Making the Algorithm
# COME ALIVE IN **YOUR PRACTICE**

**The algorithm is a tool to support primary care providers in their efforts to assess, manage, and treat childhood overweight and obesity.**

## Here are a few key points to consider as you begin:

1. **How to use the algorithm**
   - It starts at the well-child visit and continues on in planned follow-up visits as determined by the patient, family, and provider
   - It's not a protocol – it is a suggested course of action and provides guidance to be used with clinical judgment

2. **Things to think about**
   - These kids could be sick
   - Children with a BMI greater than the 85th percentile are at a higher risk for comorbidities
   - There are three ways to fine-tune/augment your assessment:
     Augmented obesity-specific:
     - Family history
     - Review of systems
     - Physical exam
   - For patients with BMI greater than the 85th percentile, laboratory and comorbidity work-up is needed

3. **Working with patients and families**
   - Be respectful
   - Be empathetic
   - Listen more than you speak
   - Use Motivational Interviewing techniques:
     - Ask open-ended questions
     - Use reflective listening
     - Roll with resistance

4. **Use treatment stages as a guide**
   - Not every patient is ready to make change
   - Fear tactics don't work
   - There are no quick fixes
   - Frequent visits over time work best
   - Small behavior changes can have profound effects on health and they are usually much more sustainable
   - Motivational Interviewing works

take
**action!**

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## For patients with a BMI ≥ the 85th percentile, include the following in your annual well-child visit:

### 1. Augmented obesity-specific family history

Does your patient have a first-degree relative with any of the following?

If yes, they are at a greater risk of comorbidities associated with obesity.

- ☐ Heart disease
- ☐ Hypertension
- ☐ Lipid level abnormalities
- ☐ Obesity
- ☐ Type 2 Diabetes

### 2. Augmented obesity-specific review of systems

| SYMPTOMS | PROBABLE CAUSES |
|---|---|
| ☐ Snoring/sleep disturbances | Obstructive sleep apnea |
| ☐ Abdominal pain | GERD, constipation, gallbladder disease, NAFLD |
| ☐ Menstrual irregularities | Polycystic ovary syndrome |
| ☐ Hip, knee, leg pain | SCFE |
| ☐ Foot pain | Musculoskeletal stress from weight |
| ☐ Polyuria/Polydiopsia | Type 2 diabetes |
| ☐ Anxiety, school avoidance, social isolation | Depression |
| ☐ Severe recurrent headaches | Psuedotumor cerebi |
| ☐ Shortness of breath | Asthma |

Barlow S, Expert Committee. Expert committee recommendations regarding prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. Pediatrics. 2007;120(4):S164-S192.

### 3. Augmented obesity-specific physical exam

| FINDINGS | PROBABLE EXPLANATIONS |
|---|---|
| ☐ Elevated blood pressure, make sure to use correct size cuff | Hypertension on 3 or more occasions |
| ☐ Short stature | Underlying endocrine condition |
| ☐ Acanthosis nigricans | Increased risk of insulin resistance |
| ☐ Acne, hirsutism | Polycystic ovary syndrome |
| ☐ Skin irritation, inflammation | Intertrigo |
| ☐ Papilledema, cranial nerve VI paralysis | Pseudotumor cerebri |
| ☐ Tonsillar hypertrophy | Obstructive sleep apnea |
| ☐ Goiter | Hypothyroidism |
| ☐ Wheezing | Asthma |
| ☐ Tender abdomen | GERD, gallbladder disease, NAFLD |
| ☐ Abnormal gait, limited hip range | SCFE |
| ☐ Bowing of tibia | Blount disease |
| ☐ Small hands and feet, polydactyly | Some genetic syndromes |
| ☐ Reproductive (Tanner stage, apparent micropenis, undescended testes) | Premature puberty, may be normal penis buried in fat, Prader-Willi syn. |

Barlow S, Expert Committee. Expert committee recommendations regarding prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. Pediatrics. 2007;120(4):S164-S192.

## For patients with a BMI ≥ 85th percentile WITHOUT Risk Factors*:

• Obtain a lipid profile

## For patients with a BMI ≥ 85th percentile WITH Risk Factors:

**Laboratory Screening and Work-up for Comorbidities**

• The 2007 Expert Committee Recommendations state that a **fasting glucose** and **fasting lipid panel** along with **ALT** and **AST** should be obtained.

• Additionally, guidelines from the ADA and Endocrine Society recommend using **A1C, fasting glucose, or oral glucose** tolerance to test for diabetes or pre-diabetes.

• For patient convenience, some providers are obtaining non-fasting labs.

• Clinical judgement, local preferences, and availability of testing should be used to help determine the timing of follow-up of abnormal labs.

• Of note, some subspecialty clinics are screening for Vitamin D deficiency and insulin resistance by obtaining labs for **Vitamin D** and **fasting insulin**. The clinical utility and cost effectiveness of such testing is yet to be determined.

• Currently, there are no guidelines on when to start laboratory testing for patients with obesity. Based upon the patient's health risk, some experts may start screening patients at 2 years of age.

## Laboratory screening summary

The recommended tests for patients with BMI ≥ 85th percentile with risk factors:

• Fasting glucose
• Fasting lipid panel
• ALT
• AST

Additional laboratory test should be obtained based upon the patient's signs, symptoms, family history, and medical condition

*Based on behaviors, family history, review of systems, and physical exam, in addition to weight classification.

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