Behavioral health weight management interventions for children with increased body mass index screenings

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Policy contains: Childhood body mass index; childhood obesity; weight management interventions.

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Coverage policy

Intensive Health Behavior and Lifestyle Treatment for child and adolescent members determined to be obese is clinically proven, and, therefore, may be medically necessary to promote weight reduction and healthy lifestyle when all of the following criteria are met (Grossman, 2017; Hempl, 2023):

- Both the member (child) and family are included in treatment sessions.
- The member is 2 to 19 years of age and has either:
    - An age- and gender-specific body mass index equal to or above the 95th percentile, indicative of obesity, with specific assessment for related comorbidities.
    - An age- and gender-specific body mass index in the 85th to the 94th percentiles, indicative of being overweight, with specific assessment for related comorbidities.

- Referral to moderate- to high-intensity behavioral intervention program that includes all of the following characteristics (Grossman, 2017; Hempl, 2023):
    - Twenty-six or more hours of contact with the member and/or caregivers over a period of two to 12 months.
    - Nutritional counseling focusing on proper nutrition and eating behaviors for weight loss and/or a healthy diet and health maintenance.
    - Counseling for physical activity or a physical activity program.
    - Instruction and counseling for behavior management techniques to help make and sustain changes in diet and physical activity.
    - Intensive behavioral intervention for obesity.
- The member and/or caregivers have a documented knowledge deficit regarding weight management that requires the services of licensed health care professionals (e.g., dietitian) to develop a nutritional treatment plan, physical activity program, and counseling for behavioral techniques for weight management.
- The member and their caregivers are motivated to attend, participate in, complete, and use the content from a moderate- to high-intensity intervention program for weight management.
- The content of these programs include information on healthy eating, safe exercising, reading food labels, encouraging stimulus control (to foods associated with weight gain).
- These programs include goal setting, self-monitoring, contingent rewards, and problem solving.

Limitations

All other uses of childhood body mass index screening and program interventions for weight management are investigational/not clinically proven, and, therefore, not medically necessary, considering:

- Members who fail to lose their targeted amount of weight in six months or do not lower their body mass index percentile may be re-evaluated at six months after the initial screening. Those showing “readiness to change” and with a body mass index percentile ≥ the 95th percentile may receive another round of counseling.
- Dietician referral/nutritional counseling addresses the following topics (Grossman, 2017):
    - The impact of nutrition.
    - Actions needed to promote an adequate balanced diet for the individual.
    - The child’s nutritional care plan.
    - Maintenance and prevention of vitamin and mineral deficiencies.
    - Management of food, including shipping, storage, and preparation.
    - Monitoring of previously recommended dietary interventions.
    - Avoidance of drugs and/or alcohol.
    - Relationships of medication to diet.
    - Special nutrition needs and the value of supplements.

Alternative covered services

Body mass index measurement from routine primary care and well-child visits.

Background

Body mass index measures childhood weight status. It is calculated by dividing a child’s weight in kilograms by the square of height in meters. Body mass index correlates with direct measures of body fat (e.g., skinfold thickness measurements, bioelectrical impedance, and densitometry), but is more practical to use. For children and teens, body mass index is age- and sex-specific (Centers for Disease Control and Prevention, 2023a).

Body mass index-for-age weight status categories and the corresponding percentiles for defining overweight and obesity in children. These ranges are intended to reliably define a level above which a child is more likely to have or be at risk of developing obesity-associated adverse health outcomes or diseases (Centers for Disease Control and Prevention, 2023a):

- Overweight — 85th percentile to less than the 95th percentile.
- Obesity — 95th percentile or greater.
- Severe obesity — 120% of the 95th percentile or greater, or 35 kg/m^2 or greater.

Among children and adolescents age 2 to 19 years, the prevalence of obesity from 2017 to March 2020 was 19.7%, split evenly among genders. Obesity prevalence increased with age and was higher among Hispanic (26.2%) and non-Hispanic black (24.8%) youth than non-Hispanic white (16.6%) and non-Hispanic Asian (9.0%) youth, and higher among low income families (Stierman, 2021).

Obese and overweight children and adolescents have an increased risk for comorbid conditions, such as type 2 diabetes mellitus, asthma, nonalcoholic fatty liver disease, and cardiovascular risk factors such as atherosclerosis, hypertension, and hyperlipidemia. Mental health issues such as depression and low self-esteem are more problematic in obese children compared to non-obese children (Sutaria, 2019).

Central to childhood obesity is inadequate diet and physical activity, and lack of access to heathy, affordable foods and places to be active. Evidence-based initiatives at the national, state, and local levels are aimed at addressing childhood obesity. The strategies employ recommended standards and best practices for prevention and treatment of obesity (Centers for Disease Control and Prevention, 2023b).

Treatment of childhood obesity seeks to achieve weight loss, prevent further weight gain, and improve complications of obesity. Behavioral change is central to obesity management. Treatment options target dietary and physical activity changes that often include family-based interventions and psychological methods (e.g., cognitive behavioral therapy or motivational interviewing). Interventions may be individual-, group-, or community-based. Comprehensive, multidisciplinary approaches that increase the intensity and frequency of the behavior change component may be employed before adjunctive pharmacologic therapy and bariatric surgery are considered (Tiwari, 2023).

Findings

This policy addresses comprehensive multicomponent interventions targeting dietary change and lifestyle modifications for treating childhood obesity. The effects of the individual components are often unclear and are beyond the scope of this policy.

There is strong consensus that the body mass index is a reliable screening measure of a child's body composition, and body mass index-for-age categories are reliable for defining levels above which a child is more likely to have or be at risk of developing obesity-associated adverse health outcomes or diseases. High specificity and low sensitivity for detecting excess adiposity is a limitation.

For children age 6 or older who are obese, intensified lifestyle interventions are effective in achieving age-appropriate weight levels and reducing associated cardiovascular comorbidities. Limited evidence supports these interventions in children age 2 to 5.

The strongest evidence for intensive behavioral health weight management consists of randomized controlled trials of comprehensive weight loss programs and weight loss programs conducted in research settings (as opposed to primary care settings). These programs incorporated behavior change counseling, dietary counseling, and strategies adapted to the patient's unique medical, family, developmental, social, and environmental needs to reduce sedentary activity and increase regular physical activity, and used body mass

index as the primary outcome measure. The primary agents for change are the adolescent and the parent of younger children.

There is insufficient evidence to suggest which protocol, setting, or component of the intervention may be most beneficial. Therefore, a multi-component, multi-level tailored approach incorporating nutrition, physical activity and behavior change components may be considered. However, lack of participation remains a barrier, and dropout rates are high. Interventions that focus on awareness of obesity and changeable unhealthy behavior, rather than measured obesity, may increase participation.

A National Heart, Lung, and Blood Institute Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents issued evidence-based recommendations for managing major cardiovascular risk factors and promoting cardiovascular health from infancy to young adulthood. The Panel recommends routine measurement of length/height and weight beginning in infancy, yearly assessment of blood pressure from age three years, and universal screening for lipid abnormalities by a nonfasting non-high-density lipoprotein cholesterol level at age 10 years. These screening strategies are designed to identify a large number of children for whom the Expert Panel recommends intensified lifestyle intervention (National Heart, Lung, and Blood Institute, 2012).

Evidence-based recommendations are as follows (National Heart, Lung, and Blood Institute, 2012):

- For children age 6 years or older with a body mass index at or greater than 95th percentile and no comorbidities, comprehensive weight loss programs and weight loss programs conducted in research settings that included behavior change counseling, negative energy balance through diet, and increased physical activity are effective (Grade A). Relatively few studies were conducted in primary care settings.
- Data on weight loss programs for children younger than age 6 years were absent.
- For children ages 6 to 12 years, family-based programs in research settings are effective at initiating and sustaining weight loss over a follow-up of 10 years (Grade A). The greatest weight loss is achieved when parents are the focus of the intervention (Grade A).
- For adolescents, comprehensive programs in research settings were effective at achieving weight loss in the short term (Grade A). The greatest weight change occurred when the adolescent was the primary focus of the intervention (Grade B).
- For adolescents with or without significant comorbidities, with a body mass index ≥ 95th percentile and for adolescents with a body mass index > 35 kg/m^2 who have failed a comprehensive lifestyle weight loss program, addition of medication can be safe and effective in achieving weight loss with follow-up of four to12 months. However, long-term safety and efficacy data are not available.
- Dropout rates are substantial in all weight loss programs.

The U.S. Preventive Services Task Force recommended the following interventions to address childhood obesity (Grossman, 2017):

- Body mass index screening for children and adolescents in primary care provider well-child visits and in schools as a calculation measurement based on weight/ kilograms divided by the square of height/meters. Obesity is defined as an age- and sex-specific body mass index in the 95th percentile or greater.
- Referral to comprehensive, intensive behavioral interventions to promote improvements in weight status. Comprehensive, intensive behavioral interventions (at least 26 contact hours) in children and adolescents six years and older who have obesity can result in improvements in weight status for up to 12 months.
- There is inadequate evidence regarding the effectiveness of less intensive interventions.
- The harms of behavioral interventions are small to none, and the harms of screening are minimal.

Recommendations are similar to those of the Pediatric Endocrine Society (Styne, 2017), the American Heart Association (Kelly, 2017), the American Psychological Association (2018), and an algorithm on assessments, diagnostic workups, and management (Cuda, 2018).

The American Academy of Pediatrics recommends body mass index to clinically identify children with overweight and obesity for appropriate treatment. Obesity is a chronic disease, and treatment should be approached following a chronic care model. The medical home serves as a care coordinator in the treatment of children with obesity, coordinating with subspecialists, including obesity treatment specialists, and community resources (Hampl, 2023).

Intensive Health Behavior and Lifestyle Treatment is the foundational approach to achieving body mass reduction or the attenuation of excessive weight gain in children. This approach educates and supports families in nutrition and physical activity changes that improve weight status and comorbidities and promote long-term health. Treatment requires adaptation to the patient's unique medical, family, developmental, social, and environmental factors contributing to obesity with integration of the family and primary care provider. It involves visits of sufficient frequency and intensity to facilitate sustained healthier eating and physical activity habits (Hampl, 2023).

Ideally, the Academy recommends at least 26 hours of face-to-face, family-based counseling on nutrition and physical activity over at least a three- to 12- month period, for children six years and older with overweight and obesity. More limited evidence exists for children two to five years of age. Most multicomponent programs focus on healthy eating and physical activity through health educational and skill building on multiple topics and behavior modification and counseling (Hampl, 2023).

Body mass index measurements to diagnose childhood obesity have been shown to be accurate. One systematic review of 24 studies (n = 25,807) reported a sensitivity and specificity of 81.9% and 96.0% for identifying obesity. Corresponding numbers for diagnosing overweight children using body mass index were somewhat lower, at 76.3% and 92.1% (Simmonds, 2016). Self-reported body mass index may be a viable alternative when other options are unavailable, although sensitivity (76%) is lower and measures may be under-reported (He, 2017, 2018).

The U.S. Preventive Services Task Force Task Force reviewed 45 trials (n = 7,099) of behavioral interventions for obesity, of which 42 trials (n = 6,956) used multicomponent interventions comprised of lifestyle changes such as diet counseling, increasing physical activity or decreasing sedentary behavior, and behavior change to limit weight gain or decrease weight. In all seven trials with ≥ 52 contact hours, behavioral interventions were effective in reducing excess weight in children and adolescents after six to 12 months, with statistically significant reductions in systolic and diastolic blood pressure and some nonsignificant improvements in insulin or glucose measures and in quality-of-life scores. In nine trials with 26 to 51 contact hours, there were significant but smaller effects on weight. In 10 trials examining harms, no adverse effects or serious adverse effects were reported in the intervention groups (Grossman, 2017).

An overview of six Cochrane reviews examined randomized controlled trials with a minimum of six months of data. They included seven trials of children younger than six years, 70 trials of children age six to 11 years, 44 trials of adolescents age 12 to 17 years, interventions targeting only parents of children age five to 11 years (20 trials, one trial of surgery, and 21 trials of drug therapy. The median sample sizes for included studies ranged from 50 to 96 participants, and individual trial samples sizes within reviews ranged from 10 to 686 participants. Trials were graded as very low or low quality with high risk of bias. Although the intervention content, format, setting, and delivery varied across studies, collectively, the evidence suggests multi-component behavior-changing interventions achieved small reductions in body weight status in children age two to 18 years with low adverse events reported (Ells, 2018).

A systematic review included 17 randomized controlled trials using a multicomponent intervention method in adolescents age 10 to 19 years. Fourteen of the 17 trials demonstrated significant improvements in anthropometric or biometric measures. Interventions targeting dietary behaviors in adolescents as part of a multicomponent or multilevel program were the most effective in terms of impact on dietary intake, anthropometric/biometric outcomes, and physical activity (Nonguierma, 2022).

For children with intellectual disability, a systematic review and meta-analysis (29 studies) found physical activity was the predominant intervention. Physical activity may contribute to improved cardiopulmonary fitness based on 6-minute walk distance (51.86 m, 95% confidence interval 16.49 to 87.22, $P < .05$), but the effect on obesity-related outcomes and other fitness outcomes was inconclusive (Wang, 2022).

A survey of a large-scale screening program in Poland (n = 19,634) found poor diet, sedentary behavior, and parental education predicted willingness to participate in a multi-component-intensive-behavioral-intervention-for-obesity-management targeting adolescents (n = 2,862; 12-14 years; body mass index ≥ 90th percentile). Measured body mass index did not influence participation. Perceived family support facilitated engagement (Rodriguez, 2023).

In 2023, we focused the policy on multicomponent behavioral health weight management interventions for treating, rather than preventing, obesity in children, and added several systematic reviews and guidelines. No policy changes are warranted.

In 2024, we added two systematic reviews to the policy with no policy changes.

In a systematic review of 54 studies and a meta-analysis of 30 studies, group-based, multi-component interventions, which rely on parents to implement lifestyle strategies and are grounded in motivational interviewing and cognitive behavioral therapy, were the most often studied. Interventions of “moderate-intensity” (defined as 26 to 75 hours) produced the largest reduction in body mass index scores, and interventions of “low intensity” (defined as 10 to 25 hours) were most effective at reducing abdominal obesity. The effects on body mass index and waist circumference were maintained between post-treatment and last follow up measurement (Baygi, 2023).

A systematic review of 44 randomized controlled trials and nine quasi-experimental pre-post designs (n = 26,045 children) and a meta-analysis of 31 of the studies examined the effectiveness of lifestyle interventions on obesity in children age 0 to 18 years from minority ethnic populations in Western high-income countries. The majority of interventions were multicomponent interventions of at least six months duration targeting primary measures of adiposity and body mass index, while 18 studies included outcome measures of cardiometabolic noncommunicable disease risk factors. Interventions were not significantly effective when they focused only on body mass index outcomes (pooled body mass index mean change = −0.09, 95% confidence interval −0.19 to 0.01, $P = .09$). Supervised (home, school, or parental) multicomponent intervention programs were more effective when they incorporated body mass index with obesity-related noncommunicable disease outcome measures and cultural factors (Obita, 2023).

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On February 22, 2024, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “pediatric obesity (MeSH),” “health behavior (MeSH),” “body mass index (MeSH),” "motivational interviewing (MeSH)," "cognitive behavior therapy (MeSH)," “intensified lifestyle interventions,” “child,” and “obesity.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

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