

Screening for Overweight in Children and Adolescents: Where Is the Evidence?

A Commentary by the Childhood Obesity Working Group of the U.S. Preventive Services Task Force

The prevalence of childhood and adolescent overweight has tripled over the past 2 decades, and associations have been identified between dietary patterns, physical activity, sedentary behaviors, and overweight. Some believe that pediatricians can easily recognize an overweight or obese child or adolescent and that there are sufficient therapeutic options to offer these patients and their families.¹ However, primary care clinicians face obese and overweight children, adolescents, and parents every day, and most clinicians rarely document overweight.

The American Academy of Pediatrics (AAP) and the American Academy of Family Physicians (AAFP) endorse universal screening using body mass index (BMI) and use of BMI growth curves to identify obese and overweight children. Physicians also seem to take high BMI more seriously than weight and height measures²; when documentation of high BMI occurs, screening, counseling, and referral rates for obese and overweight children and adolescents increase.³

Why then, does the U.S. Preventive Services Task Force (USPSTF)^{*}, in this issue of *Pediatrics*, find insufficient evidence to recommend for or against formally screening children and adolescents for obesity or overweight in the primary care setting? The answer is: the USPSTF adheres strongly to a policy of making recommendations (either for or against delivery of preventive services) only in the presence of sufficient evidence of adequate quality. The USPSTF cannot make a recommendation for or against screening even for a practice that may be supported by expert consensus or less rigorous evidence. It is important to note that the USPSTF did not recommend that primary care clinicians *not* weigh and measure children or ignore parental concerns about weight.

Because most preventive interventions have not been tested in rigorous randomized trials, the USPSTF uses an analytic framework to describe the causal pathway between the preventive intervention and important health outcomes. If direct evidence linking the preventive intervention to a health outcome is unavailable, the USPSTF seeks high quality evidence for each of the linkages in the analytic framework. No randomized trials of screening for childhood overweight or obesity in the clinical setting were found in the comprehensive literature review that is published in this issue of *Pediatrics*.⁴ Unfortunately, very little high quality evidence was found to address any of the key questions in the analytic framework (Figure 1).

* The USPSTF is an independent panel of experts in primary care, prevention, and behavioral medicine whose charge is to develop recommendations for clinical preventive services based on high quality evidence.

What are some of the questions with which the USPSTF grappled in making its recommendation? What research is needed to guide clinicians in the future? And, what should clinicians do today given the dearth of high quality evidence?

Extreme obesity in childhood is an obvious problem, and is associated with immediate adverse health and psychosocial outcomes. It is discouraging that even extreme obesity is sometimes ignored by physicians and other health care providers. However, extremely obese children are not those addressed by this screening recommendation. We do not know the best way to identify children who are at risk for future adverse health outcomes due to obesity or overweight. Although BMI is a convenient and widely agreed-upon measure of obesity, it is not clear what BMI at any given age is associated with future good health.

BMI in childhood correlates with BMI in adulthood. However, prediction is poor in early childhood for any given child, improving only as children enter adolescence. Other risk factors such as genetics, fitness, ethnicity, and gender may also significantly affect health outcomes, so that the long-term health risks may be higher for some “normal” weight children than it is for children who are overweight as measured by BMI alone. Screening using a BMI or BMI percentile cut-off will miss these children.

Once we identify children at increased risk for adverse health outcomes related to excess weight, we face the problem of what to do about it. While intensive counseling in specialty obesity clinics with select groups of children show 7% to 26% sustained decreases in overweight, evidence for effective interventions delivered in pediatric primary care settings are lacking. Most studies are so small that an important effect of intensive counseling cannot be ruled out. Similarly, community interventions have been identified that can contribute to healthy lifestyles, such as those found in the Centers for Disease Control and Prevention (CDC) Community Guide,⁵ but little is known about how or whether clinicians can effectively link patients and their families to community resources for lifestyle change. Studies to investigate this issue are needed. We also have no information about interventions and their effect on parents in the pediatric clinical setting. In all but the oldest children, interventions must target the entire family.

A final and pervasive problem is that we have little information about the potential harms of screening, such as labeling, reduced self-esteem, poor eating habits, eating disorders, adverse family relations, or the effects of continuing to lose and regain weight (yo-yo dieting). The first principle of medicine is well known: *primum non nocere*. If we forge ahead with an intervention (whether therapeutic, preventive, or even diagnostic) without knowing whether it is beneficial, we run the risk of causing unintentional harm. Studies to determine the best ways for clinicians to communicate this information are needed as part of our search for effective interventions in the primary care setting.

The “I” recommendation of the USPSTF should be read as a call to action for the pediatric scientific community. What we don’t know overwhelms what we do know about prevention of the adverse outcomes associated with childhood obesity and overweight. We don’t know whether screening for obesity and overweight does any good. We don’t know how strong the linkages in the analytic framework are. For example, we don’t know whether screening

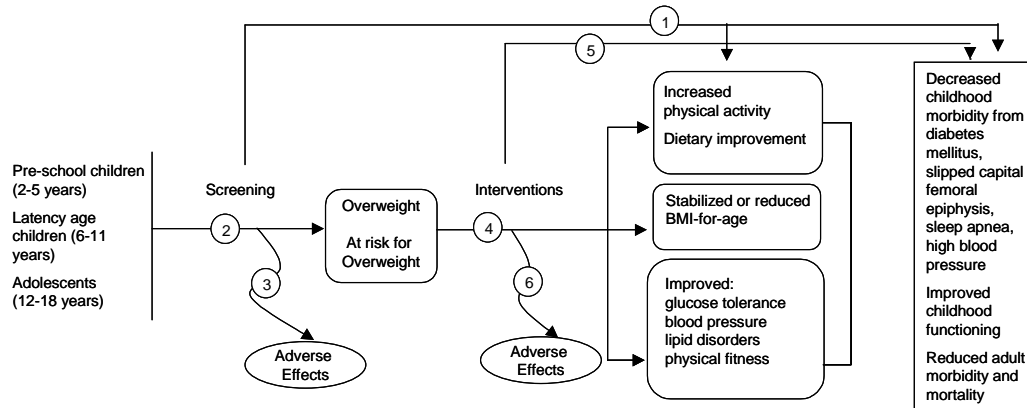
correctly identifies children at risk for future adverse health outcomes; which treatment best helps those who have been identified (even if they have been identified correctly); and whether intermediate outcomes such as weight loss or stabilization lead to long-term health. The USPSTF found that the evidence it would need to make such a recommendation is not there.

Existing studies suffer from a number of weaknesses that future studies should be designed to overcome, including small sample size, lack of intention-to-treat analysis, lack of ethnic minority participants, and little attention to evaluation of potential harms. These studies tend to target very overweight children and adolescents who may have different motivations or underlying pathophysiology than children who would be targeted by screening. Longitudinal studies that include simultaneous assessment of many potential risk factors for obesity among children and adolescents are needed to address the issue of the impact of risk factors other than BMI alone on children's long-term health.

The Institute of Medicine (IOM) recently issued a focused action plan with goals for preventing obesity in children and youth.⁶ These goals include improving the evidence base and concurrently implementing population and individual strategies based on the best available evidence to address policy, environmental, and behavioral factors associated with obesity. It is encouraging that the CDC's Community Task Force *did* find evidence to support public health interventions to prevent and mitigate the effects of obesity in the population.^{5,7}

While the "I" recommendation is of concern to pediatricians who are interested in obesity screening and care about the problem of childhood overweight, there is much that can be done. Clinicians must work with individual patients and their families. Clinicians can also use their considerable influence to advocate for resources to expand their knowledge and can partner with community organizations to address the unanswered questions in the prevention and treatment of this critical public health issue.

Figure 1. Screening and Interventions for Overweight and Obesity in Children and Adolescents
Analytic Framework and Key Questions



Key Questions

- Arrow 1: Is there direct evidence that screening for overweight in children/adolescents improves age-appropriate behavioral or physiologic measures, or health outcomes?
- Arrow 2:
 - a. What are appropriate standards for overweight in children/adolescents and what is the prevalence of overweight based on these?
 - b. What are reliable and valid screening tests for overweight in children/adolescents?
 - c. Is there a reliable and valid screening test for childhood/adolescent overweight that predicts future adult obesity?
- Arrow 3: What are the adverse effects of screening, including labeling? Is screening acceptable to patients?
- Arrow 4: Do interventions lead to improved intermediate outcomes, including behavioral, physiologic or weight-related measures?
- Arrow 5: Do interventions (behavioral counseling, pharmacotherapy, surgery) lead to improved health outcomes, including decreased morbidity, and/or improved functioning (school attendance, self-esteem and other psychosocial indicators)?
 - a. What are common behavioral and health system elements of efficacious interventions?
 - b. Are there differences in efficacy between patient subgroups?
- Arrow 6: What are the adverse effects of interventions? Are interventions acceptable to patients?

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This commentary, as well as an article and corresponding recommendation statement, is available from the AHRQ Web site ([www.preventive services.ahrq.gov](http://www.preventiveservices.ahrq.gov)). The recommendation is also posted on the Web site of the National Guideline Clearinghouse™ (www.guideline.gov).

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