

CT Children's CLASP Guideline

Steatotic Liver Disease (SLD)

INTRODUCTION

Steatotic Liver Disease (SLD) formerly known as Non-alcoholic fatty liver disease (NAFLD) is the chronic accumulation of fat in the liver and is the most common cause of pediatric liver disease in the United States. SLD is most commonly associated with male sex and Hispanic ethnicity. SLD also tends to cluster in families. Obesity is the most significant risk factor for the development of SLD. It can be mild with just fat build-up in the liver, or more severe with inflammation and fibrosis (Metabolic Dysfunction-Associated Steatohepatitis or MASH), which can lead to cirrhosis and potential for the development of hepatocellular carcinoma. SLD is associated with insulin resistance and strongly associated with features of metabolic syndrome (obesity, dyslipidemia, hypertension). Evaluation and management should focus on screening of ALT as well as promotion of healthy lifestyle and weight management.

Comprehensive information regarding the evaluation and management of SLD is described in the NASPGHAN Clinical Practice Guideline for the Diagnosis and Treatment of Metabolic Dysfunction-Associated Steatotic Liver Disease (see [References](#)).

INITIAL EVALUATION AND MANAGEMENT

Guidelines recommend initial screening of serum ALT for the following patient groups: ([see Appendix A – Screening Algorithm and Referral Guidelines](#))

- ≥ 10 years with a BMI $\geq 95^{\text{th}}$ percentile
- ≥ 10 years with BMI $\geq 85^{\text{th}}$ and $< 94^{\text{th}}$ percentile with one or more additional risk factors*
- ≤ 9 years with BMI $\geq 95^{\text{th}}$ percentile, family history of SLD/MASH or hypopituitarism

HOW TO INTERPRET AND MANAGE ALT VALUES ([see Appendix A – Screening Algorithm and Referral Guidelines](#)):

- Normal ALT is defined as ≤ 26 U/L
- ALT ≤ 26 U/L
 - Repeat ALT every year, if risk factors remain unchanged
- ALT 27-52 U/L
 - Repeat ALT in 1 year, if risk factors remain unchanged
 - If ALT normalizes, repeat yearly
 - If ALT is improving but still elevated, repeat in 6 months
 - If ALT elevation is persistently $> 2x$ ULN, refer to SLD Clinic
- ALT > 52 but < 80 U/L
 - Repeat ALT in 6 months, if risk factors remain unchanged
 - If ALT normalizes, repeat yearly
 - If ALT is improving but still elevated, repeat in 6 months
 - If ALT elevation is persistently $> 2x$ ULN, refer to SLD Clinic
- ALT ≥ 80 U/L
 - Refer to SLD Clinic, but also repeat ALT in 1-3 months to trend (wait time for SLD Clinic may be up to 4 months). At times, ALT elevation is transient, and patient may not require referral.
 - If ALT normalizes, repeat yearly
 - If ALT is improving but still elevated, repeat in 6 months
 - If ALT remains ≥ 80 , refer to SLD Clinic
- ALT can be rechecked sooner if patient has excessive weight gain or develops any additional risk factors*

**Risk factors include central adiposity, insulin resistance, pre-diabetes or diabetes, dyslipidemia, obstructive sleep apnea, or a family history of SLD/MASH.*

	<p>INITIAL MANAGEMENT (see Appendix A – Screening Algorithm and Referral Guidelines):</p> <ul style="list-style-type: none"> Educate the patient and family about SLD (see Patient Handout – About MASLD) Management should focus on dietary and lifestyle modifications (e.g., physical activity- handouts available via link in references) for the patient and family. (See Patient Handout – Healthy Eating Tips) Refer to Liver Clinic if ALT is ≥ 80 U/L or persistently elevated (>3 months) <ul style="list-style-type: none"> Referring provider should order the following additional screening when the referral is placed. The referring provider should inform our office of any abnormal results to expedite the referral: <ul style="list-style-type: none"> Imaging: Complete abdominal ultrasound Labs: fasting lipid panel, hemoglobin A1C, hepatitis B surface Ag, hepatitis C antibody, ceruloplasmin (Wilson disease), alpha-1 antitrypsin phenotype, autoimmune markers (ANA, ASMA, LKM) Thyroid studies are not routinely recommended unless positive family history
WHEN TO REFER	See Appendix A – Screening Algorithm and Referral Guidelines
HOW TO REFER	<p>Department of Digestive Diseases, Hepatology & Nutrition, SLD Clinic: <i>Online referrals available.</i> Phone: 860 545-9560 Fax: 860 545-9561</p> <p>For more information on how to place referrals to Connecticut Children’s, click here.</p> <p>With the referral, please send:</p> <ul style="list-style-type: none"> Notes from recent follow-up visit Growth charts (height, weight, BMI) Copies of relevant laboratory studies Copies of relevant imaging studies (e.g., complete abdominal ultrasound, if obtained)
WHAT TO EXPECT	<p>What to expect from CT Children’s Visit:</p> <ul style="list-style-type: none"> Comprehensive history and physical Review of systems Additional laboratory and imaging studies, as indicated FibroScan® of the liver, as indicated Nutrition consult by registered dietician Patient and family education on the diagnosis and management of SLD <p>Please be aware that wait times for Liver Clinic may be up to 4 months.</p>

APPENDIX A: SLD Screening Algorithm and Referral Guidelines

