Missing the Liver in Texas Primary Care: Prevalence, Disparities, and the Texas-Applied Burden of Undiagnosed MASLD with Clinically Significant Fibrosis

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BACKGROUND

Metabolic dysfunction–associated steatotic liver disease (MASLD) is the most common chronic liver disease in U.S. adults and a leading pathway to cirrhosis, hepatocellular carcinoma, and liver transplantation.[1,2] Fibrosis stage is the strongest histologic predictor of long-term outcomes, yet fibrosis is silent until late.[3]

The 2023 AASLD Practice Guidance places primary care on the front line: adults with type 2 diabetes, obesity, or ≥1 cardiometabolic risk factor should be screened with FIB-4, followed by vibration-controlled transient elastography (VCTE) when FIB-4 is not clearly low.[1,4] Recent NHANES analyses suggest FIB-4 misses most patients with significant fibrosis.[5]

Texas carries a disproportionate share of risk: 12.6% of adults have diabetes and 35.5% have obesity,[10] 19.2% are uninsured, the highest rate in the nation,[8] and 22% live in an HRSA physician-shortage county.[9] For many Texans, the family physician is the only point of contact with the health system, yet the Texas burden of undiagnosed MASLD with significant fibrosis has never been quantified.

OBJECTIVE

➢ **Primary:** To quantify the prevalence, disparities, and Texas-applied burden of undiagnosed MASLD with clinically significant fibrosis among primary-care–eligible adults.

➢ **Secondary:** To estimate the share with a usual source of care but no liver diagnosis, and the sensitivity of FIB-4 against measured liver stiffness.

METHODS

➢ **Design:** Cross-sectional analysis of pooled NHANES 2017–March 2020 and 2021–2023 cycles with FibroScan elastography,[6] applied to Texas Demographic Center 2024 estimates.[7]

➢ **Outcome:** MASLD (CAP ≥274 dB/m + ≥1 cardiometabolic criterion) with liver stiffness (LSM) ≥8 kPa.

➢ **Secondary:** Usual source of care with no reported liver diagnosis; FIB-4 ≥1.3 sensitivity vs LSM ≥8 kPa.

➢ **Analysis:** Survey-weighted logistic regression (R survey::svyglm) with Taylor-linearized 95% CIs, adjusted for age, sex, race/ethnicity, income–poverty ratio, insurance, food security, and interview language. Texas counts = weighted proportion × 20.9 million AASLD-eligible Texans.

PARTICIPANTS

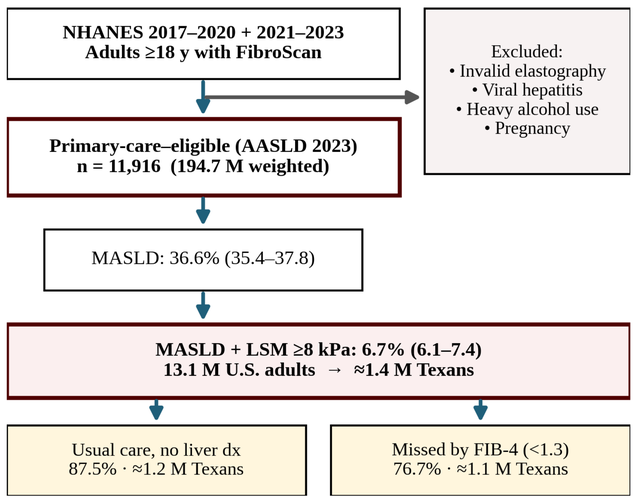


Figure 1. *Study population and analytic flow. Survey-weighted with MEC weights, strata, and PSUs; heavy alcohol = >3 drinks/day (men), >2 (women).*

RESULTS

Among 11,916 primary-care–eligible adults (194.7 million weighted), MASLD prevalence was 36.6% (95% CI 35.4–37.8). MASLD with clinically significant fibrosis was present in 6.7% (6.1–7.4), or 13.1 million U.S. adults, projecting to **≈1.4 million Texans.**

Of these, 87.5% (83.9–91.1) had a usual source of care yet no liver diagnosis (**≈1.2 million Texans**). FIB-4 ≥1.3 had a sensitivity of only 23.3%, missing 76.7% (≈1.1 million Texans).

Odds were higher at ages 50–59 (aOR 2.26, 1.42–3.60) and income–poverty ratio <1.3 (1.69, 1.05–2.73) or 1.3–3.49 (1.50, 1.11–2.02); lower among women (0.64, 0.53–0.79), non-Hispanic Black adults (0.72, 0.54–0.95), and Spanish-language respondents (0.49, 0.30–0.79).

Table 1. Prevalence and Texas-applied burden

Measure	% (95% CI)	U.S.	Texas
MASLD	36.6 (35.4–37.8)	≈71.3 M	≈7.6 M
MASLD + LSM ≥8 kPa	6.7 (6.1–7.4)	13.1 M	≈1.4 M
Usual care, no liver dx*	87.5 (83.9–91.1)	≈11.5 M	≈1.2 M
Missed by FIB-4*	76.7	≈10.0 M	≈1.1 M

Note. **Among adults with MASLD + LSM ≥8 kPa. Counts apply weighted proportions to 194.7 M U.S. and 20.9 M Texas AASLD-eligible adults.*

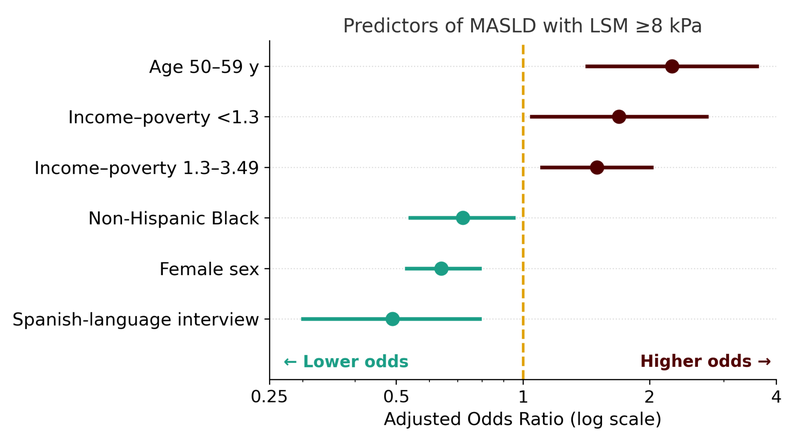


Figure 2. Adjusted odds ratios (95% CI) for MASLD with LSM ≥8 kPa (survey-weighted logistic regression).

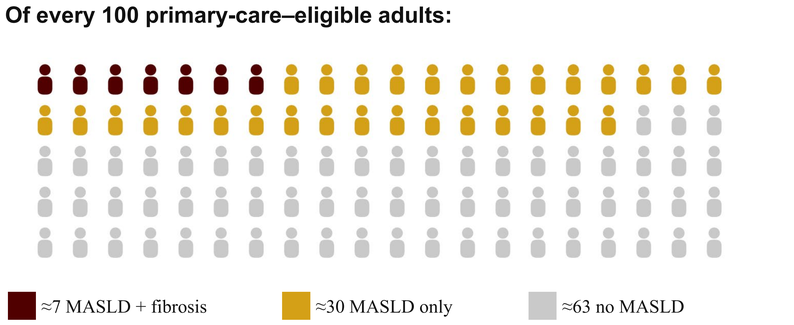


Figure 3. Of the ≈7 with significant fibrosis, ≈6 already have a usual source of care and ≈5 would be missed by FIB-4.

LIMITATIONS

Cross-sectional design limits causal inference. The Texas estimate assumes national eligibility proportions and is likely conservative given higher Texas obesity and diabetes. The FibroScan subsample limits precision in small subgroups, and liver diagnosis was self-reported.

DISCUSSION

About one in fifteen primary-care–eligible adults has MASLD with significant fibrosis: an estimated 1.4 million Texans. The problem is detection, not access. Nearly nine in ten already have a usual source of care, so the missed diagnosis happens inside primary care.

FIB-4, the recommended first step, found fewer than one in four cases, consistent with national NHANES reports.[5] A low FIB-4 should not reassure in high-risk patients, and wider VCTE access in primary care may be needed.

Higher odds at ages 50–59 and lower income identify groups for targeted screening. Lower odds among women, non-Hispanic Black adults, and Spanish-language respondents should be interpreted cautiously and do not change screening indications.

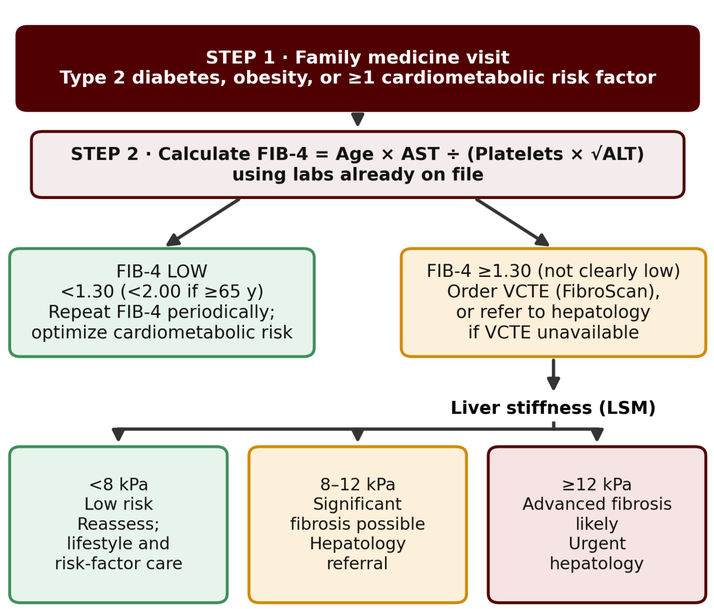


Figure 4. Proposed primary-care FIB-4 → VCTE pathway (AASLD 2023).

CONCLUSION

≈1.4 million Texas adults have MASLD with clinically significant fibrosis; ≈1.2 million are undiagnosed despite active care, and FIB-4 finds fewer than one in four. **Texas family physicians, not hepatologists, will define whether these patients are found.**

IMPLICATIONS FOR FAMILY MEDICINE

➢ **Identify** T2D, obesity, and cardiometabolic risk on our panels.
➢ **Calculate** FIB-4 from labs already on file.
➢ **Look past FIB-4:** use VCTE when not clearly low.
➢ **Prioritize** adults 50–59 and lower-income patients.

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