

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

Clinical Policy ID: CCP.1028

Recent review date: 5/2025

Next review date: 9/2026

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 have a high body mass index at or above the 95th percentile for age and sex 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; US Preventive Services Task Force 2024):

- Both the member (child) and family are included in treatment sessions.
- The member (child or adolescent) is 6 years of age or older and has either :
 - An age- and gender-specific body mass index equal to or above the 95th percentile for age and sex based on CDC growth charts, indicative of obesity, with specific assessment for related comorbidities (Grossman, 2017; USPSTF, 2024).
 - An age- and gender-specific body mass index in the 85th to 94th percentiles, indicative of being overweight, with specific assessment for related comorbidities (e.g., prediabetes, hypertension, dyslipidemia) (Hempl, 2023).
- Referral to moderate- to high-intensity behavioral intervention program that includes all of the following characteristics (Grossman, 2017; Hempl, 2023; US Preventive Services Task Force, 2024):

- 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 considered experimental/investigational and not clinically proven, 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 \geq 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 shopping, 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/m² 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 healthy, 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

Clinical guidelines

Approximately 19.7% of U.S. children and adolescents aged 2 to 19 years have a BMI at or above the 95th percentile on CDC growth charts, with higher prevalence in Hispanic/Latino, Native American/Alaska Native, and non-Hispanic Black youth (US Preventive Services Task Force, 2024). The USPSTF recommends screening children and adolescents aged 6 years and older for high BMI ($\geq 95^{\text{th}}$ percentile) in primary care and school settings and referring them to comprehensive, intensive behavioral interventions (≥ 26 contact hours), which yield a moderate net benefit with minimal harms (US Preventive Services Task Force 2024; Grossman, 2017). These programs, delivered by multidisciplinary teams, include supervised physical activity, nutrition education, and behavior change strategies like goal setting, engaging both parents and children to improve weight status and

quality of life after 6 to 12 months, with no evidence of increased stigma or harm to self-esteem (US Preventive Services Task Force, 2024).

The National Heart, Lung, and Blood Institute Expert Panel recommends measuring length/height and weight from infancy, annual blood pressure assessments from age three, and non-fasting non-high-density lipoprotein cholesterol screening at age 10 to identify candidates for intensified lifestyle interventions (National Heart, Lung, and Blood Institute, 2012). For children aged 6 years or older with BMI \geq 95th percentile without comorbidities, comprehensive weight loss programs in research settings, including behavior change counseling, dietary modification, and increased physical activity, receive a Grade A recommendation (National Heart, Lung, and Blood Institute, 2012). Family-based programs for ages 6 to 12 are also Grade A, with optimal long-term weight loss when parents are the focus, while adolescent-focused programs are Grade B for short-term efficacy driven by adolescent autonomy (National Heart, Lung, and Blood Institute, 2012).

The American Academy of Pediatrics endorses BMI screening to identify children with overweight (85th to \leq 95th percentile) and obesity (\geq 95th percentile), advocating a chronic care model with Intensive Health Behavior and Lifestyle Treatment delivering at least 26 hours of face-to-face, family-based counseling on nutrition, physical activity, and behavior change over 3 to 12 months for children aged 6 and older (Grade B), with limited evidence for ages 2 to 5 (Grade C); coordination with subspecialists and community resources is essential (Hampl, 2023). The Pediatric Endocrine Society, American Heart Association, American Psychological Association, and clinical algorithms endorse similar multicomponent, non-stigmatizing interventions (Styne, 2017; Kelly, 2017; American Psychological Association, 2018; Cuda, 2018).

Systematic reviews

Systematic reviews underscore the effectiveness of multicomponent behavioral interventions for weight management in children and adolescents with high BMI, with emerging evidence on eating behavior traits (EBTs) and psychological approaches. A review of 24 studies ($n = 25,807$) confirmed BMI's diagnostic accuracy for obesity, reporting a sensitivity of 81.9% and specificity of 96.0%, though self-reported BMI showed lower sensitivity (76%) (Simmonds, 2016; He, 2017, 2018). The U.S. Preventive Services Task Force reviewed 45 trials ($n = 7,099$), finding those multicomponent interventions with at least 52 contact hours significantly reduced weight and blood pressure after 6 to 12 months, with smaller effects for 26 to 51 contact hours and no adverse effects (Grossman, 2017). An updated Task Force review of 58 randomized controlled trials ($n = 10,143$) found small BMI reductions after 6 to 12 months (mean difference: -0.7 , 95% CI -1.0 to -0.3 ; 28 RCTs, $n = 4,494$; $I^2 = 86.8\%$), with larger effects in interventions offering at least 26 contact hours and supervised physical activity sessions; pooled analyses also showed modest quality-of-life improvements (mean difference: 1.9 , 95% CI 0.2 to 3.5 ; 11 RCTs, $n = 1,922$; $I^2 = 48.4\%$) and small reductions in blood pressure and fasting glucose, with no impact on lipids or physical activity levels outside sessions (O'Connor, 2024).

A review of 8 trials ($n = 693$) assessed behavioral weight management interventions on EBTs in children and adolescents with overweight or obesity, finding a short-term increase in dietary restraint at intervention completion (standardized mean difference: 0.42 , 95% CI 0.13 to 0.70 ; 3 RCTs, $n = 227$; $I^2 = 0\%$), with narrative synthesis indicating improvements in emotional eating, external eating, food responsiveness, and enjoyment of food, though effects were not sustained at follow-up (Kudlek, 2025). A review of 36 trials ($n = 20,993$) targeting dietary behaviors in adolescents aged 10 to 19 found significant improvements in fruit consumption, sugar-sweetened beverage intake, and snacking in 14 trials, with school-based, multicomponent interventions showing the greatest impact on dietary and anthropometric outcomes (Nonguierma, 2022).

A review of 54 studies ($n = 4,093$) evaluating psychological interventions, primarily cognitive behavioral therapy and motivational interviewing, reported significant reductions in BMI z-score (standardized mean difference: -0.66 , 95% CI -1.15 to -0.17 ; 15 RCTs, $n = 2,210$; $I^2 = 88.6\%$) and waist circumference (standardized mean difference: -0.53 , 95% CI -1.03 to -0.04 ; 9 RCTs, $n = 1,079$; $I^2 = 98.7\%$), with effects maintained at follow-up,

particularly for moderate-intensity interventions (26 to 75 hours) (Baygi, 2023). An overview of six Cochrane reviews, covering 163 trials, reported small reductions in body weight status across children aged 2 to 18 with multicomponent interventions, despite low-quality evidence and high bias (Ells, 2018). For minority ethnic populations, a review of 53 studies (n = 26,045), including 44 randomized controlled trials, found that supervised multicomponent interventions incorporating cultural factors were more effective when targeting BMI and cardiometabolic risk factors (Obita, 2023).

Meta-analyses

A meta-analysis of 29 studies on children with intellectual disabilities found physical activity interventions improved cardiopulmonary fitness (6-minute walk distance: 51.86 m, 95% CI 16.49 to 87.22, P < .05), but effects on outcomes related to obesity were inconclusive (Wang, 2022). A meta-analysis of 30 studies from a larger review of 54 studies reported that moderate-intensity interventions (26 to 75 hours) produced the largest BMI reductions, while low-intensity interventions (10 to 25 hours) were most effective for abdominal obesity, with sustained effects (Baygi, 2023). A meta-analysis of 31 studies from a review of 53 studies on minority ethnic children (n = 26,045) found no significant BMI reduction when interventions focused solely on BMI (pooled BMI mean change = -0.09, 95% CI -0.19 to 0.01, P = .09), but culturally tailored, supervised interventions targeting multiple outcomes were more effective (Obita, 2023).

Other evidence

A survey within a large-scale screening program in Poland ((n = 19,634)) found that poor diet, sedentary behavior, and parental education predicted willingness to participate in a multicomponent intensive behavioral intervention for obesity management targeting (n = 2,862) adolescents aged 12 to 14 years with BMI at or above the 90th percentile; measured BMI did not influence participation, but perceived family support facilitated engagement (Rodrigues, 2023). A trial of (n = 269) children aged 6 to 12 years from low-income households (95% Hispanic or Black/African American) compared home-delivered versus clinic-delivered family-based weight management interventions, finding no significant difference in 12-month zBMI change (home: -0.031, SD = 0.26; clinic: -0.002, SD = 0.30; P = .58), despite higher session attendance in the home arm (median: 11 vs. 6.5 sessions; P < .0001); exploratory analyses suggested a small pre-COVID-19 advantage for home delivery, emphasizing socioeconomic barriers and the role of delivery setting (Appelhans, 2025). These studies collectively demonstrate that family support and socioeconomic factors influence engagement in weight management interventions, with home-based delivery addressing access barriers in low-income populations, though modest weight loss outcomes highlight the need for further optimization to achieve sustained impact.

In 2025, we revised the findings section and added a new guideline (US Preventive Services Task Force, 2024), two new systematic reviews (O'Connor, 2024; Kudlek, 2025), and a randomized controlled trial (Appelhans, 2025). We made warranted policy changes as a result of the new 2024 guideline.

References

On April 5, 2025, 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

5/2013: initial review date and clinical policy effective date: 9/2013

5/2014: Policy references updated.

5/2015: Policy references updated.

5/2016: Policy references updated.

5/2017: Policy references updated.

5/2018: Policy references updated.

5/2019: Policy references updated. Policy number changed to CCP.1028.

5/2020: Policy references updated.

5/2021: Policy references updated.

CCP.1028

5/2022: Policy references updated.

5/2023: Policy references updated.

5/2024: Policy references updated.

5/2025: Policy references updated.