

# Non-Alcoholic Fatty Liver Disease (NAFLD)

## What is NAFLD?

- Excessive fat accumulation in the liver

## Who to screen for NAFLD?

- Children greater than 9 years old with BMI  $\geq$  95%
- Children with: Diabetes or pre-diabetes, obstructive sleep apnea, pan-

Initial screening labs (evaluating for metabolic syndrome co-morbidities as well as liver involvement)

### Metabolic Syndrome

- Fasting lipid panel – if cholesterol  $>200$  mg/dL or LDL  $>130$  mg/dL as per AAP guidelines, refer to Cardiology/Lipid Clinic
- Hemoglobin A1c – if elevated ( $\geq 6.5\%$ ), refer to endocrinology

### Liver Screening

- CBC (Thrombocytopenia  $<150,000$ )
- Chem 14
- Abdominal Ultrasound – to rule out structural liver disease or gallbladder disease. If there are comments suggesting “fatty infiltration,” please follow plan indicated below.

## Work up

### If ALT is $\geq 45$

- Provide dietary counseling for weight loss
  - o No sugar-sweetened beverages (soda, juice, Gatorade, flavored milk)
  - o Increase physical activity (20 minutes daily) to increase heart rate
  - o Follow up in 3 months with repeat Chem 14

### At 3 month follow up if ALT $\leq 45$ :

- Continue to emphasize weight loss measures.
- Monitor liver enzymes every 3 months until ALT normalizes, then may stop routine laboratory monitoring.
  - o If enzymes improve and then worsen on these periodic checks, please follow recommendations below.

## If ALT remains $\geq 45$ (regardless of BMI changes): GI Referral

- Obtain the following workup and referral to CHLA Fatty Liver Clinic
  - o GGT
  - o Thyroid stimulating hormone
  - o Free T4
  - o Hepatitis A IgG/IgM
  - o Hepatitis B surface antigen
  - o Hepatitis B surface antibody
  - o Hepatitis C antibody screen
  - o Celiac antibody screen (tTG IgA, DGP IgA and total IgA)

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- Serum iron
- Total iron binding capacity
- Ferritin
- Ceruloplasmin
- Antinuclear antibody (ANA)
- Liver Kidney Microsomal antibody (LKM)
- Smooth muscle antibody (SMA)
- Total IgG
- Alpha 1 antitrypsin level (serum)