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Prevention and Management Of Obesity Adolescents & Children

The "Pediatric Obesity Prevention and Treatment Toolkit" is available at:
https://www.optimahealth.com/providers/clinical-reference/pediatric-obesity-prevention-and-treatment-toolkit

Guideline History

Date Approved	1/06, 01/08,
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Prevention and Management of Pediatric Obesity

Table of Content

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 ≥ 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 =>95thpercentile	Overweight	Obese

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

Health effects of Childhood Obesity

Between 1976 and 1980 the prevalence of obesity in children and adolescents has almost tripled. Childhood obesity is a serious health problem. Per the Center for Disease Control (CDC), 1 in 5 children and adolescents in the U.S. have obesity. There is evidence that since SARS-CoV2 pandemic, normal weight, overweight and obese children have accelerated their already climbing BMI'S. This is especially noted in preschool and elementary school age children. 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. Childhood Overweight and Obesity. Accessed January 22, 2020.

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.

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–12 m	No lipid screening	Grade C Recommend
2 to 8 y	No routine lipid screening	Grade B Recommend
	Measure fasting lipid profile (FLP) × 2*; average results** if:	
	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
	Parent with TC ≥ 240 mg/dL or known dyslipidemia	
	Child has diabetes, hypertension, BMI ≥ 95th %ile or smokes cigarettes	Grade B Strongly recommend
	Parent with TC ≥ 240 mg/dL or known dyslipidemia	
	Child has a moderate- or high-risk medical condition	Grade B Strongly recommend
	Child has a moderate- or high-risk medical condition High Risk: Diabetes mellitus, type 1 and type 2 Chronic renal disease/end-stage renal disease/post renal transplant Postorthotopic heart transplant Kawasaki disease with current aneurysms Moderate Risk: Kawasaki disease with regressed coronary aneurysms Chronic inflammatory disease (systemic lupus erythematosus, juvenile rheumatoid arthritis) Human immunodeficiency virus (HIV) infection Nephrotic syndrome	Grade B Strongly recommend
9 to 11 y	Universal screening	Grade B Strongly recommend
	Non-FLP: Calculate non-HDL-C: Non-HDL-C = TC – HDL-C*	
	Non-HDL ≥ 145 mg/dL, HDL < 40 mg/dL g FLP × 2, or	
	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 g Repeat FLP after 2 weeks but within 3 months	
12–16 y	No routine screening* Measure FLP × 2,** average results, if new knowledge of:	Grade B Recommend

	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
	Parent with TC ≥ 240 mg/dL or known dyslipidemia	Grade B Strongly recommend
	Patient has diabetes, hypertension, BMI ≥ 85th%ile or smokes cigarettes	Grade B Strongly recommend
	Measure FLP twice, * average results, if new knowledge of:	
	Parent, grandparent with MI, angina, stroke, CABG/stent/angioplasty, sudden death at <55 y in male, <65 y in female	Grade B Strongly recommend
	Patient has a moderate- or high-risk medical condition	Grade B Strongly recommend
17–21 y	Universal screening once in this time period: Non-FLP: Calculate non-HDL-C: Non-HDL-C = TC − HDL-C	Grade B recommend
	17–19 y: Non-HDL-C ≥ 145 mg/dL, HDL-C < 40 mg/dL g FLP × 2, lipid algorithm below (Figure 9–1) OR FLP: LDL-C ≥ 130 mg/dL, non-HDL-C ≥ 145 mg/dL HDL-C < 40 mg/dL, TG ≥ 130 mg/dL g Repeat FLP after 2 weeks but within 3 months	Grade B recommend
	20–21 y: Non-HDL-C ≥ 190 mg/dL, HDL-C < 40 mg/dL** g FLP × 2,***, average results g Adult Treatment Panel III (ATP III) management algorithm OR FLP: LDL-C ≥ 160 mg/dL, non-HDL-C ≥ 190 mg/dL HDL-C < 40 mg/dL, TG ≥ 150 mg/dL g Repeat FLP after 2 weeks but within 3 months, average results g ATP III management algorithm	Grade B Recommend

* Lipid screening is not recommended for those ages 12–16 years because of significantly decreased sensitivity and specificity for predicting adult LDL–C levels and significantly increased false-negative results in this age group. Selective screening is recommended for those with the clinical indications outlined. ** Interval between FLP measurements: after 2 weeks but within 3 months.

***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.Sources: National Heart Lung and Blood Institute. Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: Summary Report.

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.
https://www.optimahealth.com/providers/clinical-reference/pediatric-obesity-prevention-and-treatment-toolkit

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****

Clinical Summary

Obesity in Children and Adolescents: Screening

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

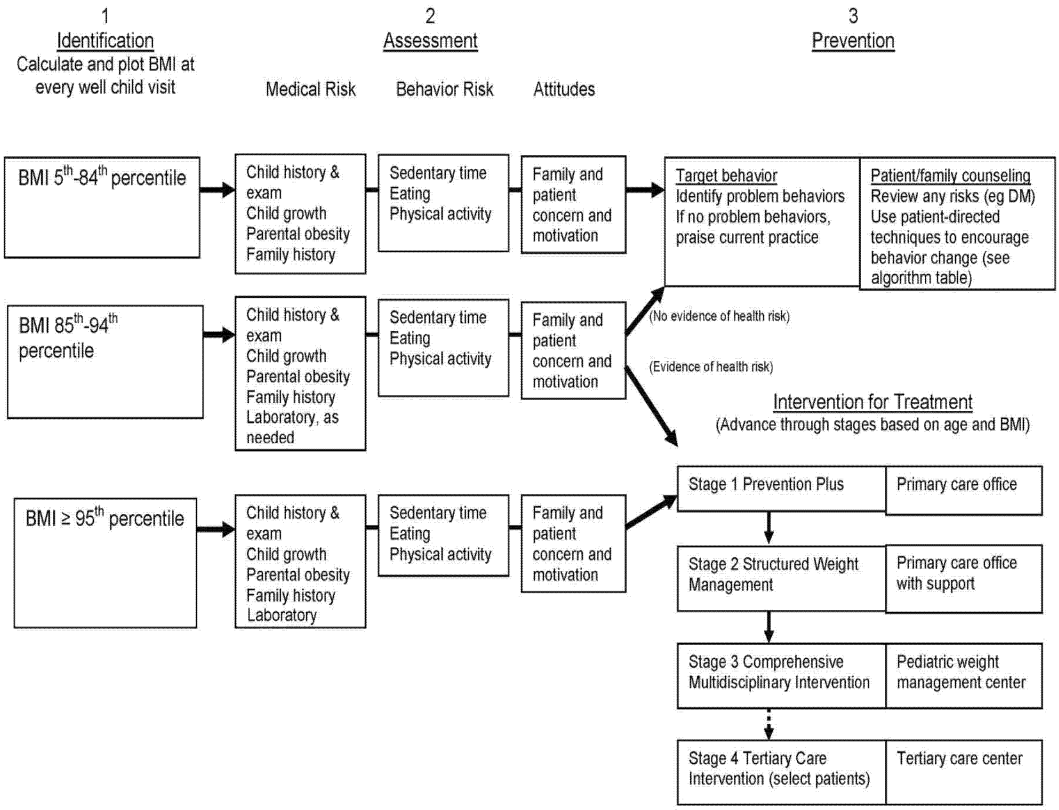
Population	**Children and adolescents 6 y and older**
Recommendation	**Screen for obesity; offer or refer children and adolescents with obesity to comprehensive, intensive behavioral interventions to promote improvements in weight status. Grade: B**
Risk Assessment	**All children and adolescents are at risk for obesity and should be screened; specific risk factors include parental obesity, poor nutrition, low levels of physical activity, inadequate sleep, sedentary behaviors, and low family income.** **Risk factors associated with obesity in younger children include maternal diabetes, maternal smoking, gestational weight gain, and rapid infant growth. A decrease in physical activity in young children is a risk factor for obesity later in adolescence. Obesity rates continue to increase in some racial/ethnic minority populations.**
Screening Tests	**BMI measurement, using height and weight, is the recommended screening test for obesity. Obesity is defined as an age- and sex-specific BMI in the 95th percentile or greater.**
Interventions	**Comprehensive, intensive behavioral interventions of ≥26 contact hours resulted in weight loss. Effective interventions consisted of multiple components, including: sessions targeting both the parent and child (separately, together, or both); offering individual sessions (both family and group); providing information about healthy eating, safe exercising, and reading food labels; encouraging the use of stimulus control (e.g., limiting access to tempting foods and screen time), goal setting, self-monitoring, contingent rewards, and problem solving; and supervised physical activity sessions. Providers included primary care clinicians, exercise physiologists, physical therapists, dieticians, diet assistants, psychologists, and social workers, but the more intensive interventions usually involved referral outside the primary care office. Evidence regarding pharmacotherapy interventions was inadequate.**
Balance of Benefits and Harms	**The USPSTF concludes with moderate certainty that the net benefit of screening for obesity in children and adolescents 6 y and older and offering or referring them to comprehensive, intensive behavioral interventions to promote improvements in weight status is moderate.**
Other Relevant USPSTF Recommendations	**The USPSTF has made recommendations on screening for primary hypertension and lipid disorders in children and adolescents. These recommendations are available on the USPSTF Web site (https://www.uspreventiveservicestaskforce.org).**

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to www.uspreventiveservicestaskforce.org.

Abbreviation: BMI=body mass index.

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

*__DM indicates diabetes mellitus__



From USPTF Recommendations of Others:

In 2007, an American Medical Association expert committee recommended that clinicians' assessments include BMI calculation as well as medical and behavioral risk factors for obesity. The American Academy of Pediatrics endorsed these recommendations and further recommends annually plotting BMI on a growth chart for all patients 2 years and older. In 2011, a National Heart, Lung, and Blood Institute expert panel recommended using BMI to screen for obesity in children and adolescents aged 2 to 21 years at high risk for obesity (i.e., due to history of parental obesity, excessive gain in BMI, or change in physical activity). In 2015, the Canadian Task Force on Preventive Health recommended growth monitoring for all children and adolescents 17 years and younger at all appropriate primary care visits. It also recommends that primary care clinicians offer or refer children and adolescents with overweight or obesity to structured behavioral interventions aimed at healthy weight management.

References

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3. Center for Disease Control and Prevention. Overweight and Obesity: Childhood Obesity Causes and Consequences. 2016. Available at: https://www.cdc.gov/obesity/childhood/causes.html

4. *Clinical Summary: Obesity in Children and Adolescents: Screening*. U.S. Preventive Services Task Force. April 2019. https://www.uspreventiveservicestaskforce.org/Page/Document/ClinicalSummaryFinal/obesity-in-children-and-adolescents-screening1

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6. Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report Available at: http://pediatrics.aappublications.org/content/120/Supplement_4/S164

7. 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: https://www.nhlbi.nih.gov/node/80139

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