

MASLD Is Expected to Rise Over the Next 25 Years

An increase in fatty liver disease could double liver cancer cases and nearly triple the need for transplants by 2050.

November 12, 2023 By [Liz Highlyman](#)

[Metabolic dysfunction-associated steatotic liver disease \(MASLD\)](#) is expected to increase by 23% over the next three decades, adding a significant burden to the health care system, according to a mathematical modeling study presented this week at the [American Association for the Study of Liver Diseases \(AASLD\) Liver Meeting](#) in Boston.

“With diabetes and obesity rates on the rise, MASLD is expected to become the leading reason for liver transplants in the United States,” superseding hepatitis C and heavy alcohol consumption, lead researcher Phuc Le, PhD, MPH, of the Cleveland Clinic Lerner College of Medicine, said in an [AASLD press release](#).

MASLD, [a new name](#) for the condition formerly known as non-alcoholic fatty liver disease (NAFLD), and its more severe form, metabolic dysfunction-associated steatohepatitis (MASH, formerly known as non-alcoholic steatohepatitis, or NASH), is a leading cause of advanced liver disease worldwide.

Linked to obesity and type 2 diabetes, fatty liver disease is increasingly recognized as a metabolic disorder. Over time, the buildup of fat in the liver can lead to inflammation, fibrosis, [cirrhosis](#) and [liver cancer](#). Now that hepatitis B can be prevented with vaccines and hepatitis C can be easily cured, steatotic liver disease is responsible for [a growing proportion of liver cancer cases](#) and liver transplants. With no effective approved medical therapies, MASLD management relies on lifestyle changes such as diet, exercise and weight loss.

Le’s team aimed to project the burden of MASLD among adults in the United States from 2020 through 2050 using a population-based natural history model. They developed an agent-based state transition model that consisted of two components, with a yearly cycle. The first component simulated the U.S. population starting from the year 2000 based on U.S. Census data. The second component tracked the natural history of fatty liver disease progression from no steatosis (fat in the liver) to simple steatosis, MASH, fibrosis, cirrhosis, decompensated cirrhosis (liver failure), hepatocellular carcinoma (HCC, the most common type of liver cancer), liver transplantation and finally liver-related death.

From 2000 to 2018, validation of the model showed a close match between predicted outcomes and actual observed trends in MASLD prevalence, progression to MASH, liver cancer and overall survival.

Looking forward, the model predicted a steady increase in the prevalence of MASLD among adults, from 28% (about 72 million people) in 2020 to 34% (about 109 million) by 2050. Among people with MASLD, the proportion who progress to MASH is expected to increase from 20% to 22%. While MASLD prevalence is predicted to remain relatively stable for people ages 18 to 29, it is expected to rise significantly for all other age groups.

The proportion of people with MASLD who go on to develop cirrhosis is expected to increase from about 2% in 2020 to 3% in 2050. By that time, MASLD could lead to a substantial rise in new cases of liver cancer (from 10,400 in 2020 to 19,300 in 2050) and a large increase in the number of liver transplants (from 1,700 in 2020 to 4,200 in 2050). What's more, the proportion of liver-related deaths is expected to increase from 0.4% of all deaths in 2020 to 1% by 2050.

"Our model forecasts a substantial clinical burden of NAFLD [MASLD] over the next three decades," the researchers concluded. "In the absence of effective treatments, health systems should plan for large increases in the number of HCC cases and the need for liver transplant."

"Liver diseases often progress silently, with symptoms appearing only in advanced stages. Increased awareness is essential to maximize the opportunities to prevent liver complications," said AASLD president Norah Terrault, MD, MPH. "Early detection and timely interventions can make a difference—which is why AASLD is dedicated to equipping clinicians with the knowledge and skills needed to bring about improved health outcomes."

Speaking at an AASLD media briefing, Le said, "there's no way we are going to be able to transplant our way out of this." However, if obesity trends reverse and management of MASLD and MASH improves—in particular, if effective new medications finally make it through the development pipeline—"the future would not be so dark."

Click here to read the [study abstract](#).

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