



Prevention and Management Of Obesity Adolescents & Children

The “Pediatric Obesity Prevention and Treatment Toolkit” is available at:
<http://providers.optimahealth.com/clinicalreference/Pages/default.aspx>

Guideline History

Date Approved	1/06, 01/08,
Date Revised	1/06, 01/08, 1/10, 07/10, 1/12
Date Reviewed	10/05, 10/07, 12/09, 01/14, 01/16
Next Review Date	01/18

Prevention and Management of Pediatric Obesity

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Overweight and Obesity Identification

The Centers for Disease and Prevention (CDC) Growth Charts published in 2000 are now the preferred reference in identifying overweight and obese children in the United States. The CDC 2000 growth charts are a point of reference and present percentiles of the BMI distribution taken from measurements obtained from several NHANES surveys (National Health and Nutrition Examination Survey). The CDC 2000 Growth Charts are used as a screening tool to determine the corresponding BMI-for-age and sex percentile. For children and adolescents (aged two—19 years). An expert committee jointly convened by the American Medical Association (AMA), the CDC, and the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration, U.S. Department of Health and Human Services (DHHS), recently recommended that BMI be used to assess weight for height relationships in children because the BMI can be calculated from the child’s height and weight. The BMI calculation from assessment of height and weight correlate strongly with direct measures of body fat especially in BMI’s high in value. The BMI can identify and correlate individuals with the highest body fat especially if the BMI is above the 85th percentile. The AMA/CDC/MCHB Expert Committee defined a BMI \geq 95th percentile as obese for children of the same age and sex. A BMI between the 85th and 94th percentiles is defined as overweight for children of the same sex and age. Obese and overweight children are more likely to become obese adults. Health conditions like heart disease, diabetes, and some cancers associated with an obese adult will more likely be more severe for obese and overweight children. Children with obese parents will more than likely become overweight or obese adults.

Table A. Changes in terminology

Body mass index category	1994 recommended terminology	2007 recommended terminology
BMI 85th-<95th percentile	At risk of overweight	Overweight
BMI \geq 95th percentile	Overweight	Obese

NOTE: BMI is body mass index. <http://www.cdc.gov/nchs/data/nhsr/nhsr025.pdf>

Health effects of Childhood Obesity

Between 1976-1980 the prevalence of obesity in children and adolescents has almost tripled. Childhood obesity increases the risk for serious health conditions and social and psychological problems that can continue through adulthood. Obese children will more than likely to develop:

- High blood and high cholesterol
- Insulin resistance and Type 2 Diabetes
- Breathing problems like sleep apnea and asthma
- Musculoskeletal Discomfort and joint problems
- Fatty Liver Disease
- Gallstones and GERD
- Depression and low self-esteem
- Higher risk to developing an eating disorder
- Discrimination
- Early Puberty

Sources: Centers for Disease Control. Basics about Childhood Obesity. 2012. Available at: <http://www.cdc.gov/obesity/childhood/basics.html>. Accessed December 29, 2015.

Causes of Childhood Obesity

An unhealthy diet is the leading cause of childhood obesity. Childhood obesity is a result of eating too many calories and not enough physical activity.

- Genetics- Genetics is not the reason for the recent increase in childhood obesity. Genetic characteristics increase a child's susceptibility to become overweight.
- Behaviors related to Nutrition- Consumption of foods and beverages that are high in calories, sugar, salt and fats, fewer family meals, increased portion sizes.
- Physical activity- Children spend less time being physically active at school and at home.
- Screen Time- Sedentary behaviors such as watching television, playing video games, computer activities replaces time spent being physically active.
- Environment- Childs home, school, community, and childcare setting have ability to influence a child's eating habits.
- Socio-Demographics- Certain ethnic and socioeconomic populations have higher rates of childhood obesity. Lack of safe places for play, inconsistent access and availability of healthy foods are barriers low-income families often face.

Please go to [optimahealth.com](http://www.optimahealth.com) Health Care Reform for the most up to date list of covered preventive care services. <http://www.optimahealth.com/Lists/OptimaFormsLibrary/health-care-reform-preventive-list.pdf>

Lipid Screening in Children and Adolescents

Evidence-Based Recommendations for Lipid Assessment Grades reflect the findings of the evidence review. Recommendation levels reflect the consensus opinion of the Expert Panel. NOTE: Values given are in mg/dL. To convert to SI units, divide the results for total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), and non-HDL-C by 38.6; for triglycerides (TG), divide by 88.6.

Birth–2 years	No lipid screening	Grade C Recommend
2–8 years	No routine lipid screening	Grade B Recommend
2–8 years (cont.)	Measure fasting lipid profile (FLP) × 2 ^a ; average results if: <ul style="list-style-type: none"> • Parent, grandparent, aunt/uncle, or sibling with myocardial infarction (MI), angina, stroke, coronary artery bypass graft (CABG)/stent/angioplasty at <55 years in males, <65 years in females 	Grade B Strongly recommend
2–8 years (cont.)	<ul style="list-style-type: none"> • Parent with TC ≥240 mg/dL or known dyslipidemia 	Grade B Strongly recommend
2–8 years (cont.)	<ul style="list-style-type: none"> • Child has diabetes, hypertension, BMI ≥95th percentile or smokes cigarettes 	Grade B Strongly recommend
2–8 years (cont.)	<ul style="list-style-type: none"> • Child has a moderate- or high-risk medical condition (Table 9-7) 	Grade B Strongly recommend
9-11 years	<p>Universal Screening</p> <ul style="list-style-type: none"> • Non-FLP: Calculate non-HDL-C: Non HDL C = TC - HDL C^a Non-HDL ≥145 mg/dL, HDL < 40 mg/dL →FLP × 2, lipid algorithms below OR • FLP: LDL-C ≥130 mg/dL, non-HDL-C ≥145 mg/dL HDL-C <40 mg/dL, TG ≥100 mg/dL if < 10 years; ≥130 mg/dL if ≥10 years → Repeat FLP after 2 weeks but within 3 months → lipid algorithms below 	Grade B Strongly recommend
12-16 years	No routine screening	Grade B Recommend
12-16 years (cont.)	Measure FLP × 2 ^f , average results, if new knowledge of: <ul style="list-style-type: none"> • Parent, grandparent, aunt/uncle or sibling with MI, angina, stroke, CABG/ stent/angioplasty, sudden death at < 55 years in males, < 65 years in females 	Grade B Strongly recommend

12-16 years (cont.)	<ul style="list-style-type: none"> Parent with TC \geq240 mg/dL or known dyslipidemia 	Grade B Strongly recommend
12-16 years (cont.)	<ul style="list-style-type: none"> Patient has diabetes, hypertension, BMI \geq85th percentile or smokes cigarettes 	Grade B Strongly recommend
12-16 years (cont.)	<ul style="list-style-type: none"> Patient has a moderate- or high-risk medical condition (Table 9-7) 	Grade B Strongly recommend
17-21 years	<p>Universal screening once in this time period:</p> <p>Non-FLP: Calculate non-HDL-C: Non-HDL-C = TC - HDL-C^g</p> <p>17-19 years:</p> <p>Non-HDL-C \geq145 mg/dL, HDL-C <40 mg/dL → FLP \times 2, lipid algorithm below (Figure 9-1) OR FLP: LDL-C \geq130 mg/dL, non-HDL-C \geq145 mg/dL HDL-C < 40 mg/dL, TG \geq130 mg/dL → Repeat FLP after 2 weeks but within 3 months → lipid algorithms in Figures 9-1 and 9-2.</p> <p>20-21 years:</p> <p>Non-HDL-C \geq190 mg/dL, HDL-C < 40 mg/dL → FLP \times 2¹ average results → Adult Treatment Panel III (ATP III) management algorithm OR FLP: LDL-C \geq160 mg/dL, non-HDL-C \geq190 mg/dL HDL-C <40 mg/dL, TG \geq150 mg/dL → Repeat FLP after 2 weeks but within 3 months, average results → ATP III management algorithm</p>	

Sources: National Heart Lung and Blood Institute. Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: Summary Report. Available at: http://www.nhlbi.nih.gov/guidelines/cvd_ped/summary.htm. Accessed December 29, 2015.

Steps in Prevention and Treatment of Childhood Obesity

Obesity Prevention at Well Care (Assessment and Prevention)

Assessment: The Expert Committee Recommends for physicians and allied health professionals to perform at a minimum a yearly assessment beginning at the age of two of the child's weight status to include a calculation of height, weight, and BMI (Body Mass Index) for age and plotting of the measurements on standard growth charts.

Weight category Diagnosis using BMI percentile:

- Underweight-BMI for age < 5th percentile
- Healthy- BMI for age- 5th percentile to >85th percentile
- Overweight- BMI for age 85th percentile to 94th percentile
- Obese-BMI for age > 95th percentile

Conduct a thorough history to include child's medical History, Family Medical History, Presence of co-morbidities Dietary behaviors, Physical activity ,environmental and socioeconomic factors, cultural and ethnic factors.

Prevention: Prevention for all patients should include promotion and support for breastfeeding, family meals, limited screen time, regular physical activity, and yearly BMI monitoring.

Stage 1: Prevention Plus

Within this category, the goal should be weight maintenance with growth resulting in decreasing BMI with increase of age.

Monthly follow-ups are recommended with primary care giver.

Weight management and behavioral counseling to include dietary habits and physical activity:

- 5 or more servings of fruit and vegetables every day
- 2 or fewer hours of screen time, no television in the room where the child sleeps
- 1 hour or more of daily physical activity
- 0 sugar-sweetened beverages

Behavioral Counseling:

- Eat a nutritious breakfast everyday
- Limit meals outside of the home
- Family meals 5-6 times per week
- Allow child to self-regulate his or her meal.

Advance to Stage 2 if no improvement in BMI/weight status after 3-6 months.

Stage 2: Structured Weight Management Protocol

Goal within this category should be weight maintenance resulting in a decreasing BMI with increasing age and height. Weight loss not to exceed 1 lb. /month in children 2-11 years or an average of 2 lbs. /wk. in older overweight/obese children and adolescents.

- Development of daily diet plan of a balanced macronutrient diet, emphasizing foods high in water or fiber content
- Increased structure of daily meals and snacks
- Supervised active play of at least 60 minutes per day
- Decrease television or screen time to 1 hour or less/day
- Increased monitoring using logs (e.g. screen time, physical activity, dietary intake, restaurant logs) by provider, patient, and or family.

Advance to Stage 3 if no improvement in BMI/weight status after 3-6 months.

Stage 3: Comprehensive Multidisciplinary protocol

Within this category, the goal should be weight maintenance or gradual weight loss until the BMI is less than 85th and should not exceed 1lb/month in children ages 2-5 years or 2lbs in older obese children and adolescents.

At this level of intervention, the child should be referred to a multidisciplinary obesity team.

- Eating and activity goals are same as in Stage 2
- Structured program in behavioral modification, including food and activity monitoring, and creation of short-term diet and physical activity goals.
- Involvement of primary caregivers/families for behavioral modification in children under age 12 and training of primary caregivers/families for all children.

The Expert Committee recommends the following for children with BMI>95th percentile with significant co-morbidities and who have not been successful with stages 1-3 or children with >99th percentile who have shown no improvement under stage 3.

Stage 4: Tertiary Care Protocol

Pediatric tertiary weight management center with access to a multidisciplinary team with expertise in childhood obesity and operates under a designed protocol.

This protocol should include continued diet and activity counseling and consideration of such additions as meal replacement, very low calorie diet, medication, and surgery.

Please go to optimahealth.com website to the Pediatric Obesity Prevention and Treatment Toolkit for more information on available medically based programs.

<http://providers.optimahealth.com/clinicalreference/Pages/Pediatric-Obesity-Prevention-and-Treatment-Toolkit.aspx>

Expert Committee recommended weight loss Targets for Stage 4

Age 2-5 years:

85th-94th BMI-Weight maintenance until BMI < 85th or slowing of weight gain is indicated with downward reflection in BMI curve.

>95th BMI - Weight maintenance until BMI < 85th percentile, however if a healthy and adequate calorie diet weight loss should not exceed 1 lb. per month. Monitor for causes of excessive weight loss if 1lb per month exceeded.

BMI > 21 or 22 Gradual weight loss not to exceed 1 lb. per month.

Ages 6-11 years:

85th-94th BMI-Weight maintenance until BMI < 85th or slowing of weight gain is indicated with downward reflection in BMI curve.

95th-98th BMI-Weight maintenance until BMI < 85th percentile gradual weight loss not to exceed 1 lb. per month.

>99th BMI-Weight loss not to exceed an average of 2lbs/week.

Age 12-18 years:

85th-94th BMI-Weight maintenance until BMI < 85th or slowing of weight gain is indicated with downward reflection in BMI curve.

95th-98th BMI-Weight maintenance until BMI < 85th percentile---no more than an average of 2 lbs. per week.

>99th BMI-Weight loss not to exceed an average of 2 lbs. per week.

Source: Expert Committee Recommendations on the Assessment, Prevention and Treatment of Child and Adolescent Overweight and Obesity - 2007- *An Implementation Guide from the Childhood Obesity Action Network*

****Please see appropriate plan benefit for specific coverage****

Screening for Obesity in Children and Adolescents

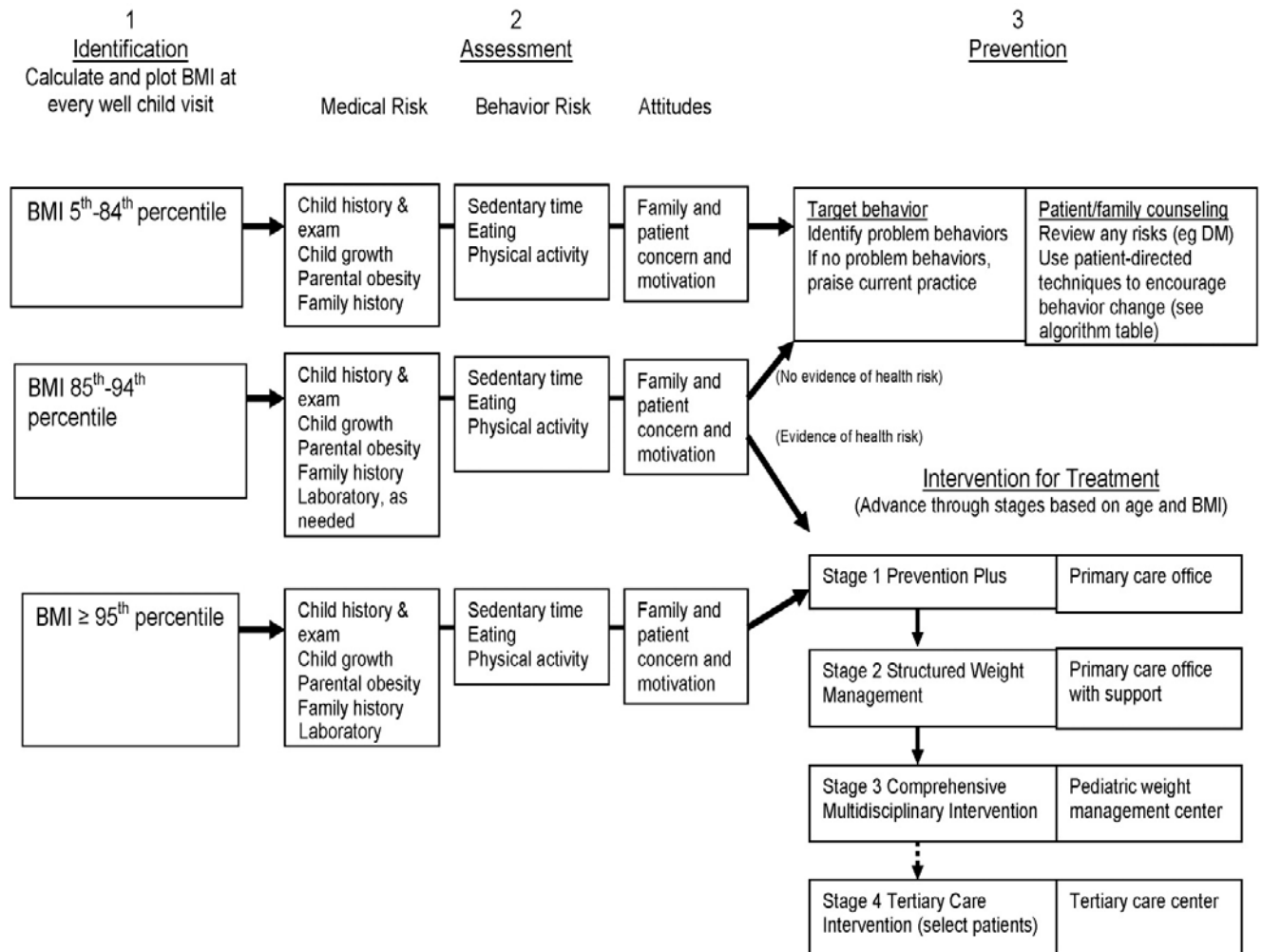
Clinical Summary of U.S. Preventive Services Task Force Recommendation

Population	Children and adolescents 6 to 18 years of age
Recommendation	<p>Screen children aged 6 years and older for obesity.</p> <p>Offer or refer for intensive counseling and behavioral interventions.</p> <p>Grade: B</p>
Screening Tests	<p>BMI is calculated from the weight in kilograms divided by the square of the height in meters.</p> <p>Height and weight, from which BMI is calculated, are routinely measured during health maintenance visits.</p> <p>BMI percentile can be plotted on a chart or obtained from online calculators.</p> <p>Overweight = age- and gender-specific BMI at ≥ 85th to 94th percentile</p> <p>Obesity = age- and gender-specific BMI at ≥ 95th percentile</p>
Timing of Screening	No evidence was found on appropriate screening intervals.
Interventions	Refer patients to comprehensive moderate- to high-intensity programs that include dietary, physical activity, and behavioral counseling components.
Balance of Benefits and Harms	<p>Moderate- to high-intensity programs were found to yield modest weight changes.</p> <p>Limited evidence suggests that these improvements can be sustained over the year after treatment.</p> <p>Harms of screening were judged to be minimal.</p>
Other Relevant USPSTF Recommendations	Recommendations on other pediatric and behavioral counseling topics can be found at http://www.uspreventiveservicestaskforce.org .

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statements, and supporting documents, please go to <http://www.uspreventiveservicestaskforce.org/>

Universal Assessment of Obesity Risk and Steps to Prevention and Treatment.

*DM indicates diabetes mellitus



From USPTF 2010 reference:

In 2007, an American Medical Association (AMA) expert committee of 15 individuals representing 15 professional medical organizations revised 1998 recommendations on how clinicians should approach the prevention, assessment, and treatment of childhood obesity. In the updated recommendations, the AMA advised that a clinician's assessment should include a BMI calculation as well as medical and behavioral risks for obesity. For overweight and obese patients, the expert committee proposed using a stepwise approach that divides treatment into several stages including counseling, providing a structured weight-management plan, and using a comprehensive multidisciplinary intervention/tertiary care intervention delivered by multidisciplinary teams with expertise in childhood obesity. The American Academy of Pediatrics endorsed the 2007 AMA expert committee recommendations and has recommended the annual plotting of BMI for all patients aged 2 years and older.

References

1. Changes in Terminology for Childhood Overweight and Obesity. Available at: <http://www.cdc.gov/nchs/data/nhsr/nhsr025.pdf>
2. Center for Disease Control and Prevention. About BMI for Children and Teens. Available at: http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html
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4. Center for Disease Control and Prevention. What are the consequences of Childhood Obesity 2015. Available at: <http://www.cdc.gov/obesity/childhood/basics.html>.
5. National Heart Lung and Blood Institute. Expert Panel on Integrated Guidelines for Cardio Vascular Health and Risk: Reduction in Children and Adolescents: Summary Report. Available at: www.nhlbi.nih.gov/guidelines/cvd_ped/sum
6. Expert Committee Recommendations on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity-2007-An Implementation Guide from the Childhood Obesity Action Network. Available at: <http://www.nichq.org/documents/coan-papers-and-publications/COANImplementationGuide62607FINAL.pdf>
7. U.S. Preventive Services Task Force. Screening for Obesity in Children and Adolescents. Recommendation Statement. Pediatrics 125:2, 2010

****Please see appropriate plan benefit for specific coverage****