

OBESITY LABS

To assess for metabolic co-morbidities of obesity

Fasting labs

- Lipid panel with calculated LDL
- ALT
- Hemoglobin A1c or fasting blood sugar *or* 2-hr oral glucose tolerance test

With concern for PCOS

- Free and total testosterone
- (Additional labs to consider: androstenedione, DHEA-S, estradiol, FSH, LH, prolactin)

Not recommended

(but consider in select circumstances)

- Fasting insulin
- Vitamin D

Screening for genetic dyslipidemia

(non-fasting, not based on weight):

- ◆ Ages 9-11, once
 - ◆ Ages 17-21, once
 - Total cholesterol
 - HDL
- (Abnormal if non-HDL cholesterol > 145, then do full fasting lipid panel)

Diagnosis codes

Overweight (BMI 85th to < 95th %ile) - E66.3
Obesity (BMI ≥ 95th %ile) - E66.9
Severe obesity (BMI ≥ 120% of 95th %ile BMI) - E66.01

Who needs labs

- ◆ Age ≥ 10 with obesity
- ◆ Age ≥ 10 and overweight with positive family history of co-morbidities

Repeat labs every 2 years if normal

Repeat labs at least yearly if abnormal:

- Abnormal lipid panel (see chart on reverse side): repeat in 6-12 months
- LDL cholesterol ≥250 or triglycerides ≥500: refer to Cardiology
- Persistent elevation of LDL ≥190 or LDL ≥160 with risk factors in children ≥10 after lifestyle treatment: refer to Cardiology
- Prediabetes: Hemoglobin A1c 5.7-6.4, FBS 100-125 or OGTT 140-199
-Hgb A1c 5.7 to <6: repeat in 1 year
-Hgb A1c 6 to 6.4: repeat in 3-6 months
- Diabetes: Hemoglobin A1c ≥6.5, FBS ≥126, OGTT ≥200: refer to Endo
- ALT ≥2x upper limit of normal (≥52 in males, ≥44 in females): repeat in 3-6 months and continue to repeat every 6-12 months unless ALT ≥80 on repeat, then refer to GI

Fasting labs preferred. If non-fasting, cannot interpret triglycerides or insulin.

WES 3/20/23

Reference list

December 2011 Supplement to Pediatrics:

Expert panel on integrated guidelines for cardiovascular health and risk reduction in children and adolescents: summary report. National Heart, Lung, and Blood Institute. Pediatrics. 2011 Dec;128 Suppl 5:S213-56.

Rosenfield RL. **The Diagnosis of Polycystic Ovary Syndrome in Adolescents.** Pediatrics. 2015 Dec;136(6):1154-65.

Vos MB, Abrams SH, Barlow SE, Caprio S, Daniels SR, Kohli R, Mouzaki M, Sathya P, Schwimmer JB, Sundaram SS, Xanthakos SA. **NASPGHAN Clinical Practice Guideline for the Diagnosis and Treatment of Nonalcoholic Fatty Liver Disease in Children: Recommendations from the Expert Committee on NAFLD (ECON) and the North American Society of Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN).** J Pediatr Gastroenterol Nutr. 2017 Feb;64(2):319-334.

HAMPL SE, Hassink SG, Skinner AC, Armstrong SC, Barlow SE, Bolling CF, Avila Edwards KC, Eneli I, Hamre R, Joseph MM, Lunsford D, Mendonca E, Michalsky MP, Mirza N, Ochoa ER, Sharifi M, Staiano AE, Weedn AE, Flinn SK, Lindros J, Okechukwu K. **Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity.** Pediatrics. 2023 Feb 1;151(2):e2022060640.

From Appendix 2 of the Clinical Practice Guideline:

Lipid Category	Low (mg/dL)	Acceptable (mg/dL)	Borderline High (mg/dL)	High (mg/dL)
Total cholesterol	-	<170	170-199	≥200
LDL cholesterol	-	<110	110-129	≥130
HDL cholesterol	<40	>45		-
Triglycerides				
0-9 years	-	<75	75-99	≥100
10-19 years	-	<90	90-129	≥130
Non-HDL cholesterol	-	<120	120-144	≥145

Adapted from the Expert Panel on Integrated Guidelines for Cardiovascular Health