Standard Operating Procedure

Metabolic Dysfunction Associated Steatotic Liver Disease

Special Region (1)

Union of Myanmar

Version 1.0

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Approved by: Internal Medicine Unit

1. Purpose and Scope

1.1 Purpose

This Standard Operating Procedure (SOP) establishes standardized protocols for the identification, diagnosis, assessment, and management of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in adult patients. It ensures consistent, evidence-based clinical care across the Department of Hepatology and affiliated clinical services.

1.2 Scope

This SOP applies to all healthcare professionals involved in the care of patients with suspected or confirmed MASLD, including hepatologists, gastroenterologists, primary care physicians, nurse practitioners, and clinical support staff. It covers the complete patient pathway from screening through long-term monitoring.

1.3 Definitions and Abbreviations

Term	Definition
MASLD	Metabolic Dysfunction-Associated Steatotic Liver Disease
MASH	Metabolic dysfunction-Associated SteatoHepatitis
NITs	Non-Invasive Tests
LSM	Liver Stiffness Measurement (kPa)
CAP	Controlled Attenuation Parameter (dB/m)
ELF	Enhanced Liver Fibrosis test
TE	Transient Elastography

2. Patient Identification and Screening

2.1 Risk Factors

Healthcare providers should maintain heightened awareness for MASLD in patients presenting with one or more of the following metabolic risk factors. These conditions significantly increase the likelihood of hepatic steatosis and disease progression.

Risk Factor	Relative Risk	Screening Priority
Type 2 diabetes mellitus	2.5-3.0x	High
Obesity (BMI ≥30)	3.5-5.0x	High
Metabolic syndrome	3.0-4.0x	High
Hypertension	1.5-2.0x	Moderate
Dyslipidemia	1.5-2.5x	Moderate
Hypothyroidism	1.5-2.0x	Moderate
PCOS (women)	2.0-3.0x	Moderate
Family history of MASLD	1.5-2.0x	Moderate

2.2 Screening Criteria

Patients meeting any of the following criteria should be screened for MASLD using liver enzyme testing and appropriate risk stratification tools:

0. **Type 2 diabetes mellitus:**Screen all patients regardless of other risk factors.
1. **Obesity (BMI ≥30 kg/m²):**Particularly central adiposity (waist circumference >102 cm male, >88 cm female).
2. **Metabolic syndrome:**Presence of ≥3 metabolic risk components.
3. **Persistently elevated liver enzymes:**ALT >30 U/L (male) or >19 U/L (female) on two occasions.
4. **Hepatic steatosis on imaging:**Incidental finding on ultrasound, CT, or MRI.

3. Diagnostic Protocol

3.1 Laboratory Investigations

All patients undergoing evaluation for MASLD should receive a comprehensive laboratory panel to establish baseline status, assess disease severity, and exclude alternative etiologies.

Test Category	Components	Notes
Liver panel	ALT, AST, ALP, GGT, bilirubin	AST/ALT ratio >1 suggests advanced fibrosis
Metabolic panel	Fasting glucose, HbA1c, lipids	Assess metabolic comorbidities
Renal function	Creatinine, eGFR	Baseline for medication safety
Complete blood count	Platelet count	Thrombocytopenia suggests portal hypertension
Coagulation profile	INR	Elevated in advanced liver disease
Virology screen	HBsAg, anti-HCV	Exclude viral hepatitis
Autoimmune screen	ANA, ASMA, IgG	Exclude autoimmune hepatitis
Ferritin	Serum ferritin	Exclude hemochromatosis

3.2 Imaging Studies

Imaging evaluation provides non-invasive assessment of hepatic steatosis and assists in excluding other liver pathologies. The following modalities are recommended based on availability and clinical indication.

Modality	Steatosis Detection	Fibrosis Assessment	Remarks
Ultrasound (US)	Moderate-severe	Not applicable	First-line; operator dependent
Transient Elastography (TE)	CAP score	LSM (kPa)	Point-of-care; widely available
MRI-PDFF	Quantitative %	Not applicable	Gold standard for steatosis quantification
MR Elastography	Not applicable	Quantitative (kPa)	Most accurate non-invasive fibrosis method
FibroScan	CAP score	LSM (kPa)	Combined steatosis and fibrosis assessment
Shear Wave Elastography	Available on some platforms	Quantitative (m/s or kPa)	Integrated with ultrasound systems

Note

- Ultrasound is the only available imaging investigation for screening of MASLD in special region (1).

3.3 Non-Invasive Scoring Systems

Non-invasive fibrosis scoring systems should be applied to all patients at initial assessment to estimate fibrosis risk and guide referral decisions.

Scoring System	Components	Interpretation
FIB-4	Age, AST, ALT, platelets	<1.3 low risk; >2.67 high risk
NFS (NAFLD Fibrosis Score)	Age, BMI, diabetes, AST/ALT, platelets, albumin	<-1.455 low risk; >0.676 high risk

4. Risk Stratification

Patients should be stratified into risk categories based on fibrosis assessment results to determine management intensity and follow-up frequency.

Risk Level	Criteria	Follow-Up	Monitoring
Low	FIB-4 <1.3 and no metabolic risks	Primary care	Annual LFTs
Moderate	FIB-4 1.3-2.67	Hepatology	6-month LFTs, yearly TE
High	FIB-4 >2.67	Hepatology	3-6 month LFTs, 6-month TE
Very High	Cirrhosis	3-6 monthly	3-month LFTs, 6-month US

5. Management Protocol

5.1 Lifestyle Interventions

Lifestyle modification remains the cornerstone of MASLD management. All patients should receive structured counseling with specific, measurable goals:

5. **Weight reduction:**Target 7-10% body weight loss for overweight/obese patients; 5% minimum for histologic benefit.

6. **Dietary modification:**Mediterranean diet pattern; limit fructose and saturated fats; adequate protein intake.
7. **Physical activity:**≥150 minutes/week moderate-intensity aerobic exercise plus resistance training 2-3 times weekly.
8. **Alcohol abstinence:**Complete abstinence recommended during active treatment phase.

5.2 Pharmacological Treatment

Pharmacotherapy may be considered for patients who fail to achieve adequate response with lifestyle interventions alone or who have high-risk disease features.

Agent	Indication/Evidence	Notes
GLP-1 receptor agonists	Semaglutide: MASH resolution + weight loss	Preferred for T2DM with MASLD; cardiovascular benefit
Pioglitazone	MASH resolution (RCT evidence)	Consider for T2DM patients; monitor for weight gain
Vitamin E	Non-diabetic MASH (PIVENS trial)	800 IU/day; benefit in biopsy-proven MASH without diabetes
Statins	Cardiovascular risk reduction	Safe in MASLD
SGLT2 inhibitors	Glycemic control + weight loss	Emerging data on hepatic steatosis reduction

6. References

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MASLD SOP

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Department of Hepatology

For questions regarding this SOP, contact the Hepatology Clinical Team