

EVIDENCE-STATEMENT:

OBESITY (Screening and Counseling)

Why This Chapter is Important for Employers: An Overview

- Obesity is epidemic in the United States. Between 1976 to 1980 and 1999 to 2002, the proportion of adults classified as obese doubled. During that period, the proportion of children (aged 6 to 11 years) classified as overweight doubled and the proportion of overweight adolescents (aged 12 to 19 years) tripled.¹
- Nearly 80% of obese adults suffer from diabetes, high blood pressure, coronary artery disease, high cholesterol, osteoarthritis, or a combination of these conditions.²
- Because it contributes to so many other serious conditions, obesity is considered to be one of the most important, underlying, and preventable causes of poor health and premature death.³
- Obesity contributes significantly to medical costs in the United States.⁴
- The cost to employers of obesity-related health problems in 1994 was estimated to be \$13 billion per year, including \$8 billion in medical claims, \$2.4 billion in paid sick leave, \$1.8 billion in life insurance, and almost \$1 billion in disability insurance.⁵
- Each year, an estimated 39 million work days are lost to obesity-related illnesses.⁶
- For adults, losing excess weight has positive effects on overall health status. A 5% to 7% reduction in body weight decreases the risk of type 2 diabetes, reduces blood pressures, and improves lipid profiles.⁷ Among patients with existing glucose intolerance, weight loss through lifestyle change is associated with as much as a 58% reduction in incidence of diabetes.⁸

Clinical Preventive Service Recommendations

U.S. Preventive Services Task Force Recommendation

Evidence Rating: B
(Recommended/At Least Fair Evidence)

The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians screen all adult patients for obesity and offer intensive counseling and behavioral interventions to promote sustained weight loss for obese adults.⁹

The USPSTF found good evidence that body mass index (BMI), calculated as weight in kilograms divided by height in meters squared, is reliable and valid for identifying adults at increased risk for mortality and morbidity due to overweight and obesity. There is fair to good evidence that high-intensity counseling — about diet, exercise, or both — together with behavioral interventions aimed at skill development, motivation, and support strategies produces modest, sustained weight loss (typically 3 to 5 kg for 1 year or more) in adults who are obese (as defined by BMI > 30 kg/m²). Although the USPSTF did not find direct evidence that behavioral interventions lower mortality or morbidity from obesity, the USPSTF concluded that changes in intermediate outcomes, such as improved glucose metabolism, lipid levels, and blood pressure, from modest weight loss provide indirect evidence of health benefits.⁹

<p>Other Evidence-Based Research Food and Drug Administration (FDA)</p>	<p>The FDA has approved two medications for the treatment of obesity that can reduce patient weight by an average of 2.6 to 4.8 kg (5.7 to 10.6 lbs) for at least 2 years: orlistat (Xenical®) and sibutramine (Meridia®).¹⁰⁻¹¹</p>
<p><i>Evidence Rating:</i></p>	<p>Clinical Trials</p>
<p>Recommended Guidance The National Heart, Lung, and Blood Institute (NHLBI)</p>	<p>The NHLBI recommends that surgical procedures for obese patients be reserved for patients with class III obesity (BMI > 40) and patients with class II obesity (BMI of 35 to 39.9) who also have at least one obesity-related illness.¹²</p>
<p><i>Evidence Rating:</i></p>	<p>Not Specified</p>
<p>Information Sources</p>	<p>The recommendations and supporting information contained in this document came from several sources, including the:</p> <ul style="list-style-type: none"> • American Academy of Bariatric Surgery • American Academy of Family Physicians (AAFP) • American Academy of Pediatrics (AAP) • American Medical Association (AMA) • Food and Drug Administration (FDA) • National Academy of Sciences, Institute of Medicine (IOM) • National Center for Education in Maternal and Child Health • National Heart, Lung, Blood Institute (NHLBI) • Peer-reviewed research • U.S. Department of Health and Human Services • U.S. Preventive Services Task Force (USPSTF) <p>The background and supporting information in this document is based on a compilation of research findings. All of the information presented in this document should be attributed to its referenced source and should not be considered a reflection of the opinions of other organizations cited in the text.</p>

Condition/Disease-Specific Information

<p>Epidemiology of Condition/Disease</p>	<p>The Body Mass Index (BMI) is widely used as an index of body composition and weight. BMI's in the range of 18.5 to 24.9 are generally considered to be optimal for adults. "Underweight" is generally defined as a BMI less than 18.5, "overweight" as BMI between 25 to 29.9, and "obesity" as a BMI greater than 30. Age- and gender-specific standards also exist for children and adolescents that take into account the changes in body composition that occur as children grow (See "Other Important Information," below).</p> <p>Obesity is epidemic in the United States. Between 1976 to 1980 and 1999 to 2002, the proportion of adults classified as obese doubled.¹ Nearly 80% of obese</p>
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adults suffer from diabetes, high blood pressure, coronary artery disease, high cholesterol, osteoarthritis, or a combination of these conditions.² Research has also documented that obesity is associated with decreased quality of life.¹³

During this period, the proportion of children (aged 6 to 11 years) classified as overweight doubled and the proportion of overweight adolescents (aged 12 to 19 years) tripled.¹ The complications of being overweight are particularly severe for children due to the years of life they are at risk of losing as a result of early-onset chronic diseases, such as diabetes¹⁴ and cardiovascular disease.¹⁵

For adults, losing excess weight has positive effects on overall health status. A 5% to 7% reduction in body weight decreases the risk of type 2 diabetes, reduces blood pressures, and improves lipid profiles.⁷ Among patients with existing glucose intolerance, weight loss through lifestyle change is associated with as much as a 58% reduction in incidence of diabetes.⁸ The USPSTF found limited data on the positive effect that weight loss may have on overall mortality, mental health, and daily functioning.⁹

Condition/Disease
Risk Factors

Obesity is more common among adult women, Native Americans, African-Americans, Native Hawaiians, and Hispanics than other populations.⁷

Value of Prevention

Economic Burden of
Condition/Disease

Obesity contributes significantly to medical costs in the United States. In 1998, 9.1% of total annual medical expenditures could be attributed to obesity.⁴ Between 1987 and 2001, 27% of the growth in inflation-adjusted per-capita healthcare spending was associated with obesity.⁶ The annual cost of obesity is estimated to range from \$69 billion to \$117 billion (including \$61 billion for direct medical expenses and \$56 billion for indirect expenses such as lost productivity [in year 2000 dollars]).¹⁶

The expected lifetime costs of cardiovascular disease (including coronary heart disease, heart attack, and stroke) increase by 20% with mild obesity (class I: BMI of 30 to 34.9), 50% with moderate obesity (class II: BMI of 35 to 39.9), and nearly 200% with severe obesity (class III: BMI of 40 or higher).⁵ One large health plan found that its yearly total medical claims were 18% higher for overweight individuals and 32% higher for obese than for healthy-weight individuals.¹⁷

A 2001 study found obese adults had, on average, about 37% higher healthcare expenses per person than normal-weight adults. This excess expense increased private healthcare spending by nearly 12% (more than \$36 billion).⁶

Workplace Burden of
Condition/Disease

The cost to employers of obesity-related health problems in 1994 was estimated to be \$13 billion per year, including \$8 billion in medical claims, \$2.4 billion in paid sick leave, \$1.8 billion in life insurance, and almost \$1 billion in disability insurance.⁵

	<p>Obesity and related illnesses are also a major cause of disability. Each year, an estimated 39 million work days are lost to obesity-related illnesses.⁶</p>
<p>Economic Benefit of Preventive Intervention</p>	<p>Nutrition education, diet, and exercise counseling are effective interventions for obesity prevention and have the potential to significantly reduce the direct and indirect costs of obesity-related illnesses. Researchers have estimated that even a modest reduction of 10% in body weight in an obese individual might reduce the expected lifetime healthcare costs of major obesity-related diseases for the individual by \$2,200 to \$5,300, depending on age, sex, and initial BMI.¹⁸</p>
<p>Estimated Cost of Preventive Intervention</p>	<p>The cost of BMI screening is negligible when height and weight measurements are already recorded as part of a routine physical exam. In 2004, the private-sector cost of obesity counseling averaged \$39 per session; approximately 95% of all paid claims fell within the range of \$0 to \$129 per session.¹⁹</p>
<p>Estimated Cost of Treatment</p>	<p>In the United States, the costs associated with treating obesity vary by location, provider type, and treatment modality. For example, in 2006 the average wholesale price of a 1-month supply of pharmacological therapy for obesity was \$207.04 for orlistat (Xenical[®]) (120 mg three times daily) and \$423.60 for a 3-month supply of sibutramine (Meridia[®]) (15 mg daily).²⁸ In contrast, the average price of a surgical procedure for obesity in 2004 ranged from \$20,000 to \$35,000.²¹</p>
<p>Cost-Effectiveness and/or Cost-Benefit Analysis of Preventive Intervention</p>	<p>The cost-effectiveness of screening for and treating obesity is unclear. Because obese individuals are at risk for serious and costly complications, such as diabetes and cardiovascular disease, screening for obesity and early intervention to reduce excess weight could improve lives and increase the cost-effectiveness of healthcare dollars. However, few studies have tested the cost-effectiveness of screening for and treating obesity in the United States, although several cost-effectiveness studies have been conducted in England, Australia, and Northern Europe. The studies conducted abroad applied their-effectiveness analyses to morbidly obese patients (i.e., persons with BMIs ≥ 40, which is approximately 100 pounds over normal weight for a typical person). The studies found that a range of interventions (such as pharmacotherapy, surgery, and intensive diet and behavioral therapy) can be inexpensive or even cost-saving, depending on the population's risk and the interventions used.²² These results cannot be generalized to patients who are not morbidly obese. Further, the results may not be generalizable to the U.S. population because of differences between the populations studied and the U.S. population and differences in healthcare system funding and delivery mechanisms in the countries studied.</p>

Preventive Intervention Information

Preventive Intervention: Purpose of Screening and Counseling

Because obesity is a modifiable major risk factor for several serious conditions, screening for obesity and treating it successfully can be expected to produce significant health benefits. Screening for obesity allows clinicians to identify patients at risk and begin treatment before serious weight-related complications occur. Unfortunately, weight is frequently overlooked in primary care practice; only 42% of obese patients report receiving advice to lose weight during a routine check-up in the previous year.²³

<p>Benefits and Risks of Intervention</p>	<p>Although the USPSTF did not find direct evidence that behavioral interventions lower mortality or morbidity from obesity, the USPSTF concluded that changes in intermediate outcomes, such as improved glucose metabolism, lipid levels, and blood pressure, from modest weight loss provide indirect evidence of health benefits.⁹</p> <p>The USPSTF was unable to find studies that suggested harms associated with screening or counseling obese patients.²⁴ However, the USPSTF notes that because obesity carries a stigma, there is a potential risk in labeling patients as obese. The USPSTF found evidence that dieting among overweight and obese adults <i>does not</i> lead to problems in psychological functioning or eating disorders. However, the USPSTF notes that the evidence is limited and conflicting on the harms of weight cycling (losing and then regaining a large amount of weight). In addition, the USPSTF notes that some forms of treatment, specifically pharmacological therapy and surgical intervention, carry potential harm.²⁴</p> <p>The USPSTF concluded that the benefits of screening and behavioral interventions outweigh potential harms.</p>
<p>Initiation, Cessation, and Interval Screening</p> <p>Counseling</p>	<p>The USPSTF did not find evidence to determine the optimal times for the initiation, cessation, or interval of obesity screening. Several health organizations, including the American Academy of Family Physicians (AAFP),²⁵ the American Heart Association (AHA),²⁶ and the American College of Preventive Medicine (ACPM),²⁷ agree on the importance of screening for obesity and recommend periodically measuring the height and weight of all patients. Some authorities have recommended that height and weight be recorded and BMIs calculated at every healthcare visit.</p> <p>High-intensity counseling is defined by the USPSTF as 2 or more person-to-person sessions per month for at least the first 3 months of treatment for a total of 6 counseling sessions per calendar year.</p>
<p>Intervention Process</p> <p>Screening</p>	<p>The USPSTF notes that the most effective interventions for obesity combine nutrition education, diet and exercise counseling, and behavioral strategies to help obese patients acquire the skills they need to successfully change their eating habits and to become more physically active.⁹</p> <p>The preferred method of screening an adult patient for obesity is to measure their body-mass index (BMI). This is a reliable and valid measurement of adult weight status. BMI is defined as weight in pounds divided by height in inches squared and multiplied by 703, or as weight in kilograms divided by height in meters squared. BMI charts provide completed calculations and can be used to determine BMI by simply entering weight and height. The following definitions from the <i>Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults</i>² should be used to classify weight status:</p> <p>Screening for obesity may also include measurement of waist circumference because central adiposity (excess fat around the middle) can also increase an individual's risk of developing cardiovascular disease. A waist circumference</p>

greater than 102 centimeters for men and 88 centimeters for women is associated with an increased risk of cardiovascular disease. However, waist measurements are not reliable indicators of cardiovascular disease risk in obese patients with a BMI of 35 or above.²⁴

BMI Chart for Adults	
Classification	BMI
Underweight	Less than 18.5
Healthy	18.5 to 24.9
Overweight	25 to 29.9
Obese (class I)	30 to 34.9
Obese (class II)	35 to 39.9
Obese (class III)	40 and above

Counseling and Treatment Information

The most effective behavioral interventions for obesity combine nutrition education, diet and exercise counseling, and behavioral strategies to help obese patients acquire the skills they need to change their eating habits and become more physically active.²⁸

Clinicians should offer a treatment plan of intensive counseling and behavioral interventions to obese patients. Intensive counseling is defined as 2 or more person-to-person individual or group sessions per month for at least 3 months.²⁴ If clinicians are unable to offer obese patients intensive counseling and behavioral interventions, they should refer patients to a program or provider that can offer these services. However, this should not undermine the existing patient-physician relationship because research has shown that clinicians' advice plays a role in many health outcomes.²⁹⁻³⁰

No evidence exists to show that one counseling method is better than another for obese patients. Clinicians must therefore use their own judgment to select an appropriate counseling method for a given patient. The "5-A" framework³¹ that is used for smoking cessation counseling might be useful for the initial evaluation and counseling of an obese patient and might be helpful in broaching the subject of weight loss with patients:

- **Assess** the patient's weight by measuring his or her BMI and waist and evaluate the patient's factors that affect choice of behavior change goals/methods.
- **Advise** the patient to lose weight through physical activity and a healthy diet using clear, specific, and personalized messages.
- **Agree** with the patient on specific changes he or she can make to reach his or her target weight.
- **Assist** the patient in making changes by offering support services, education, and resources.
- **Arrange** for follow-up and support services.

Experts recommend that pharmacological therapy for obesity, such as medications that induce weight loss or suppress appetite, only be used as part of a

treatment plan that also includes lifestyle modifications such as intensive diet, exercise, and behavioral counseling.⁹ The Food and Drug Administration (FDA) has approved two medications for the treatment of obesity that can reduce patient weight by an average of 2.6 to 4.8 kg (5.7 to 10.6 lbs) for at least 2 years: orlistat (Xenical[®]) and sibutramine (Meridia[®]).¹⁰⁻¹¹ While these drugs are effective, they may produce unwanted side effects and few data are available on the safety of their long-term use.

The National Heart, Lung, and Blood Institute (NHLBI) recommends that surgical procedures be reserved for obese patients with class III obesity (BMI greater than 40) and patients with class II obesity (BMI of 35 to 39.9) who have at least one obesity-related illness. Surgical procedures, such as bariatric surgery, are effective for treating obesity in the short-term (on average, extremely obese patients lose 10 to 159 kg [22 to 349.8 lbs] in 1 to 5 years).¹²

Bariatric surgery produces improvements in health for most of the patients. For example, a meta-analysis of bariatric surgery studies found that 60% to 70% of patients lost all of their excess weight and that diabetes was brought under control in almost 77% of patients who had had diabetes prior to the surgery.³² Although the long-term health effects of surgery for obesity are not well characterized, surgical cohort studies suggest that large amounts of weight loss may be linked to dramatic improvements in glucose metabolism. In addition, some evidence indicates that surgically treated patients are more likely to have resolution of diabetes, hypertension, and certain lipid disorders than patients who do not undergo surgery.²⁸

However, bariatric surgery is associated with serious risks, including the risk of death, and 25% of patients may need a second operation within 5 years.²⁸

Other Important Information

The USPSTF concluded that the evidence was insufficient to recommend for or against routine screening for overweight in children and adolescents as a means to prevent adverse health outcomes.³³

The USPSTF found 1) fair evidence that BMI is a reasonable measure for identifying children and adolescents who are overweight or are at risk for becoming overweight, 2) fair evidence that overweight adolescents and children (≥ 8 years old) are at increased risk for becoming obese adults, 3) insufficient evidence for the effectiveness of behavioral counseling or other preventive interventions with overweight children and adolescents that can be conducted in primary care settings or to which primary care clinicians can make referrals, and 4) insufficient evidence to ascertain the magnitude of the potential harms of screening or prevention and treatment interventions. The USPSTF was unable to determine the balance between potential benefits and harms of routine screening of children and adolescents for overweight.

Although the USPSTF found insufficient evidence to recommend for or against screening children and adolescents for overweight, many health organizations

have created guidelines for this type of screening. For example, the American Academy of Family Physicians (AAFP),³⁴ American Academy of Pediatrics (AAP),³⁵ National Center for Education in Maternal and Child Health,³⁶ and American Medical Association (AMA) have developed guidelines that include recommendations for measuring height and weight as part of periodic health examinations for children and adolescents.

In 2003, the AAP published a policy statement on the prevention of pediatric overweight and obesity. In this report, the AAP stated that a BMI between the 85th and 95th percentiles for age and sex indicates that the child or adolescent is at risk for overweight and a BMI at or above the 95th percentile indicates that the child or adolescent is overweight or obese.³⁵ Because obesity is associated with significant health problems in children, the AAP proposed strategies to foster prevention and early detection of overweight and obesity. In addition to the healthy nutrition recommendations, the AAP developed a policy statement on active healthy living for the prevention of childhood obesity.³⁷ According to this policy, physicians and other healthcare professionals should advocate for policy changes at the community, state, and national levels to support healthy nutrition, reduce sedentary time, and increase physical activity levels in children and adolescents while providing education and supervision of the child's health on the importance of regular physical activity and reduced sedentary time to families.

Strength of Evidence for the Clinical Preventive Service

The level of evidence supporting the recommendations contained in this chapter is described below.

Evidence-Based Research:

U.S. Preventive Services Task Force (USPSTF)

Strength of evidence: B (Recommended/At Least Fair Evidence)

- The USPSTF found fair to good evidence to support screening all adult patients for obesity and offering intensive counseling and behavioral interventions to promote sustained weight loss for obese adults.⁹

Food and Drug Administration (FDA)

Strength of Evidence: Clinical Trials

The FDA has approved two medications for the treatment of obesity that can reduce patient weight by an average of 2.6 to 4.8 kg (5.7 to 10.6 lbs) for at least 2 years: orlistat (Xenical®) and sibutramine (Meridia®).¹⁰⁻¹¹

Recommended Guidance:

The National Heart, Lung, and Blood Institute (NHLBI)

Strength of evidence: Not Specified

- The NHLBI recommends that surgical procedures for obese patients be reserved for patients with class III obesity (BMI >40) and patients with class II obesity (BMI of 35 to 39.9) who also have at least one obesity-related illness.¹²

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