

MODULE 1

# recognize the impact

Why obesity and weight management matter to your organization

the **weigh**  
**forward** ▶

## Obesity Is a Chronic Disease, Not Just a Lifestyle Issue

“Our AMA recognizes obesity as a disease state with multiple pathophysiological aspects requiring a range of interventions to advance obesity treatment and prevention.”<sup>1</sup>

**AMA** American Medical Association (AMA)

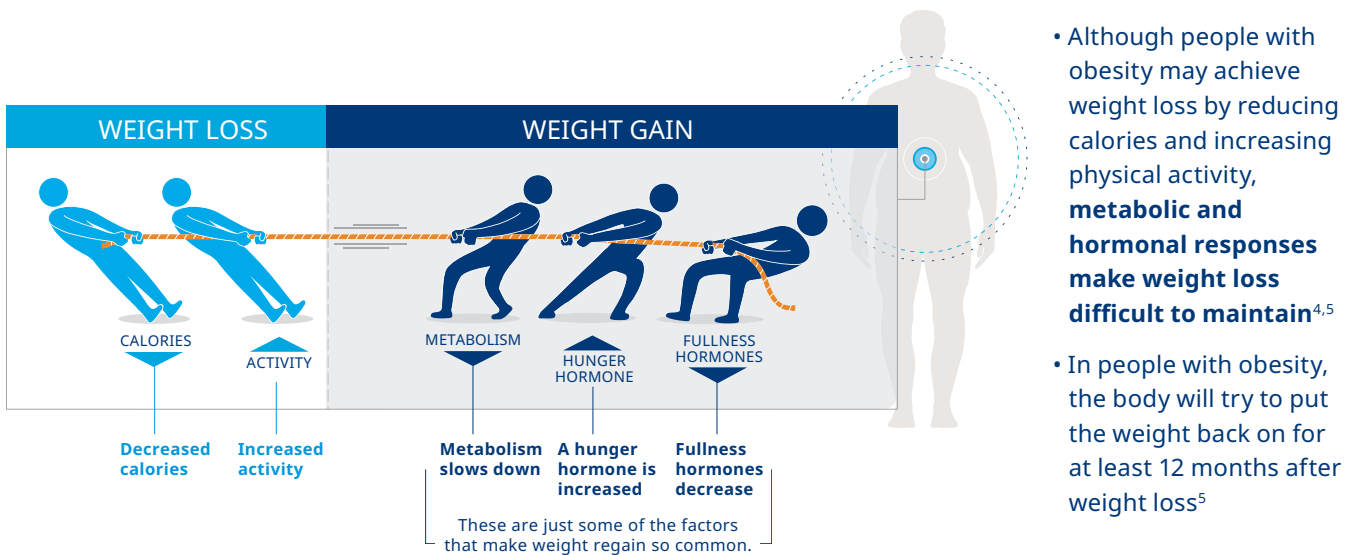
“Obesity is a complex, multifactorial condition characterized by excess body fat. It must be viewed as a chronic condition that essentially requires perpetual care, support, and follow-up. Obesity causes many other diseases, and it warrants recognition by health-care providers and payers.”<sup>2</sup>

**AACE** American Association of Clinical Endocrinology/American College of Endocrinology Obesity Task Force

National organizations recognize obesity as a multifaceted, chronic disease and a significant threat to public health.<sup>1-3</sup> Obesity is defined by a body mass index (BMI) of 30 kg/m<sup>2</sup> or higher.<sup>3</sup>

## After Weight Loss, the Body Tries to Put Weight Back on<sup>4,5</sup>

### The tug-of-war of weight management<sup>4,5</sup>



These factors explain why, for many people, willpower and lifestyle modifications alone are not enough to maintain weight loss.

# Why Is it So Hard to Lose Weight? Why Does Weight Return?

## Multiple factors affect weight loss and weight maintenance



### **Appetite signals**

When weight is lost, the body increases the hunger hormone and decreases fullness hormones.<sup>5</sup>



### **Genetics**

Genes may play an important role in how much weight is gained.<sup>6,7</sup>



### **Behavior**

Not enough sleep and lack of physical activity may be contributing factors.<sup>8</sup>



### **Environment**

Having healthy food may be challenging (eg, location, price, time to prepare), which may result in buying more convenient, fatty, and calorie-dense foods. Some individuals have no place to exercise.<sup>7,8</sup>

Obesity, classified as a BMI of 30 kg/m<sup>2</sup> or greater, is driven by many factors that contribute to its widespread prevalence and complexity.<sup>3,9</sup>



# Both Social and Genetic Factors Contribute to the High Prevalence of Obesity

## Social determinants of health (external factors)

- The environment has gradually changed to one in which high levels of physical activity are not required in daily life<sup>10</sup>
  - Technology has made it possible to be productive while being largely sedentary
- Food is abundant, inexpensive, and served in large portions<sup>10</sup>
- Behaviors contributing to obesity can be affected by the availability of healthy food and access to recreational areas<sup>11</sup>

## Genetics (internal factors)

- A person's genetics may determine the extent to which external factors impact his or her weight<sup>6,7</sup>

From 1999 to 2000 through 2017 to 2018, the age-adjusted prevalence of obesity in adults increased from 30.5% to 42.4%, and the prevalence of severe obesity increased from 4.7% to 9.2%.<sup>12</sup>



### Family matters<sup>5</sup>

Unfortunately, obesity can “run in the family.” The good news is that family members can promote weight loss among other family members by modeling healthy behaviors.<sup>13</sup>

# Body Mass Index (BMI) Is the Primary Method for Identifying People With Obesity or Overweight<sup>14</sup>

**BMI provides a more accurate measure of total body fat compared with body weight alone**



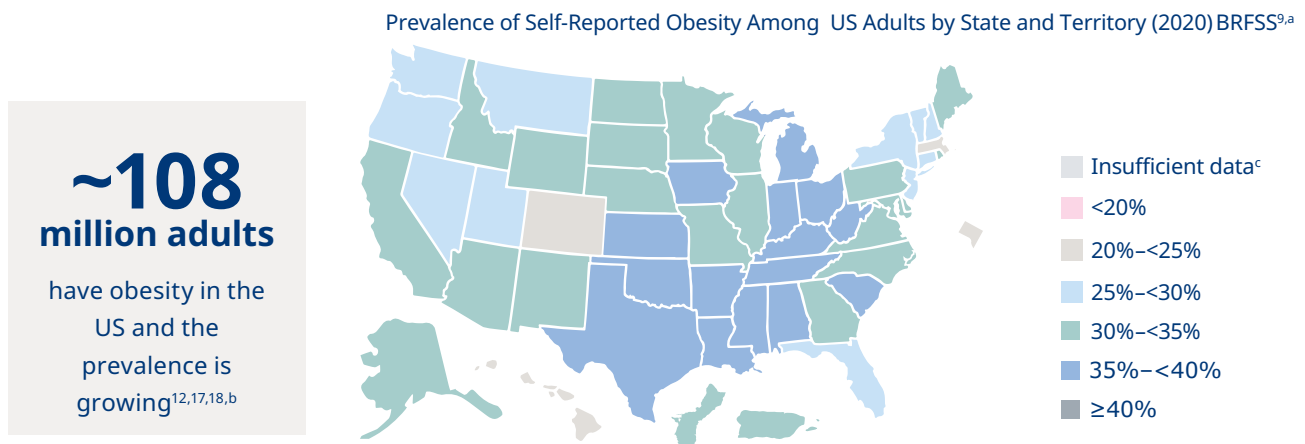
## The role of waist circumference<sup>14</sup>

- Measuring waist circumference is a useful method to evaluate a patient's abdominal fat before and during weight-loss treatment
- Waist circumference can also be measured to assess risk for weight-related comorbidities in patients with BMI <35 kg/m<sup>2</sup>

The higher a person's BMI and/or waist circumference, the higher the risk of other conditions such as type 2 diabetes (T2D), dyslipidemia, and hypertension, as well as high risk of complications from acute illnesses like COVID-19 and influenza.<sup>14,16</sup>

## OBESITY'S PREVALENCE AND ASSOCIATED COMPLICATIONS

### Obesity Is Highly Prevalent Within Your Ecosystem and the Statistics Are Rising



By 2030, nearly 1 in 2 adults in the United States are projected to have obesity (BMI ≥30 kg/m<sup>2</sup>) and nearly 1 in 4 are projected to have Class II or III obesity (BMI ≥35 kg/m<sup>2</sup>).<sup>18</sup>

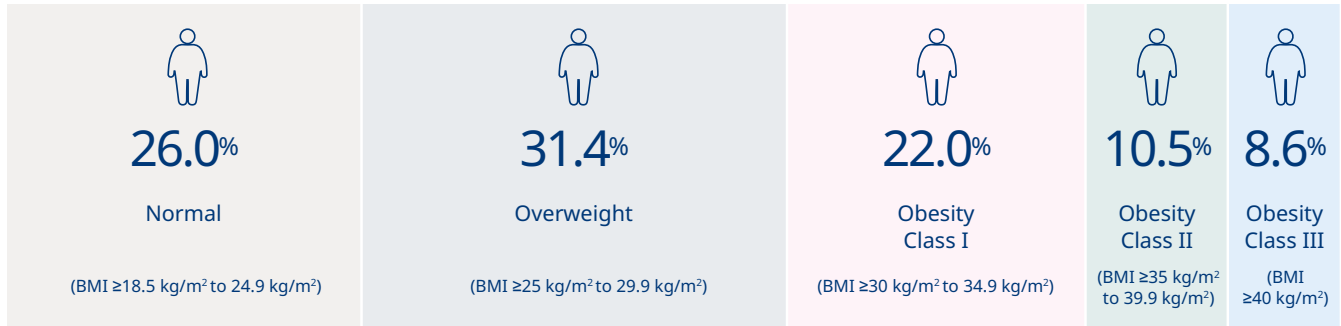
<sup>a</sup>Prevalence reflects Behavioral Risk Factor Surveillance System (BRFSS) methodological changes started in 2011, and these estimates should not be compared with those before 2011.<sup>9</sup>

<sup>b</sup>Adults aged ≥18 years.<sup>9</sup>

<sup>c</sup>Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥30%.<sup>9</sup>

# Approximately 73% of the Adult Population Have Overweight or Obesity<sup>19,a</sup>

## Breakdown by BMI category<sup>19,b,c</sup>



According to a 2017 to 2018 CDC survey,<sup>12</sup>

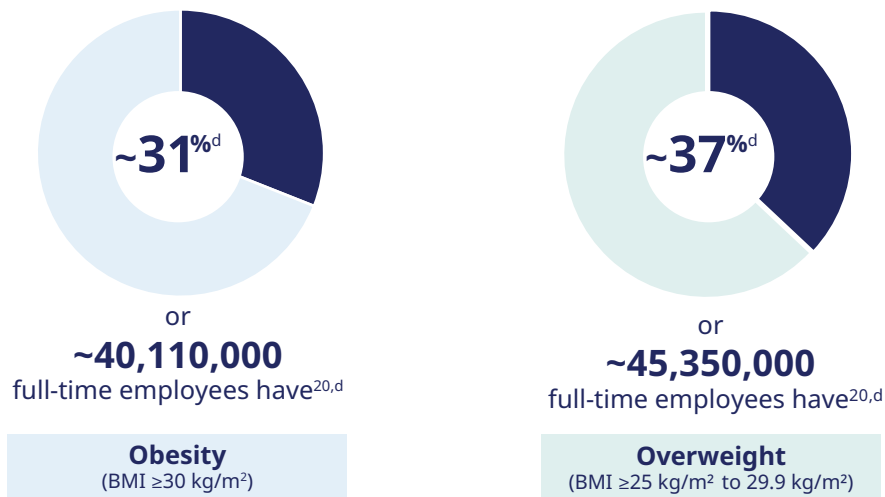
- There were no significant differences between men and women in obesity prevalence among all adults or by age group
  - The age-adjusted prevalence of severe obesity was higher in women than in men
- The prevalence of obesity and severe obesity was highest in non-Hispanic black adults compared with other races and Hispanic-origin groups

<sup>a</sup>Adults aged  $\geq 20$  years.<sup>19</sup>

<sup>b</sup>Based on data from 2015 to 2018.<sup>19</sup>

<sup>c</sup>Percentages do not sum to 100 because the percentage of people with BMI  $< 18.5$  kg/m<sup>2</sup> is not shown and the percentage of people with obesity is a subset of the percentage with overweight and obesity.<sup>19</sup>

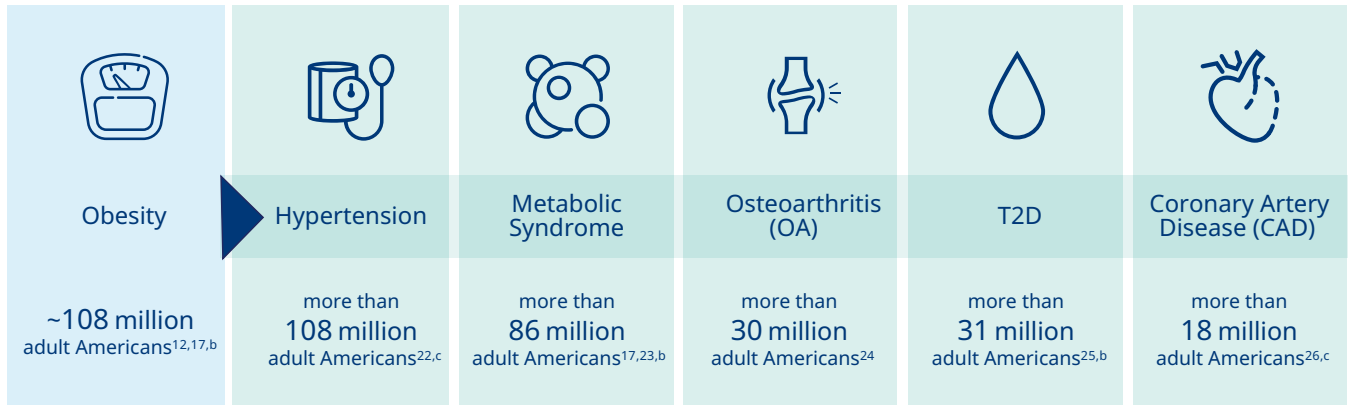
## Regardless of Your Industry or Occupation, Obesity and Overweight Affect Your Workforce



Obesity is associated with many health complications that can drive up healthcare costs. Obesity can also increase indirect costs such as absenteeism and disability costs.<sup>21</sup>

<sup>d</sup>US adults aged  $\geq 18$  years, as of 2018.<sup>20</sup>

## How Does the Prevalence of Obesity Compare With That of Other Certain Chronic Diseases?<sup>a</sup>



Note that these conditions are not mutually exclusive; an individual may have more than one of these conditions at the same time.

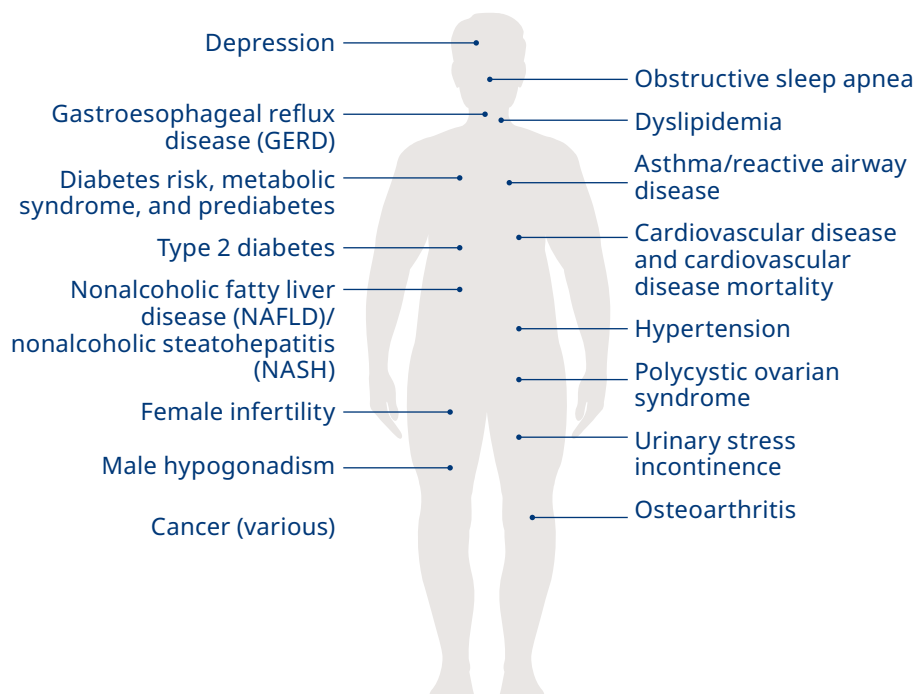
<sup>a</sup>These are approximations based on currently available statistics.

<sup>b</sup>Adults aged ≥18 years.

<sup>c</sup>Adults aged ≥20 years.

## The Complications of Obesity Pose a Serious Threat to Individuals Within Your Organization<sup>27,28,d</sup>

### Examples of weight-related complications<sup>27,28</sup>



According to the Obesity Medicine Association, there are at least

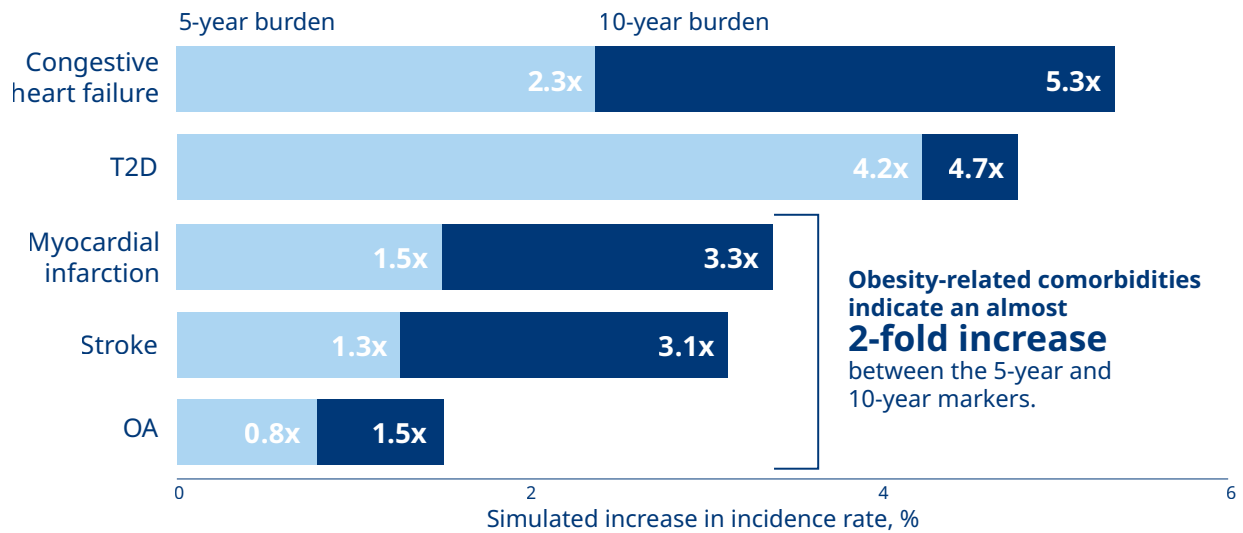
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**COMORBIDITIES ASSOCIATED WITH OBESITY<sup>29</sup>**

Obesity is a debilitating disease that is likely already impacting the health of people in your organization.

<sup>d</sup>The above list is not exhaustive and is intended to illustrate only a range of key complications.

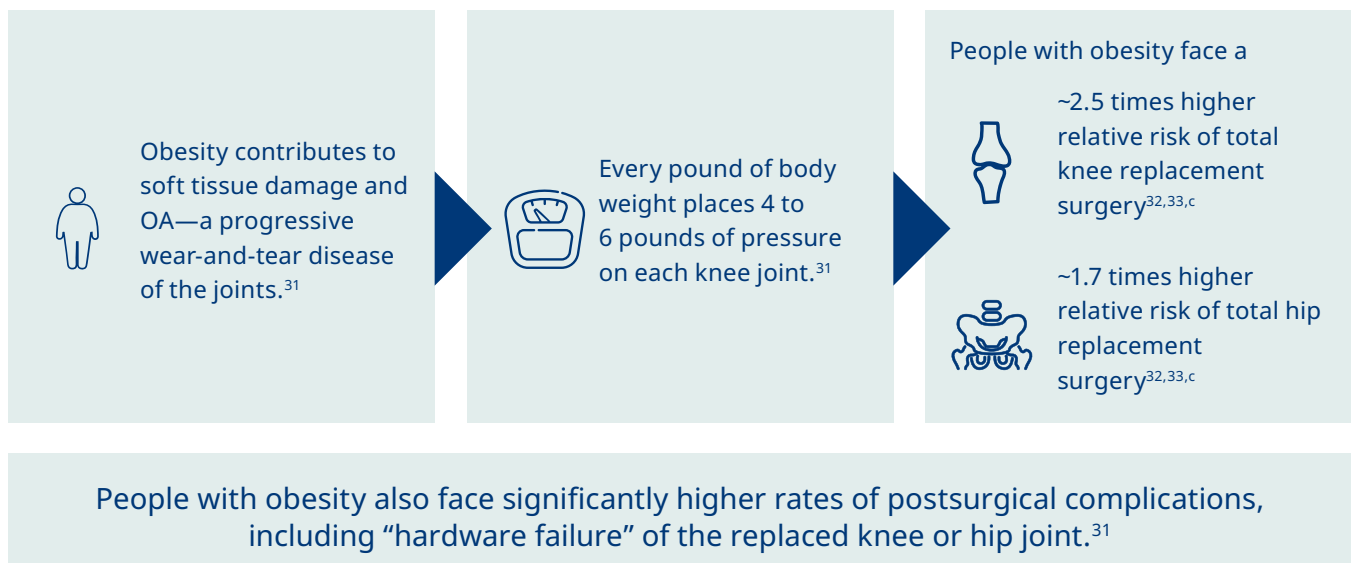
## If Obesity Is Left Untreated, Long-Term Incidence Rates of Complications Can Increase Over Time<sup>30,a,b</sup>



<sup>a</sup>Population included 100,000 adults with obesity and 100,000 demographically matched adults with normal weight. Data taken from 2005-2012 NHANES and shown in the graph as cumulative over 5 and 10 years and as absolute difference in prevalence.<sup>30</sup>

<sup>b</sup>With the exception of T2D.

## Obesity Exacerbates Osteoarthritis (OA), Increasing the Risk of Joint Replacement Surgery and Its Complications<sup>31-33</sup>



<sup>c</sup>BMI 25 kg/m<sup>2</sup> to 29.9 kg/m<sup>2</sup> vs BMI 30 kg/m<sup>2</sup> to 34.9 kg/m<sup>2</sup>.<sup>32</sup>



# Obesity and Excess Weight Are Closely Linked to Depression

## What the statistics tell us: obesity and depression<sup>34</sup>

Data from the National Health and Nutrition Examination Survey (2005-2010) indicate that

- **43% of adults<sup>a</sup>** in the United States with depression have obesity
  - Studies have shown that people with depression have **higher rates of obesity**
  - The relationship between obesity and depression varied by race and ethnicity **among women**
  - The percentage of adults with obesity increased as the severity of their depression increased
- **More than half of adults** (55%) who were taking antidepressant medication, but still reported moderate or severe depressive symptoms, had obesity

## Which comes first?



Does the impact of being overweight lead to depression?



Or does depression itself cause excess weight gain?



**The answer may be yes to both<sup>35</sup>**

## On the positive side: benefits of weight loss<sup>35</sup>

- Several studies have shown there can be **significant improvements** in depressive symptoms **following weight loss**, including after bariatric surgery

Both depression and obesity have been associated with many health risks, including cardiovascular disease, diabetes, and functional limitations.<sup>34</sup>

<sup>a</sup>Aged ≥20 years.

## OTHER CONSIDERATIONS: COVID-19, OTHER ACUTE ILLNESSES, AND PEOPLE WITH OBESITY

# The Dangers of COVID-19 Have Highlighted the Importance of Managing Obesity

## People with obesity are at risk for severe illness from COVID-19



People with obesity are at a **higher risk of complications and adverse outcomes** from COVID-19 and other acute illnesses due to the increased risk of chronic diseases driven by obesity<sup>16</sup>

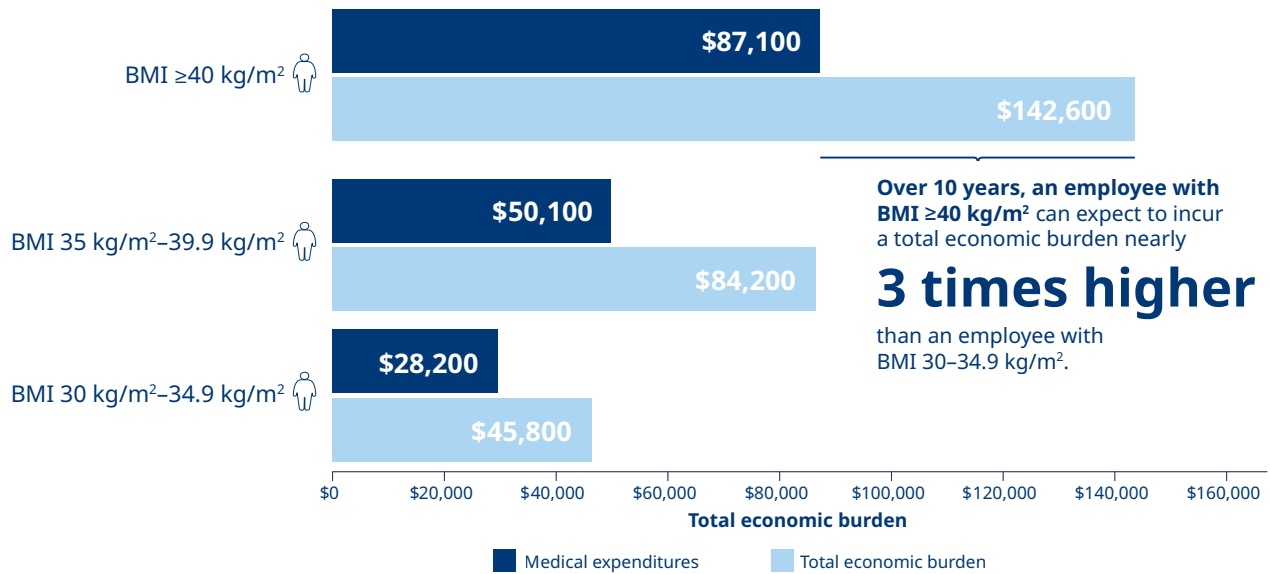


The Centers for Disease Control and Prevention has stated that adults of any age with certain underlying medical conditions, including those below, are at **increased risk for severe illness** from COVID-19<sup>36</sup>:

- Cancer
- Chronic kidney disease
- COPD
- Diabetes
- Immunocompromised state from a solid organ transplant
- **Overweight (BMI 25 kg/m<sup>2</sup> – 29.9 kg/m<sup>2</sup>) and obesity (BMI ≥30 kg/m<sup>2</sup>)**
- Serious heart conditions, such as heart failure, CAD, or cardiomyopathies
- Sickle cell disease

## The Economic Burden of Comorbidities Increases Exponentially Over Time<sup>30</sup>

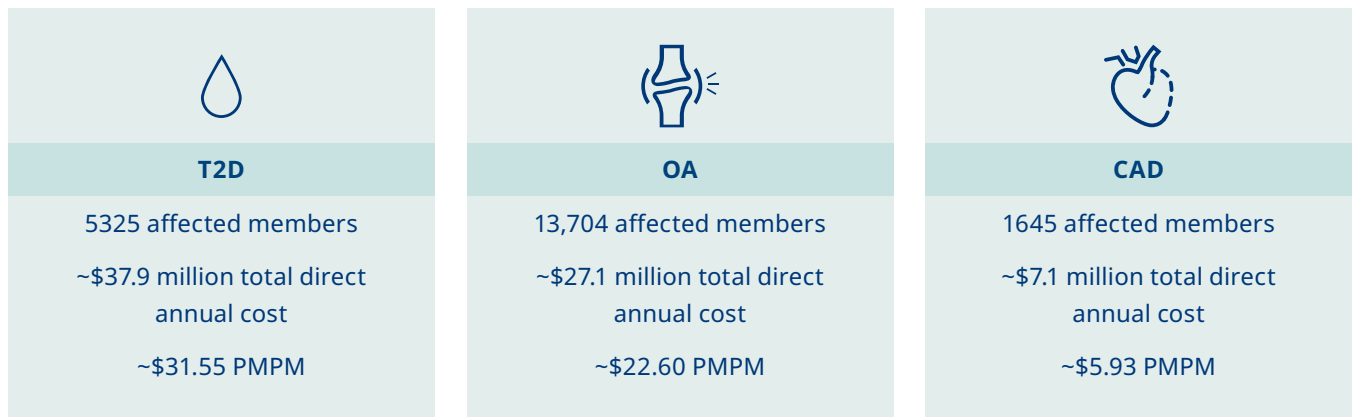
### 10-year simulated economic outcomes<sup>a</sup>



<sup>a</sup>Population included 100,000 adults with obesity and 100,000 demographically matched adults with normal weight. Data taken from 2005-2012 NHANES and shown in the graph as cumulative over 10 years and as medical expenditure and total economic burden.<sup>30</sup>

## The Complications of Obesity Result in Significant Direct Medical Costs

### Direct medical costs of obesity-related complications in a hypothetical health plan of 100,000 members<sup>37,38,b</sup>



The impact of obesity-related comorbidities can be seen in your medical and pharmacy costs.

PMPM=per-member per-month.

<sup>b</sup>Costs shown are direct medical costs associated with treating specific overweight- and obesity-related comorbidities PMPM in 2016.

# Healthcare Utilization and Pharmacy Costs for Obesity-Related Comorbidities Exert Pressure on the US Healthcare Budget

In nearly 20 years, the total cost of obesity-related conditions to the US healthcare system **rose from ~\$79 billion in 1998 to ~\$428 billion in 2016**.<sup>39</sup>

**A pooled cross-sectional analysis of retrospective data from the 2001-2016 Medical Expenditure Panel Surveys found that obesity-related medical spending increased between 2001 and 2016**<sup>40</sup>:



<sup>a</sup>As of 2016.

<sup>b</sup>Excluding anti-obesity medications.

## Obesity Is Associated With High Indirect Costs for Employers



### Short-term disability<sup>41</sup>

According to a retrospective analysis of a large, national employer database (N=89,097),

- Employees with obesity-related complications are nearly **2x as likely** to file short-term disability claims
- The number of short-term disability claims can **increase by 37%** as BMI increases from 30 kg/m<sup>2</sup> to 35 kg/m<sup>2</sup> for those with diabetes, hypertension, or hyperlipidemia



### Absenteeism

- According to one study using 2006-2008 survey data (N=89,097), employees with a BMI of 40 kg/m<sup>2</sup> will **miss 77% more work days<sup>c</sup>** compared with employees with a BMI of 25 kg/m<sup>2</sup><sup>41</sup>
- Obesity-related absenteeism can cost US employers \$12.8 billion annually<sup>42</sup>



### Workers' compensation<sup>43</sup>

In a 3-year study of workers' compensation claims, claims were **160% higher** for employees with obesity (BMI ≥30 kg/m<sup>2</sup>) compared with those who have normal weight (BMI 18.5 kg/m<sup>2</sup> - 25 kg/m<sup>2</sup>)<sup>d</sup>



### Presenteeism<sup>42</sup>

Presenteeism in the workplace has been shown to be the **single largest cost driver** associated with obesity, regardless of BMI



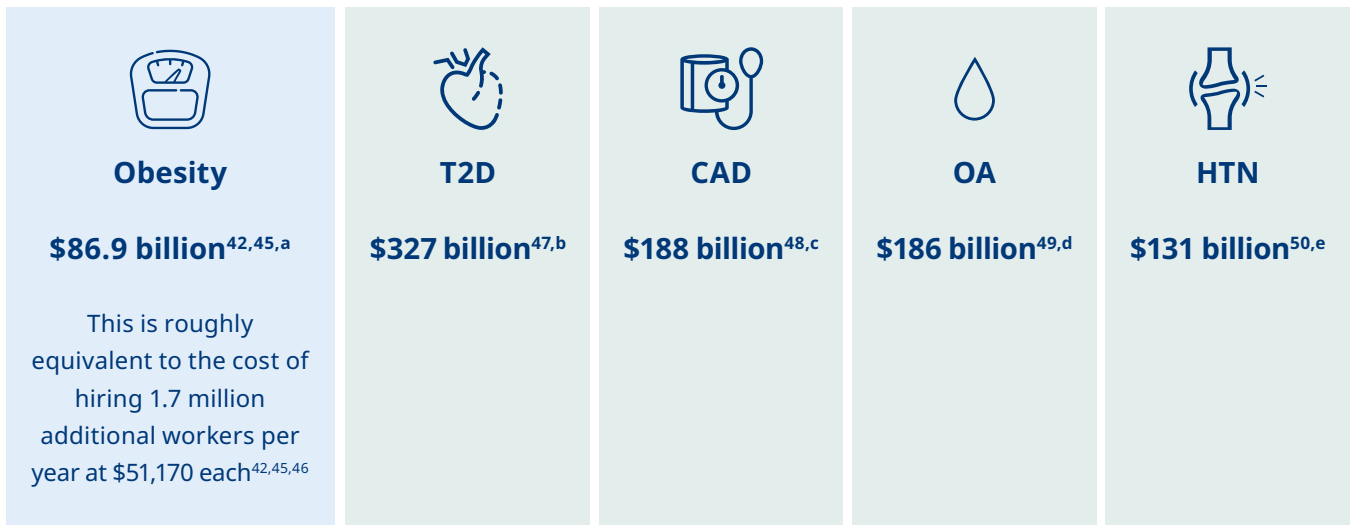
### Productivity<sup>44</sup>

- Increasing BMI is associated with **impaired work** productivity and indirect costs
- Obesity is shown to have the greatest impact on productivity in construction, followed by **arts and hospitality** occupations

<sup>c</sup>Due to sick days, short-term disability, and workers' compensation days.<sup>41</sup>

<sup>d</sup>Study specific to the Louisiana Workers' Compensation Corporation Claims Payment Database for open claims. Study included ~2300 injured employees filing workers' compensation claims.<sup>43</sup>

# Obesity Is a Costly Disease That May Contribute to the Costs of Other Chronic Conditions



Obesity may be costing your organization more than you know. Remember, obesity itself may **cause or exacerbate** these costly conditions.<sup>51</sup>

HTN=hypertension.

<sup>a</sup>Aggregate cost of obesity among full-time employees in the United States, according to data from a 2006 survey, adjusted to 2019 inflation rates.

<sup>b</sup>Includes direct medical costs and the costs of lost productivity (2017).

<sup>c</sup>Includes direct (medical) and indirect costs of coronary artery disease (2017).

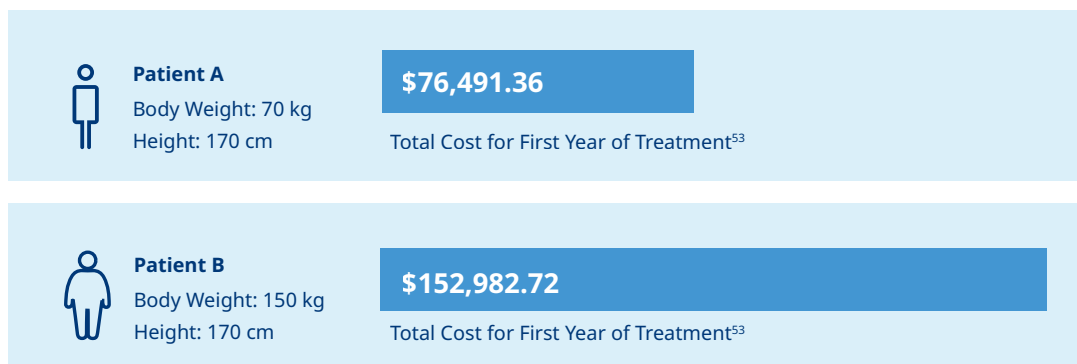
<sup>d</sup>Aggregate medical expenditures, including out-of-pocket costs (1996-2005; 2007 dollars).

<sup>e</sup>Healthcare costs only (2003-2014, averaged).

## Impact on Cost of Treatment

### Obesity may increase the cost of drugs with weight-based dosing. Here is an example using 2 patients with severe plaque psoriasis

- Patients A and B are diagnosed with severe plaque psoriasis and are prescribed the same biologic, which is dosed based on weight<sup>52</sup>
  - Their first 2 doses occur 4 weeks apart, followed by another dose every 12 weeks



## Wellness Programs Alone—Without Other Interventions for Obesity—May Be Insufficient<sup>54</sup>

The ACTION study found that wellness programs have limited success and are perceived unfavorably by employees



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The study, published in *Population Health Management*, reported that **only 17% of employees with obesity viewed wellness programs as beneficial**, compared with 72% of employers.<sup>a</sup>

- Although all employers reported providing coverage for weight management, including prescription weight-loss medications, **only 13%** of employees with obesity indicated that this benefit was offered by their employer
  - There is an opportunity for employers to **better communicate their benefits** to employees

The findings point to the need for a holistic approach to weight management, including lifestyle modifications and medical treatments.

ACTION=Awareness, Care, and Treatment in Obesity Management.

<sup>a</sup>Study consisted of a US-based online survey of 3008 adults with obesity (BMI  $\geq 30$  kg/m<sup>2</sup> based on self-reported height and weight), of which 1478 were employed full time, part time, or self-employed, and 153 employer representatives.



## Weight Loss of 2% to >15% Yields Clinical Improvements in Many Comorbidities Associated With Obesity<sup>55</sup>

2.5%	helps prevent progression to diabetes; maximal impact at 10%	Glycemic improvement—diabetes prevention in impaired glucose tolerance
2% to 5%	improves ovulatory cycles and subsequent pregnancy; greater weight loss associated with greater improvement	Polycystic ovarian syndrome and infertility
2.5% to >15%	greater weight loss associated with greater improvement; true for all BMI classes	<ul style="list-style-type: none"> <li>Glycemic improvement—T2D<sup>a</sup></li> <li>Triglyceride reduction</li> </ul>
5% to 10%	improves knee functionality, speed, walk distance, and pain  may also reduce risk for emergent depression; individuals with depression lose as much weight as individuals without depression	<ul style="list-style-type: none"> <li>Knee pain and function in OA</li> </ul>
		<ul style="list-style-type: none"> <li>Depression</li> </ul>
5% to >15%	greater weight loss associated with greater improvement	<ul style="list-style-type: none"> <li>HDL cholesterol increase<sup>b</sup></li> <li>Hepatic steatosis reduction</li> <li>Impact of weight on quality of life</li> </ul>

HDL=high-density lipoprotein.

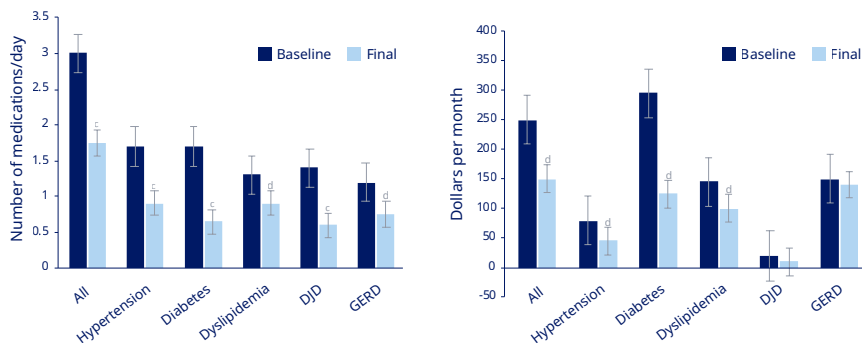
<sup>a</sup>Improvement in fasting glucose and hemoglobin A1c is observed beginning at a weight loss of  $\geq 2$  to  $< 5\%$ .

<sup>b</sup>Greater weight loss is not associated with greater improvement for BMI  $> 40$  kg/m<sup>2</sup>.

## Weight Loss Results in Reduced Medication Use and Costs for a Range of Comorbid Conditions<sup>56</sup>

In a 20-week study examining medication use and costs associated with substantial weight losses in an intensive behavioral weight-loss program (n=83)

**Daily medication use and monthly medication costs were significantly reduced with weight loss**



**18%**

of participants (15/83) who lost 42 lbs discontinued their medications for these comorbid conditions entirely

- The average number of medications taken daily across all 5 comorbidities **decreased by 43%** ( $P < .001$ )
- Average monthly wholesale costs for medications decreased from **\$249 to \$153**

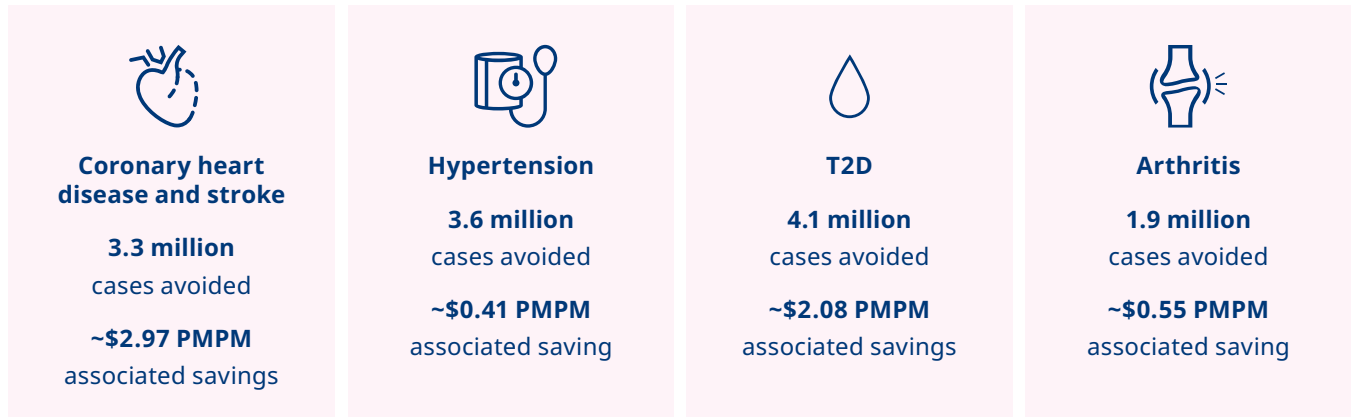
DJD=degenerative joint disease; GERD=gastroesophageal reflux disease.

<sup>c</sup> $P < .001$ .

<sup>d</sup> $P < .05$ .

# Studies Indicate That a 5% to 10% Weight Loss Can Help Curb the Economic Impact of Costly Comorbidities<sup>28</sup>

**Estimated impact per each case avoided in the United States over 10 years<sup>57,58</sup>:**



**Another study found that, with a given percent reduction in BMI, savings were greater for<sup>59,a</sup>**

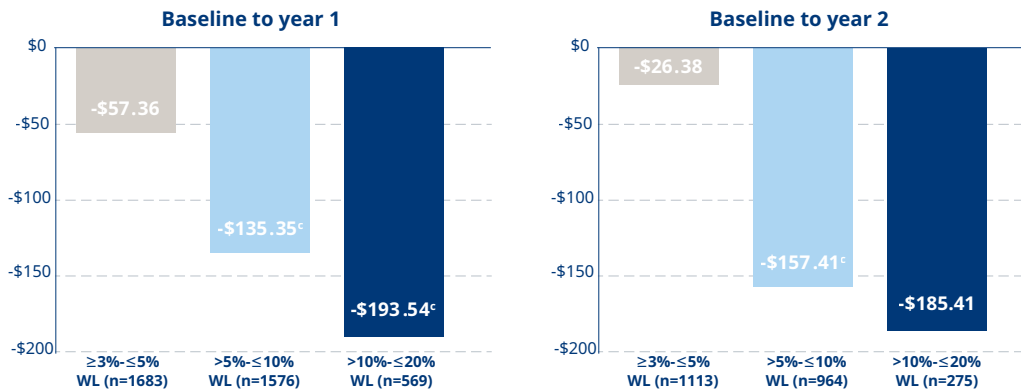
- Individuals with higher BMI
- Those with diabetes than for those without diabetes

The economic benefits of sustained weight loss are contingent upon the appropriate weight-management approach being available for all obesity classes.

<sup>a</sup>Using data from the Medical Expenditure Panel Survey for 2000–2010, 2-part models of instrumental variables were estimated. Models were estimated for all adults, as well as separately for those with and without diabetes. Study investigators calculated the causal impact of changes in BMI on medical care expenditures, cost savings for specific changes in BMI, and total excess medical care expenditures caused by obesity.<sup>59</sup>

## Healthcare Cost Savings Were Greater for Individuals With Obesity Who Had a Larger Magnitude of Weight Loss<sup>60</sup>

**In a real-world study, adjusted mean PPPM total healthcare savings were greater in all weight-loss groups compared with no weight change<sup>b</sup>**



PPPM=per-patient per-month; WL=weight loss.

<sup>b</sup>Study used the IBM MarketScan<sup>®</sup> and Explorys<sup>®</sup> EMR Databases. Patients had BMI ≥30 kg/m<sup>2</sup> on the first instance (“index date”) of BMI between January 1, 2012, and June 30, 2014.

<sup>c</sup>P<.05.

# AACE/ACE Guidelines Recommend Medications for Chronic Weight Management<sup>28</sup>

Anti-obesity medications (AOMs) are supported by AACE/ACE as an adjunct to lifestyle therapy in 3 situations



When individuals experience failure on lifestyle therapy



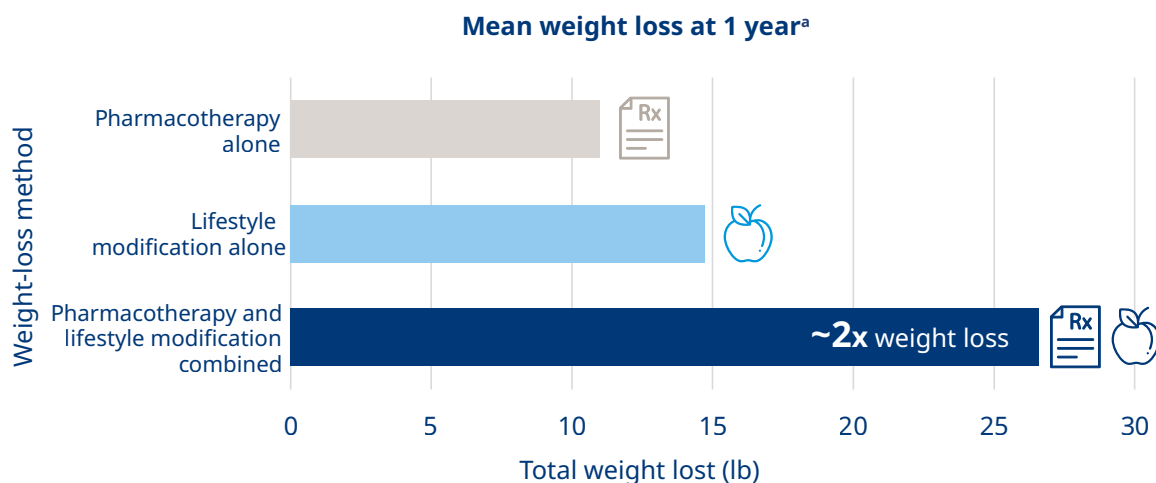
When individuals experience weight regain after initial success on lifestyle therapy



When individuals experience weight-related complications

Lifestyle modifications must be part of any weight-loss intervention, but they are not always sufficient for maintaining weight loss.<sup>3</sup>

## Adding AOMs to a Comprehensive Weight-Management Program May Help Appropriate Patients With Obesity Lose Weight<sup>61</sup>

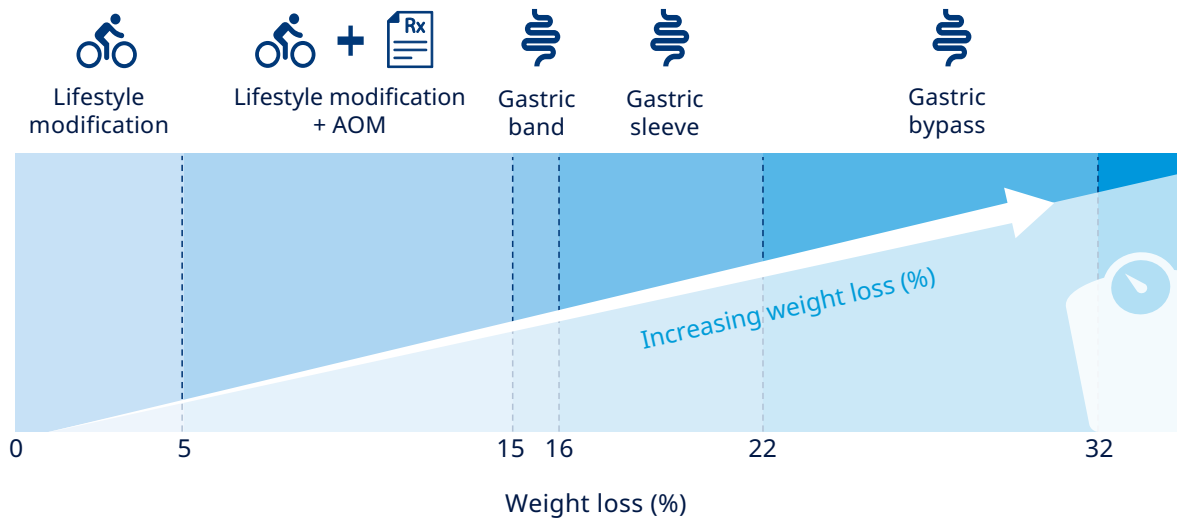


It is critical to offer various options to your employees with obesity, as one specific strategy will not address the needs of everyone with obesity in your organization.

<sup>a</sup>According to a study of 224 men and women aged 18 to 65 years with BMI of 30 kg/m<sup>2</sup> to 45 kg/m<sup>2</sup> who were randomly assigned to receive pharmacotherapy (sibutramine) alone, lifestyle-modification counseling, or pharmacotherapy with lifestyle-modification counseling (combined therapy).

# Providing a Comprehensive Range of Weight-Management Options Helps Meet the Needs of Each Individual With Obesity

Available treatments for obesity vary in indication, effectiveness, and invasiveness<sup>3,28,62-64</sup>



AOMs, when added to lifestyle modification, can help people achieve **greater weight loss** than lifestyle modification alone<sup>3,28</sup>

## Does Your Health Plan Include AOMs as a Treatment Option for Obesity?

Obesity management warrants a stepwise approach: AHA/ACC/TOS guidelines<sup>3,a</sup>

Treatment	BMI Category (kg/m <sup>2</sup> )				
	25-26.9	27-29.9	30-34.9	35-39.9	≥40
Diet, physical activity, and behavior therapy	Yes, with comorbidities	Yes	Yes	Yes	Yes
Pharmacotherapy		Yes, with comorbidities	Yes	Yes	Yes
Surgery				Yes, with comorbidities	Yes

Lifestyle modifications must be part of any weight-loss intervention, but they are not always sufficient for maintaining weight loss.

ACC=American College of Cardiology; AHA=American Heart Association; TOS=The Obesity Society.

<sup>a</sup>Yes alone means that the treatment is indicated regardless of presence or absence of comorbidities. The solid arrow signifies the point at which treatment is initiated.<sup>3</sup>

**References:** 1. Recognition of Obesity as a Disease H-440.842. American Medical Association website. <https://policysearch.ama-assn.org/policyfinder/detail/obesity?uri=%2FAMADoc%2FHOD.xml-0-3858.xml>. Accessed March 17, 2022. 2. Mechanick JI, Garber AJ, Handelsman Y, Garvey WT. American Association of Clinical Endocrinologists' position statement on obesity and obesity medicine. *Endocr Pract*. 2012;18(5):642-648. 3. Jensen MD, Ryan DH, Apovian CM, et al. American College of Cardiology/American Heart Association Task Force on Practice Guidelines; The Obesity Society. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society. *Circulation*. 2014;24(25 suppl 2):S102-S138. 4. Lam YY, Ravussin E. Analysis of energy metabolism in humans: a review of methodologies. *Mol Metab*. 2016;5(11):1057-1071. 5. 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