OKLAHOMA CHAPTER
PEDIATRIC
OBESITY TOOL KIT

What Clinicians Should Consider in the Prevention, Assessment and Treatment of Pediatric Overweight and Obese Patients

Is a National Initiative for Prevention and Treatment of Childhood Overweight and Obesity Focused on Healthy Lifestyle Recommendations of:

- 5 or more fruits and vegetables
- 2 hours or less of screen time
- 1 hour or more of physical activity
- 0 sugary drinks

Oklahoma Chapter
American Academy
of Pediatrics

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Dedicated to the health, safety and well-being of infants, children, adolescents and young adults.
The Pediatric Obesity Toolkit was designed by the Oklahoma Chapter of the American Academy of Pediatrics (OKAAP) Obesity Committee to provide clinicians with evidence-based, practical guidance on the assessment of pediatric overweight and obesity. The content is based on the “Expert Committee Recommendations on the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity” by Sarah Barlow, MD, MPH, and the Expert Committee, which were endorsed by the American Academy of Pediatrics and the American Academy of Family Practice in 2007. Adapted from the AAP Pediatric Obesity Clinical Decision Support Chart, this flip chart can be used as a guide to your encounter with an overweight or obese child, and includes the following sections:

I. Definitions  
II. Weight categories  
III. BMI 99th percentile cut-off values  
IV. Pertinent dietary, activity, and family history information for evaluation of behavioral and family risk factors for obesity  
V. Medical risk factors for obesity  
VI. Motivational interviewing techniques  
VII. Laboratory evaluation  
VIII. Blood pressure guidelines  
IX. Laboratory results guide  
X. Review of obesity co-morbidities and work-up  
XI. Weight management goals  
XII. Blood pressure screening table  
XIII. Obesity prevention and treatment algorithm  
XIV. Age-appropriate activity recommendations  
XV. Coding information  
XVI. My plate planner  
XVII. BMI charts for boys and girls

We hope that this resource is useful to your practice. We will be providing additional resources in the near future in an electronic format, which will focus on management and include patient handouts. The OKAAP Obesity Committee welcomes questions and feedback.

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**Table 1 - Definitions**

<table>
<thead>
<tr>
<th><strong>BMI</strong></th>
<th>Screening tool and an indirect measure of body fatness calculated from child's weight and height.</th>
</tr>
</thead>
</table>
| **Calculating BMI**      | BMI = weight (Kg)/height (m)² (Metric)  
BMI = weight (lb)x703/height (in)² (English)  
[www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm](http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm) |
| *BMI should be assessed at every WCC starting at age 2.  
*<2 yo use WHO growth curves.* |

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**Table 2 - Weight Category by BMI Percentile**

<table>
<thead>
<tr>
<th>BMI Percentile Range</th>
<th>Weight Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>Underweight</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt; Percentile to &lt;85&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>Healthy Weight</td>
</tr>
<tr>
<td>85&lt;sup&gt;th&lt;/sup&gt; Percentile to &lt;95&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>Overweight</td>
</tr>
<tr>
<td>95&lt;sup&gt;th&lt;/sup&gt; Percentile to &lt;99&lt;sup&gt;th&lt;/sup&gt; Percentile (or BMI &gt;30)</td>
<td>Obese</td>
</tr>
<tr>
<td>&gt;99&lt;sup&gt;th&lt;/sup&gt; Percentile</td>
<td>Severe Obesity</td>
</tr>
</tbody>
</table>

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**Table 3 - Body Mass Index 99th Percentile Cut-Points (kg/m²)**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>20.1</td>
<td>21.5</td>
</tr>
<tr>
<td>6</td>
<td>21.6</td>
<td>23.0</td>
</tr>
<tr>
<td>7</td>
<td>23.6</td>
<td>24.6</td>
</tr>
<tr>
<td>8</td>
<td>25.6</td>
<td>26.4</td>
</tr>
<tr>
<td>9</td>
<td>27.6</td>
<td>28.2</td>
</tr>
<tr>
<td>10</td>
<td>29.3</td>
<td>29.9</td>
</tr>
<tr>
<td>11</td>
<td>30.7</td>
<td>31.5</td>
</tr>
<tr>
<td>12</td>
<td>31.8</td>
<td>33.1</td>
</tr>
<tr>
<td>13</td>
<td>32.6</td>
<td>34.6</td>
</tr>
<tr>
<td>14</td>
<td>33.2</td>
<td>36.0</td>
</tr>
<tr>
<td>15</td>
<td>33.6</td>
<td>37.5</td>
</tr>
<tr>
<td>16</td>
<td>33.9</td>
<td>39.1</td>
</tr>
<tr>
<td>17</td>
<td>34.4</td>
<td>40.8</td>
</tr>
</tbody>
</table>
Table 4 - History - Evaluation of ALL Children at WCC’s

| Family History (1st and 2nd degree relatives) | • Obesity  
• Diabetes  
• Dyslipidemia  
• Hypertension  
• Cardiovascular Disease |
|---------------------------------------------|--------------------------------------------------|
| Dietary History                            | • Beverages: Quantity of sweetened beverages  
(Soda, juice, tea, energy drinks)  
• Fruit and vegetable intake  
• Frequency of eating outside the home  
(Restaurants, fast food, schools)  
• Family meals  
• Skipping meals  
• Portion size  
• Meal and snack frequency and quality |
| Physical Activity History                   | • Duration  
• Frequency  
• Type  
• Sports/organized activity  
• Outdoor time  
• Screen Time: TV, video games, computer, phone use  
• Participation in school PE |

Table 5 - Risk Factors for Obesity and Co-Morbidities

<table>
<thead>
<tr>
<th>Personal Risk Factors</th>
<th>Risk Factors from Family History</th>
</tr>
</thead>
</table>
| • Ethnicity:  
African American, Latino, Native American, Pacific Islander | • Obese Parent(s)  
• Type 2 DM  
• Mother with Gestational DM  
• High Cholesterol  
• Hypertension  
• Family Member with early death from stroke or heart disease. |
| • Birth History: SGA or LGA            |                                                  |
| • Medications:  
Steroids, anti-psychotics, anti-epileptics |                                                  |
| • Elevated Blood Pressure              |                                                  |
| • Acanthosis Nigricans                 |                                                  |
Assess Motivation and Attitudes using Motivational Interviewing Techniques

1. Share BMI percentile: Your child’s BMI is at the ____ percentile. Your child’s current BMI puts him/her at increased risk for developing diabetes, high blood pressure, and heart disease.
   - Do you have any concerns about this information?
   - Have you tried any changes to work toward a healthier weight for your child?

2. Ask permission to share recommended behavior changes and negotiate the agenda: There are a number of ways to help you achieve a healthier lifestyle and weight for your child. Provide 5210 information.
   - Is there one of these goals you’d like to discuss further today?

3. Assess readiness to change: On a scale from 0 to 10, how important is it to you to change your child's [weight or specific behavior contributing to obesity]?
   - Explore why parent and/or patient did not choose a lower number?
   - See below rulers for additional follow-up questions.

4. Assess confidence: On a scale of 0 to 10, how confident are you that you can change [specific behavior]?
   - Explore why parent and/or patient did not choose a lower number?
   - See below rulers for additional follow-up questions.

5. Summarize and close the encounter. Reflect the parent and/or patient's concerns and willingness to explore behavior change. I strongly encourage you to commit [to patient and family’s proposed behavior change]. The choice is, of course, entirely yours.

6. Confirm next steps. Have the patient and family contract for one or two specific behavior changes. Follow-up appointment per algorithm. Referral to specialist if indicated.

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Willingness/ Importance?
On a scale of 0—10, how willing/important is it to you to make a change toward a healthier lifestyle?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not willing/Not Important</td>
<td>Somewhat</td>
<td>Very Willing/Very Important</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Why didn’t you choose [lower #]? Why didn’t you choose [higher #]? What would make you more willing?

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Confidence?
On a scale of 0—10, how confident are you that you can succeed?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Confident</td>
<td>Somewhat</td>
<td>Very Confident</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What would make you more confident? What might your next steps be? What is your plan?

Adapted with permission from The Maine Youth Overweight Collaborative team at the University of New England Center for Community and Public Health. (2012)
### Table 6 - Laboratory Evaluation

<table>
<thead>
<tr>
<th>Age</th>
<th>BMI Percentile</th>
<th>Recommended Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10 years old</td>
<td>&gt;85th Percentile</td>
<td>Fasting Lipids</td>
</tr>
<tr>
<td>&gt;10 years old</td>
<td>85th to 94th Percentile without Risk Factors</td>
<td>Fasting Lipids</td>
</tr>
<tr>
<td>&gt;10 years old</td>
<td>85th to 94th Percentile with &gt; 2 Risk Factors or Symptoms</td>
<td>Biannually: Fasting lipid profile, fasting glucose, ALT, AST</td>
</tr>
<tr>
<td>&gt;10 years old</td>
<td>&gt;95th Percentile</td>
<td>Biannually: Fasting lipid profile, fasting glucose, ALT, AST</td>
</tr>
</tbody>
</table>

- Risk Factors for co-morbidities include: Elevated blood pressure, tobacco use, ethnicity, and family history of obesity-related diseases (hypertension, heart disease, diabetes, etc).
- Results of the PCP’s history, physical examination, and screening laboratory tests may indicate the need for additional diagnostic tests (Refer to Table 9).

### Table 7 - Blood Pressure (BP) Guidelines

<table>
<thead>
<tr>
<th>BP - Ages 3-19 (Auscultation)</th>
<th>BP Percentile</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;90th Percentile</td>
<td>Routine care. Recheck annually.</td>
</tr>
<tr>
<td></td>
<td>≥90th, &lt;95th Percentile, (Pre-HTN)</td>
<td>Increase physical activity. CHILD 1 Diet*. Smoking cessation. If other risks and symptoms, consider BUN/Creatinine, UA and culture, renal ultrasound, fundoscopic exam. Recheck BP every 6 months. Repeat BP in 1-2 weeks. If confirmed, initiate basic work-up to include CBC, electrolytes (include BUN/Creatinine) and UA. Consider renal ultrasound, fundoscopic exam, and renin levels. Refer to Cardiology or Nephrology (especially if pre-pubertal). Asses left ventricular hypertrophy (LVH) by ECHO. Continue CHILD 1 and activity education. Consider pharmacotherapy in patients with LVH, diabetes, symptoms, or patients with persistent hypertension unresponsive to lifestyle changes. Monitor every 3-6 months.</td>
</tr>
<tr>
<td></td>
<td>≥95th, &lt;99th Percentile + 5 mmHg (Stage 1 HTN)</td>
<td>Initiate work-up as above. Refer to Cardiology or Nephrology within 1 week.</td>
</tr>
<tr>
<td></td>
<td>≥99th Percentile + 5 mmHg (Stage 2 HTN)</td>
<td>Initiate work-up as above. Refer to Cardiology or Nephrology within 1 week.</td>
</tr>
</tbody>
</table>

*CHILD 1 Diet = Cardiovascular Health Integrated Lifestyle Diet*

CHILD 1 is the recommended first stage in dietary change for all children and adolescents at elevated cardiovascular risk.

Information on Child 1 Diet is available at: [http://www.nhlbi.nih.gov/guidelines/cvd_ped/summary.htm#chap5](http://www.nhlbi.nih.gov/guidelines/cvd_ped/summary.htm#chap5)
<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fasting Glucose</strong></td>
<td>&lt; 100</td>
<td>Recheck every 2 years.</td>
</tr>
<tr>
<td></td>
<td>&gt;100, &lt;126</td>
<td>Pre-diabetes, provide counseling. Consider 2-hr OGTT, HbA1c. Recheck yearly.</td>
</tr>
<tr>
<td></td>
<td>≥126</td>
<td>Diabetes. Refer to Endocrine.</td>
</tr>
<tr>
<td><strong>Oral GTT (2-hour)</strong></td>
<td>&lt;140</td>
<td>Recheck every 2 years, more frequently if weight gain continues/accelerates.</td>
</tr>
<tr>
<td></td>
<td>&gt;140, &lt;200</td>
<td>Pre-diabetes. Provide counseling. Consider referral to Endocrine if risks are present. Recheck every 2 years, more frequently if weight gain continues/accelerates.</td>
</tr>
<tr>
<td></td>
<td>&gt;200</td>
<td>Diabetes. Refer to Endocrine.</td>
</tr>
<tr>
<td><strong>Random Glucose</strong></td>
<td>&gt;200</td>
<td>Diabetes. Refer to Endocrine.</td>
</tr>
<tr>
<td><strong>Fasting LDL</strong></td>
<td>&lt;110</td>
<td>Repeat every 2 years.</td>
</tr>
<tr>
<td></td>
<td>&gt;110, &lt;130</td>
<td>Repeat in 1 year.</td>
</tr>
<tr>
<td></td>
<td>≥130, &lt;160</td>
<td>Obtain complete family history. Initiate CHILD 1 diet. Recheck in 6 months.</td>
</tr>
<tr>
<td></td>
<td>≥160</td>
<td>Refer to Cardiology.</td>
</tr>
<tr>
<td><strong>Fasting HDL</strong></td>
<td>&gt;40</td>
<td>Routine care. Recheck every 2 years, more frequently if weight gain continues/accelerates.</td>
</tr>
<tr>
<td></td>
<td>&lt;40</td>
<td>Increase activity and Omega-3 fats (flax/fish oil). Recheck in 1 year.</td>
</tr>
<tr>
<td><strong>Fasting Triglycerides</strong></td>
<td>≤100 and &lt;10 yo ≤130 and 10-19 yo</td>
<td>Routine care. Recheck every 2 years, more frequently if weight gain continues/accelerates.</td>
</tr>
<tr>
<td></td>
<td>&gt;100 and &lt;10 yo ≥130 and 10-19 yo</td>
<td>Initiate CHILD 1 diet. Recheck in 6 months. Initiate CHILD 1 diet. Recheck in 6 months.</td>
</tr>
<tr>
<td></td>
<td>≥200</td>
<td>Consider omega-3 fish oil therapy in conjunction with CHILD 1 diet. Recheck in 6 months.</td>
</tr>
<tr>
<td></td>
<td>≥500</td>
<td>Refer to lipid specialist.</td>
</tr>
<tr>
<td><strong>Liver Function Tests</strong></td>
<td>ALT or AST &gt;60, &lt;200</td>
<td>Lifestyle Modification.</td>
</tr>
<tr>
<td></td>
<td>ALT or AST ≥60 x 6 months or ≥200 at any time</td>
<td>Refer to Gastroenterology.</td>
</tr>
</tbody>
</table>
Figure 1 - Associated Obesity Co-Morbidities

Psychosocial
Poor Self-esteem
Body image disorder
Social isolation and stigmatization
Depression

Neurological
Pseudotumor Cerebri
(idiopathic intracranial hypertension)

Pulmonary
Exercise Intolerance
Obstructive Sleep Apnea
Asthma

Cardiovascular
Hypertension
Dyslipidemia
Early Atherosclerosis
Endothelial Dysfunction

Gastrointestinal
Gallstones
Gastro-esophageal reflux
Non alcoholic fatty liver disorder

Endocrine
Insulin Resistance
Impaired Fasting Glucose or Glucose Intolerance
Type II DM
Precocious Puberty
Menstrual Irregularities
Polycystic Ovary Syndrome

Renal
Glomerulosclerosis

Musculoskeletal
Ankle sprains
Flat feet
Tibia vara
Slipped Capital Femoral Epiphysis
Blount’s Disease

Adapted from Batch, MJA, 2005
# Table 9 - Signs and Symptoms of Conditions Associated with Obesity, Diagnosis and Referral Recommendations

<table>
<thead>
<tr>
<th>Symptoms and Signs</th>
<th>Suspected Diagnosis</th>
<th>Screening Studies</th>
<th>Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polydipsia, polyuria, weight loss, acanthosis nigricans.</td>
<td>Type 2 Diabetes</td>
<td>Random glucose, fasting glucose, 2-hour OGTT</td>
<td>Endocrine</td>
</tr>
<tr>
<td>Small stature (decreasing height velocity), goiter.</td>
<td>Hypothyroidism</td>
<td>Free T4, TSH</td>
<td>Endocrine</td>
</tr>
<tr>
<td>Hirsutism, excessive acne, menstrual irregularity.</td>
<td>Polycystic Ovary Syndrome</td>
<td>Total and Free Testosterone</td>
<td>Endocrine</td>
</tr>
<tr>
<td>Small stature (decreasing height velocity), purple striae, Cushingoid facies.</td>
<td>Cushing Syndrome</td>
<td>Late evening serum cortisol; 24-hour urinary free cortisol</td>
<td>Endocrine</td>
</tr>
<tr>
<td>Abdominal pain.</td>
<td>GE Reflux Gallbladder Disease</td>
<td>Medication trial for suspected reflux; ultrasound for gall bladder disease</td>
<td>Gastroenterology</td>
</tr>
<tr>
<td>Hepatomegaly, increased LFT’s. (ALT or AST &gt;60 for &gt; 6 months)</td>
<td>Nonalcoholic Fatty Liver Disease</td>
<td>ALT and AST</td>
<td>Gastroenterology</td>
</tr>
<tr>
<td>Snoring, daytime somnolence, tonsillar hypertrophy, enuresis, headaches, elevated BP.</td>
<td>Sleep Apnea, Hypoventilation Syndrome</td>
<td>Sleep Study</td>
<td>Pulmonology or ENT</td>
</tr>
<tr>
<td>Hip or knee pain, limp, limited hip range of motion, painful walking.</td>
<td>Slipped Capital Femoral Epiphysis</td>
<td>X-rays of hip</td>
<td>Orthopedics</td>
</tr>
<tr>
<td>Lower leg bowing.</td>
<td>Blount Disease</td>
<td>X-ray of lower extremities and knees</td>
<td>Orthopedics</td>
</tr>
<tr>
<td>Severe headaches, papilledema.</td>
<td>Pseudotumor Cerebri</td>
<td>Head CT Scan</td>
<td>Neurology</td>
</tr>
<tr>
<td>Social isolation, school avoidance, sleep disturbances.</td>
<td>Depression</td>
<td>Validated depression screen</td>
<td>Psychology or Psychiatry</td>
</tr>
<tr>
<td>Binge eating, vomiting,</td>
<td>Bulimia</td>
<td>Validated screen for eating disorder</td>
<td>Psychiatry or Psychology</td>
</tr>
<tr>
<td>Dysmorphic features, small hands and feet, small genitalia, no menses, undescended testes.</td>
<td>Prader-Willi Syndrome</td>
<td>Genetic testing for Prader-Willi Syndrome</td>
<td>Genetics</td>
</tr>
</tbody>
</table>
**Table 10 - Weight Management Goals**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>BMI 85th - 94th Percentile without Risk Factors</th>
<th>BMI 85th - 94th Percentile with Risk Factors</th>
<th>BMI 95th - 98th Percentile</th>
<th>BMI &gt;99th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – 5</td>
<td>Maintain weight velocity.</td>
<td>Decrease weight velocity or weight maintenance until BMI &lt; 85th percentile. (indicated by downward deflection of BMI curve)</td>
<td>Weight maintenance until BMI &lt; 85th percentile. (however, if weight loss occurs with behavior change, then it should not exceed 1 lb/month)</td>
<td>Weight maintenance, or gradual weight loss of up to 1 lb/month if BMI is very high. (&gt;21 kg/m²)</td>
</tr>
<tr>
<td>6 – 11</td>
<td>Maintain weight velocity.</td>
<td>Decrease weight velocity or weight maintenance until BMI &lt; 85th percentile. (indicated by downward deflection of BMI curve)</td>
<td>Weight maintenance until BMI &lt; 85th percentile, or gradual weight loss (1 lb/month).</td>
<td>Weight loss. (not to exceed an average of 2 lbs/week)*</td>
</tr>
<tr>
<td>12 – 18</td>
<td>Maintain weight velocity. After linear growth is complete, maintain weight. Decrease weight velocity or weight maintenance until BMI &lt; 85th percentile. (indicated by downward deflection of BMI curve)</td>
<td>Weight loss until BMI &lt; 85th percentile. (not to exceed an average of 2 lbs/week)*</td>
<td>Weight loss. (not to exceed an average of 2 lbs/week)*</td>
<td></td>
</tr>
</tbody>
</table>

*Adapted from Barlow, *Pediatrics*, 2007

*If greater weight loss is noted, evaluate patient for high-risk behaviors and causes of excessive weight loss (anorexia, weight loss medications, laxatives, etc.).

**Table 11 - Blood Pressure Values Requiring Further Evaluation**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Systolic</td>
<td>Diastolic</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>59</td>
</tr>
<tr>
<td>4</td>
<td>102</td>
<td>62</td>
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<tr>
<td>18</td>
<td>120</td>
<td>80</td>
</tr>
</tbody>
</table>

*Adapted from Kaelber, *Pediatrics*, 2009

*For further evaluation, determine blood pressure percentile using blood pressure tables at: [http://www.nhlbi.nih.gov/guidelines/hypertension/child_tbl.htm](http://www.nhlbi.nih.gov/guidelines/hypertension/child_tbl.htm), then refer to Table 7.*
# Pediatric Obesity Prevention and Treatment Algorithm

## All Children Ages 2-19 Years

### Prevention Counseling: Primary Care Office

- Assess risk factors for obesity.
- Assess diet and activity behaviors.
- Assess motivation and attitudes.
- Reinforce healthy behaviors.
- Identify problem behaviors and elicit solutions from family.
- Deliver consistent evidence-based messages.
- Actively engage whole family.

### Prevention Message: **5-2-1-0!**

- 5 or more fruits and vegetables
- 2 hours or less of screen time
- 1 hour or more of physical activity
- 0 sugary drinks

## Children with a BMI >85th with Risk Factors or BMI ≥ 95th Percentile

### Stage 1 Treatment: Prevention Plus (Primary Care Office)

- Motivational interviewing techniques to enable family and provider to work together to identify the behavior change(s) best suited for patient and family.
- Actively engage whole family in lifestyle changes.
- Discuss **5-2-1-0** message (see above).
- Recommend against skipping meals.
- Limit fast food and meals outside the home.
- Encourage family meals 5 times per week.
- Avoid overly restrictive feeding behaviors.
- May best achieve target behaviors in steps by beginning with one or two small goal(s), and then building on this goal or adding other goals.
- Family visits with clinician – recommend every 1-3 months; specific follow-up time is tailored to the individual family.
- If not significant improvement after 3-6 months, advance to Stage 2.

## Stage 2 Treatment: Structured Weight Management (Primary Care Office with Support)

- Primary care office setting with referral sources available.
- All Stage 1 treatment protocol with additional below measures:
  - Involve dietician to implement structured dietary plan with emphasis on foods low in energy density.
  - Supervised physical activity for 60 minutes daily; consider referral to physical therapist to assist child and family in developing physical activity habits.
  - Limit screen time to < 1 hour daily.
  - Monitor behaviors through diet and activity logs.
  - Consider referral to counselor for help or assistance with motivation.
- Family visits with clinician - recommend monthly for assessment and reinforcement of achieving targeted behavior changes.
- Referral to community-based programs.
- If no significant improvement after 3-6 months, advance to Stage 3.

## Stage 3 & 4 Treatment: Comprehensive, Multidisciplinary Program and Tertiary Care Center

- Evaluation and follow-up with a multidisciplinary team experienced in pediatric weight management.
- Multidisciplinary team includes behavioral counselor, registered dietitian, exercise specialist, and primary care provider.
- Close monitoring with frequent, intensive visits.
- Includes other treatment options for select patients: medication, very low calorie diet, bariatric surgery.
<table>
<thead>
<tr>
<th>Age</th>
<th>Exercise and Play Activities (Recommended Minimum of 1 Hour Per Day)</th>
</tr>
</thead>
</table>
| <5 years old | ✷ Encourage spontaneous play and outdoor time with parental supervision.  
✷ Examples: Dancing, tricycling, climbing on playground equipment, swimming, playing tag, going to the park, walking around the neighborhood, school, or mall.  
✷ May begin introduction to team sports. Coordination has not completely developed, but this is a great time to discover their interests. |
| 6–8 year olds| ✷ Balance and proprioceptive skills are developing quickly.  
✷ May start introducing organized sports. Examples: Soccer, baseball, basketball, flag football, tennis.  
✷ Continue spontaneous play. Examples: Skating, hula hoop, hopscotch, pogo stick, monkey bars at the playground.  
✷ Endurance needs to be built up, which can be achieved with the recommended 60 minutes a day of activity.  
✷ Maintain adequate hydration, encouraging frequent water breaks, every 10-20 minutes during activity.  
✷ Invest in supportive shoes and other proper equipment for the respective activity.  
✷ Basic introduction to exercise should begin starting at age 7 (Pull ups, pushups, running/jogging, jumping jacks). |
| 9–11 year olds | ✷ Hand-eye coordination is improved.  
✷ Examples: Playing ball, riding bikes.  
✷ Child is becoming more interested and honing their skills in certain sports by this age.  
✷ To avoid overuse injuries, participate in no more than 2 seasons of a given sport per year.  
✷ Begin introducing light weights and formal exercises with proper supervision. |
| 12–14 year olds | ✷ Rapid growth period.  
✷ Continue weight introduction and formal exercises with proper supervision.  
✷ Examples: Inflatable exercise stability ball, rubber exercise bands, treadmill or elliptical exercise.  
✷ Club leagues begin to get more competitive – ensure positive sport environment. |
| >15 year olds | ✷ After puberty, more specialized training can occur. Adolescents need to be properly educated by a strength-training coach or personal trainer initially.  
✷ Focus on adequate nutrition for increased energy requirements.  
✷ Recognize the signs of heart-related illness.  
✷ Physical exams for kids in 9th through 12th grade before playing any sport.  
✷ If family history of heart problems, consider EKG. If child has ever fainted during exercise, refer to Cardiology. |
CODING - List of Helpful ICD-9 Codes for Overweight, Obesity and Associated Conditions

BMI ≥ 85th Percentile without Other Signs or Symptoms on Examination
  278.02 – Overweight (Medicaid only)
  783.1 – Abnormal Weight Gain (Private insurance)

BMI ≥ 95th Percentile without Other Signs or Symptoms on Examination
  278.00 – Obesity (Medicaid only)
  783.1 – Abnormal Weight Gain (Private insurance)

BMI ≥ 99th Percentile without Other Signs or Symptoms on Examination
  278.01 – Morbid Obesity (Medicaid only)
  783.1 – Abnormal Weight Gain (Private insurance)

BMI ≥ 85th Percentile with Positive ROS or Examination Findings

Symptoms:
1. Polyphagia – 783.6
2. Polydipsia – 783.5
3. Shortness of Breath – 786.05
4. Chest Pain – 786.5
5. Snoring – 786.0
6. Headache – 784.01

PE Findings:
1. Acanthosis Nigricans – 701.2
2. Hirsutism – 704.1
3. Striae – 701.3
4. Hepatomegaly – 789.1
5. Short Stature – 783.43

Lab Findings:
1. Elevated Blood Pressure – 796.2
2. Hyperinsulinism – 251.1
3. Hyperglycemia – 790.6
4. Increased LFTs – 790.4
5. Hypercholesterolemia – 272.0
6. Mixed Hyperlipidemia – 272.2

Diagnoses:
1. Hypertension – 401.9
2. Esophageal Reflux – 530.81
3. Other Chronic Nonalcoholic Liver Disease – 571.8
4. Gallstones – 574.2
5. Diabetes Mellitus without Complication – 250.00
6. PCOS – 256.4
7. Obstructive Sleep Apnea – 327.23
8. Eating Disorder, Unspecified – 307.5
9. Depressive Disorder – 311.0
10. Precocious Puberty – 259.1
11. Hypothyroidism – 244.9
My Plate Planner
A Healthy Meal Tastes Great

The plate method is a simple way to learn healthy portion sizes. Just split the plate into 3 parts, the largest part for vegetables. Note to adults planning meals for smaller children: Remember to use a smaller plate or serve smaller portions if you don’t have different plate sizes.

6oz. Fat-free or 1% milk

Note to adults preparing meals for children: Use your child’s hand to measure portion sizes.

Your hand can help you measure the right amount of food to eat. Use your hand to measure out portions.

Palm of Hand
Amount of Lean Meat

A Fist
Amount of Rice, Cooked Pasta, or Cereal

A Thumb
Amount of Cheese

Thumb Tip
Amount of Peanut Butter

Note to adults preparing meals for children: Use your child’s hand to measure portion sizes.
How to Choose Healthy

Don’t Eat This!

- White Bread
- White Rice
- Fried Fish Sticks
- Spare Ribs
- Sausage
- Double Cheeseburger
- Pepperoni Pizza

Eat This!

- Green Beans
- Spinach
- Carrots
- Grilled Beef
- Baked Fish
- Low-fat Yogurt
- Natural Peanut Butter
- Cheese
- Egg
- Yams
- Whole Wheat Bread
- Beans
- Fat-Free Milk
- Water
- Oatmeal
- Whole Wheat Veggie Pizza

Your hand can help you measure the right amount of food to eat.

Note to adults preparing meals for children: Use your child’s hand to measure portion sizes.
Body Mass Index (BMI) — Boys

2 to 20 years: Boys
Body mass index-for-age percentiles

To Calculate BMI: Weight (kg) + Stature (cm) + Stature (cm) x 10,000 or Weight (lb) + Stature (in) + Stature (in) x 703

Obese
Overweight
Healthy Weight
Underweight

Published May 30, 2010
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts
Body Mass Index (BMI) — Girls (Boys over)
References:


American Academy of Pediatrics: Prevention and Treatment of Childhood Overweight and Obesity  
http://www.aap.org/obesity/clinical_resources.html?technology=0

Maine Center for Public Health/Maine AAP "Keep ME Healthy" Program  
http://www.mcph.org/Major_Activities/keepmehealthy.htm

National Initiative for Children’s Healthcare Quality: Childhood Obesity Action Network  
http://www.nichq.org/resources/childhood_obesity_toolkit.html

NYC Department of Health. My Plate Planner.  

Oklahoma Chapter
American Academy of Pediatrics

Dedicated to the health, safety and well-being of infants, children, adolescents and young adults.

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