH Quick Reference Guide

MASH Awareness™

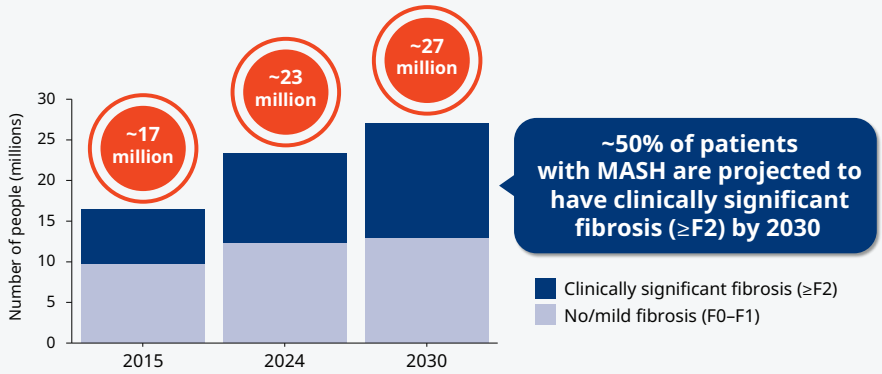
What is MASH?

Metabolic dysfunction-associated steatohepatitis (MASH) is the updated term for what was previously called nonalcoholic steatohepatitis (NASH). The change in terminology reflects a deeper understanding of the disease, emphasizing its association with metabolic dysfunction, as well as an initiative to remove stigmatizing language associated with "nonalcoholic."[1]

MASH is the more severe form of metabolic dysfunction-associated steatotic liver disease (MASLD)—formerly known as nonalcoholic fatty liver disease (NAFLD)—and is characterized by hepatic steatosis, inflammation, and hepatocyte injury (ie, ballooning).[2]

Patients with MASH may develop fibrosis and even cirrhosis over time.[2]

MASH is a growing epidemic in the United States[3,a]



[a]Numbers presented are based on a Markov model.

Who is at the highest risk for developing MASH?

Because MASH is characterized by metabolic dysfunction that affects the liver, individuals who have certain metabolic conditions and/or evidence of liver abnormalities are at elevated risk for MASH. According to the AACE guidelines, patients with the following conditions should be screened for MASH with fibrosis[4]:

- Prediabetes or type 2 diabetes
- Obesity
- ≥2 cardiometabolic risk factors[b]
- Hepatic steatosis on imaging
- ↑ AST or ALT (>30 IU/L)

[b]Cardiometabolic risk factors include waist circumference >40 inches for men, >35 inches for women, triglycerides ≥150 mg/dL, HDL-C <40 mg/dL for men, <50 mg/dL for women, BP ≥130/≥85 mm Hg, and fasting plasma glucose ≥100 mg/dL.

Early identification of patients at risk for MASH with fibrosis can help prevent progression to cirrhosis and liver-related complications, and reduce the risk of overall mortality.[4]

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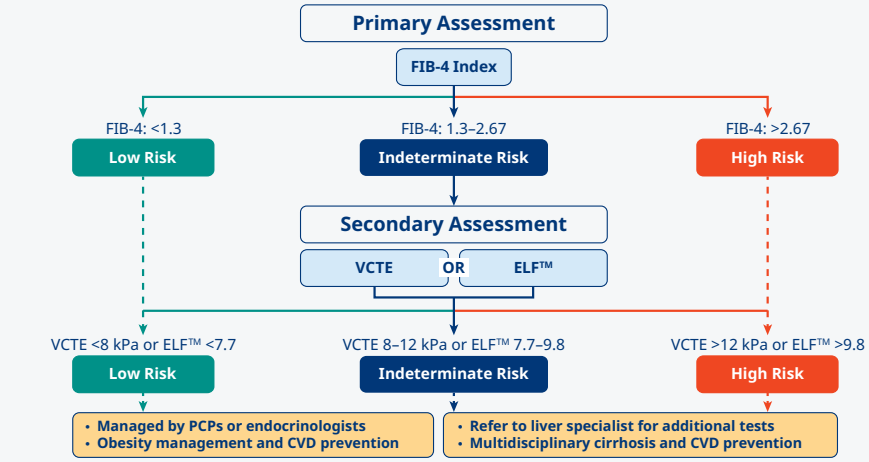
How do I know if my patient has MASH with clinically significant fibrosis?

Fibrosis is one of the primary predictors of disease progression and is strongly associated with liver-related outcomes (eg, HCC), as well as liver-related and all-cause mortality.[2,4]

AACE guidelines recommend the use of **FIB-4, an accessible and noninvasive blood-based test**, for primary fibrosis risk stratification.[4]

A FIB-4 score can be used to help evaluate the need for further assessments and guide management considerations.[4]

Fibrosis Risk Stratification[4]



FIB-4 Index[2,4,5]

A fibrosis risk assessment based on age and widely accessible lab values—platelets, ALT, and AST

$$\text{FIB-4} = \frac{\text{Age (years)} \times \text{AST (U/L)}}{\text{Platelet Count } (10^9/\text{L}) \times \sqrt{\text{ALT (U/L)}}}$$

Values can be leveraged from **routine blood panels** (eg, CBC, CMP)

Can be integrated into EHRs or determined using an online calculator

VCTE (eg, FibroScan®)[2,4,6]

Imaging test to measure liver stiffness as a surrogate for fibrosis (**CPT® code: 76981**)

ELF™ Test[2,4,7]

Proprietary blood test to estimate the severity of liver fibrosis (**CPT® code: 81517**)

For appropriate code selection, it is recommended that you contact your local payer prior to submitting claims.

What else can I do to help fight back against MASH?

- Routinely screen patients with cardiometabolic risk factors and/or evidence of liver abnormalities using noninvasive tests (eg, FIB-4)[2,4]
- Promptly refer patients at high risk for advanced fibrosis (FIB-4 >2.67) to a liver specialist[2,4]
- Aim to reduce the metabolic and cardiovascular risks associated with MASLD/MASH in all patients, regardless of fibrosis risk[2,4]

Taking proactive steps to identify and screen patients at risk for MASH can help improve patient outcomes.[2,4]

Abbreviations

AACE, American Association of Clinical Endocrinology; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BP, blood pressure; CBC, complete blood count; CMP, comprehensive metabolic panel; CPT®, Current Procedural Terminology; CVD, cardiovascular disease; EHR, electronic health record; ELF™, Enhanced Liver Fibrosis; F, fibrosis stage; FIB-4, Fibrosis-4 Index; HCC, hepatocellular carcinoma; HCP, healthcare professional; HDL-C, high density lipoprotein cholesterol; MASH, metabolic dysfunction-associated steatohepatitis; MASLD, metabolic dysfunction-associated steatotic liver disease; NAFLD, nonalcoholic fatty liver disease; NASH, nonalcoholic steatohepatitis; PCP, primary care provider; VCTE, vibration-controlled transient elastography.

References

1. Rinella M et al. A multisociety Delphi consensus statement on new fatty liver disease nomenclature. *J Hepatology*. 2023;79(6):1542-1556; **2.** Rinella M et al. AASLD Practice Guidance on the clinical assessment and management of nonalcoholic fatty liver disease. *Hepatology*. 2023;77(5):1797-1835; **3.** Estes C et al. Modeling the epidemic of nonalcoholic fatty liver disease demonstrates an exponential increase in burden of disease. *Hepatology*. 2018;67(1):123-133; **4.** Cusi K et al. American Association of Clinical Endocrinology Clinical Practice Guideline for the diagnosis and management of nonalcoholic fatty liver disease in primary care and endocrinology clinical settings. *Endocr Pract*. 2022;28(5):528-562; **5.** Piao C et al. Improved detection of fibrotic nonalcoholic fatty liver disease in community-based referrals. *Metab Syndr Relat Disord*. 2023;21(9):475-478; **6.** Echosens. Market access guide for care management utilizing elastography. Updated September 2022. Accessed October 23, 2024. https://echosens.showpad.com/share/zqKT2xtHsezxvbIsMaoRt; **7.** LabCorp. Accessed October 23, 2024. https://www.labcorp.com/tests/550659/enhanced-liver-fibrosis-elf-test.

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