

# Driving change in obesity care

A multi-stakeholder perspective on  
the value of non-invasive interventions

ISPOR US 2023

Boston Convention & Exhibition Center

9 May 2023

*This is an unbranded symposium sponsored by Novo Nordisk*

## Topic

## Led by

**Welcome**

**Sean Sullivan**, Professor,  
CHOICE Institute,  
University of Washington

**Medical & healthcare system perspective:  
Why is early treatment intervention important in the management of  
obesity?**

**Dr. Angela Fitch**, Founder and Chief  
Medical Officer, knownwell,  
Assistant Professor, Harvard Medical  
School

**Employer, pharmacy benefit manager (PBM) & insurer perspective:  
Who should pay for obesity care and why?**

**David Skomo**, Chief Operating  
Officer, WellDyne

**Questions & answers**

**All**

**Closing remarks**

**Sean Sullivan**, Professor,  
CHOICE Institute,  
University of Washington

# Housekeeping



**Please turn your phone and laptop on silent to avoid disruptions**



**Please limit moving in and out of the room as much as possible**



**There will be time for questions with each speaker at the end, so please make note of anything you'd like to ask throughout the presentations**



**This meeting will be recorded for the online ISPOR platform**

# The moderator and speakers in today's session

Moderator



**Sean D. Sullivan**

BScPharm, MSc, PhD

Professor, CHOICE  
Institute, University of  
Washington

Speaker



**Dr Angela Kay Fitch**

MD, FACP, FOMA

Founder and Chief  
Medical Officer,  
knownwell;  
Assistant Professor,  
Harvard Medical School

Speaker



**David Skomo**

BSc Pharm

Chief Operating Officer,  
WellDyne

**DISCLOSURES:** The moderator and speakers have received payment from Novo Nordisk to cover their time related to their involvement in this Educational Symposium.

*This is an unbranded symposium sponsored by Novo Nordisk.*

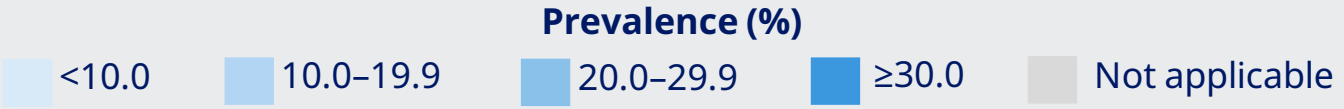
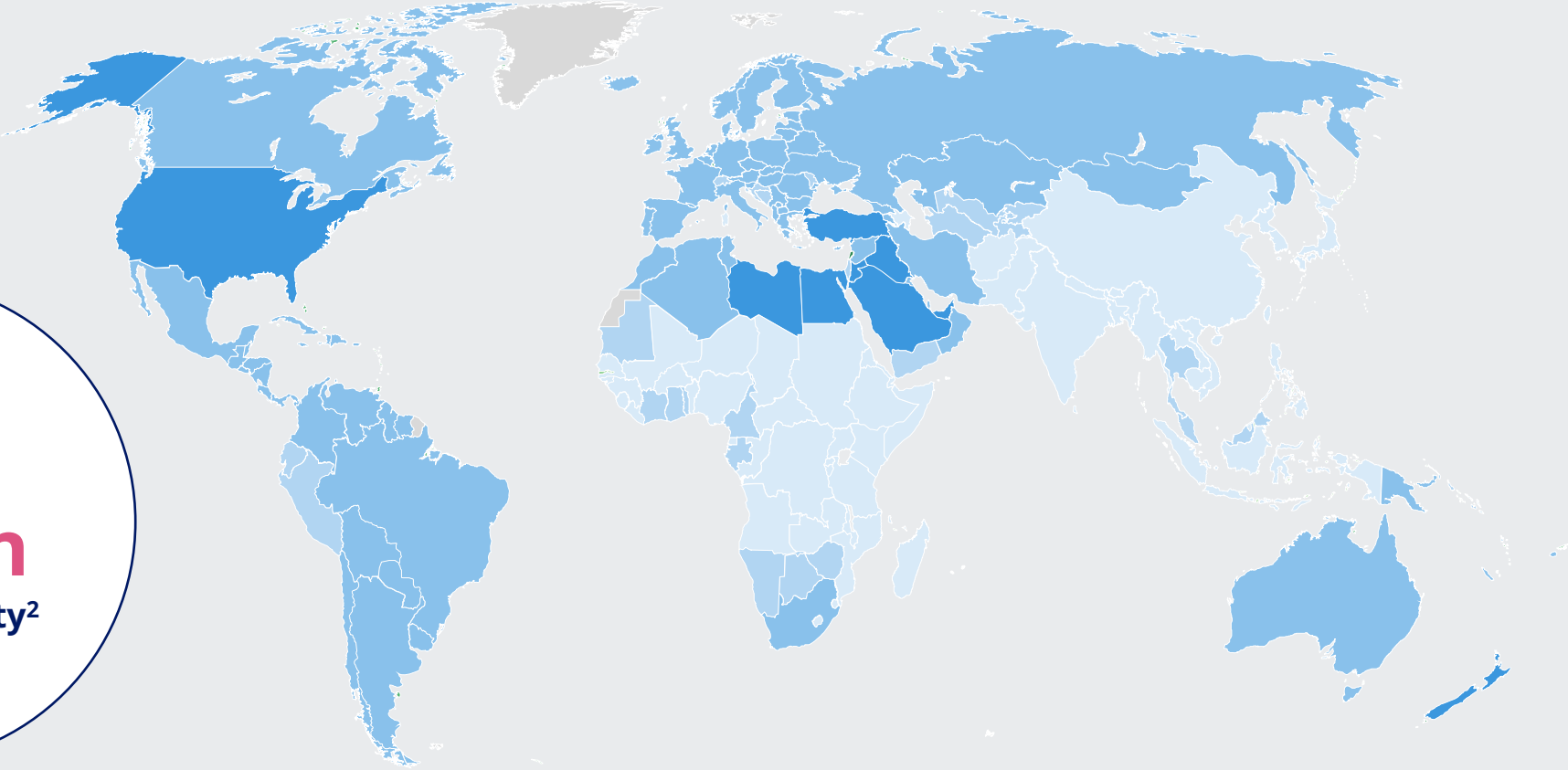
*Novo Nordisk provided financial support and content review for this non-promotional session. The information presented and any views expressed are those of the presenters, however, and should not be attributed to Novo Nordisk.*

# Obesity is a global health priority

# Global prevalence of obesity among adults<sup>1</sup>

**2 billion**  
overweight

**650 million**  
live with obesity<sup>2</sup>



Overweight: BMI is 25.0 to <30  
Obesity: BMI is 30.0 or higher

# 2035 predictions, if current trends prevail<sup>3</sup>

Nearly  
**2 billion**  
(or 1 in 4)  
people will live  
with obesity

**100%**  
**increase**  
in childhood  
**obesity rates**  
from 2020 levels

**\$4.32**  
**trillion**  
estimated  
global  
**economic**  
**impact**  
of overweight  
and obesity





# What **obesity** in the **US** looks like

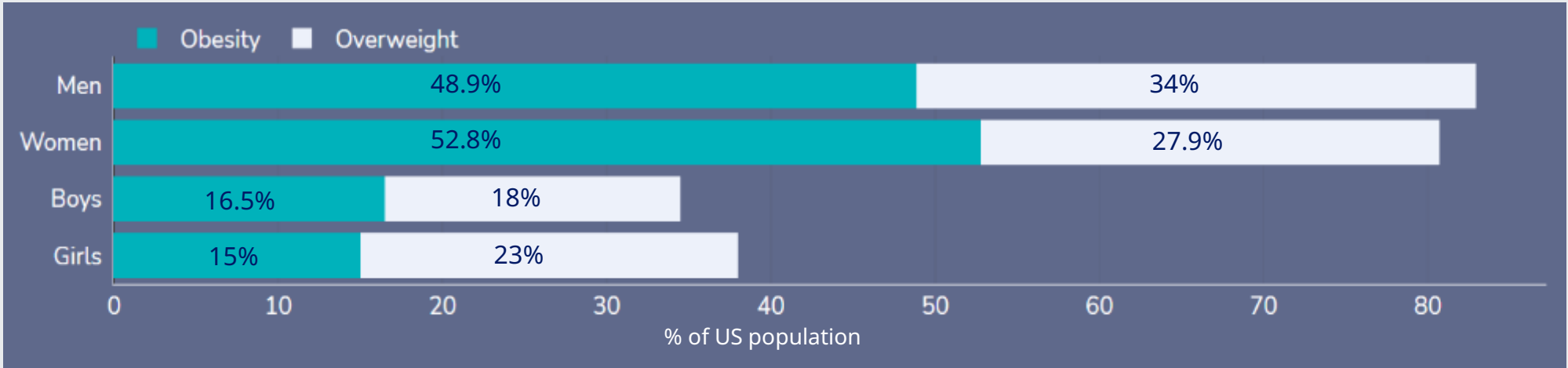
**Ranked #14 in the world for obesity prevalence rates<sup>4</sup>**

**Approximately 51% of adults and 16% of children are living with obesity<sup>5</sup>**

**That equates to more than 131 million adults living with obesity<sup>5,6</sup>**

**With an economic burden of \$480 billion direct costs and \$1.24 trillion indirect costs<sup>7</sup>**

**Latest US statistics from The World Obesity Federation<sup>2</sup>**



# Obesity is associated with multiple comorbidities<sup>8-18</sup>

## Metabolic effects



### CVD and risk factors

(in 31% of people with obesity\*)

- Dyslipidaemia
- Hypertension
- Heart failure with preserved ejection fraction



### Type 2 diabetes

(in 31% of people with obesity)

- Prediabetes



### Liver disease

(in 5% of people with obesity)

- NAFLD
- NASH



### PCOS

(in 9% of people with obesity)

- Prediabetes

\*Prevalence of hypertension in people with obesity

## Direct mechanical effects



### PCOS

(in 9% of people with obesity)

- Prediabetes



### Chronic back pain

(in 10% of people with obesity)

**Osteoarthritis**  
(in 16% of people with obesity)



### Osteoarthritis

(in 16% of people with obesity)

## Emerging evidence



### Cancer

# How can we **improve health and quality of life** in people with **obesity**?

Weight loss may lead to overall health improvements in:

Magnitude of weight loss (%)

**0-5%**

- ✓ Hypertension<sup>19</sup>
- ✓ Hyperglycemia<sup>19</sup>

**5-10%**

- ✓ PCOS<sup>19</sup>
- ✓ NAFLD<sup>19</sup>
- ✓ Prevention of T2D<sup>19</sup>
- ✓ Dyslipidemia<sup>19</sup>

**10-15%**

- ✓ OSAS<sup>19</sup>
- ✓ GERD<sup>19</sup>
- ✓ NASH<sup>19</sup>
- ✓ Cardiovascular disease<sup>19</sup>
- ✓ Urinary stress incontinence<sup>20</sup>
- ✓ Knee osteoarthritis<sup>19</sup>

**15-20%**

- ✓ CV mortality<sup>21</sup>
- ✓ T2D remission<sup>22</sup>
- ✓ Hepatic steatosis<sup>23</sup>

**>20%**

- ✓ HFpEF<sup>24</sup>
- ✓ Advanced T2D remission<sup>25,26\*</sup>
- ✓ Postural instability<sup>27</sup>

Most PwO can achieve significant weight loss, health benefits and improved QoL<sup>19-23</sup>

Greater sustained weight loss leads to improved health benefits in obesity related complications.



Increased weight loss is associated with improvements in obesity comorbidities<sup>1-5</sup>



Improvements in health must go beyond the scale

Greater weight loss leads to improved health

# CVD in people with obesity carries a substantial **clinical and economic burden**<sup>28-30</sup>



Obesity increases the risk of **CVD morbidity** and **mortality**<sup>28</sup>

**Higher obesity classes** increase the **CVD burden**<sup>28</sup>



Obesity and CVD are **substantial drivers of healthcare costs**<sup>29</sup>



Weight management may help **reduce** the **clinical and economic burden** of obesity<sup>28,29</sup>



**Some pharmacotherapies** may represent a treatment modality for **people with obesity and established CVD**<sup>\*30</sup>






\*Not applicable to all anti-obesity medications and for all people living with obesity

# The **relative value** of anti-obesity treatments<sup>31</sup>

- The **access and coverage** of anti-obesity medications (AOMs) is **limited** when compared to other chronic diseases, despite its high disease burden
- A recent study looked at the **relative value of AOMs**, comparing clinical and economic benefits of AOMs vs treatments for other therapeutic areas (smoking cessation, daytime sleepiness, migraine, and fibromyalgia)
- These comparators were chosen based on the following similarities to AOMs:
  - **Population size**
  - **Reimbursement**
  - **Cost evolution**
  - **Type of therapy**
  - **Benefit to patients**
  - **Type of indication**



# Obesity-related comorbidities are **costly**<sup>31</sup>

	 Obesity	 Excessive Sleepiness	 Smoking	 Migraine	 Fibromyalgia
Cardiovascular	\$\$\$		\$\$\$		
Cancer	\$\$\$		\$\$\$		
Stroke	\$\$\$		\$\$\$	\$\$\$	
PE	\$\$\$		\$\$\$		
Kidney failure	\$\$				
Sleep apnea	\$\$	\$\$	\$\$		
CAD	\$\$				
Respiratory	\$\$	\$\$	\$\$		
OA	\$\$			\$\$	
Pain	\$\$	\$\$		\$\$	\$\$
NAFLD	\$				
Dyslipidemia	\$				
GERD	\$				
Depression	\$	\$	\$	\$	
Hypertension	\$			\$	\$
Urinary stress	\$				
Diabetes	\$				
Anxiety		\$	\$	\$	
Endometriosis					
Epilepsy				\$	
IBS				\$	
Osteoporosis				\$\$	

Note: \$ correlates with the cost of the comorbidity relative to each other. \$: low; \$\$: moderate; \$\$\$: high

# Obesity is one of the leading causes of **productivity loss**<sup>31</sup>

Annual workday loss incremental to the disease, days			
Therapeutic Area	Attributable Annual Absenteeism (per person)	Prevalence Avg Mid-Size Company* (patients)	Annual Workday Loss** (days per company)
Obesity	3.0 days	175	525
Excessive sleepiness	4.6 days	115	529
Smoking Cessation	2.3 days	70	161
Migraine	1.7 days	85	145
Fibromyalgia	13.0 day	20	260

Note: baseline of annual average absenteeism is 2.34 days in healthy workers

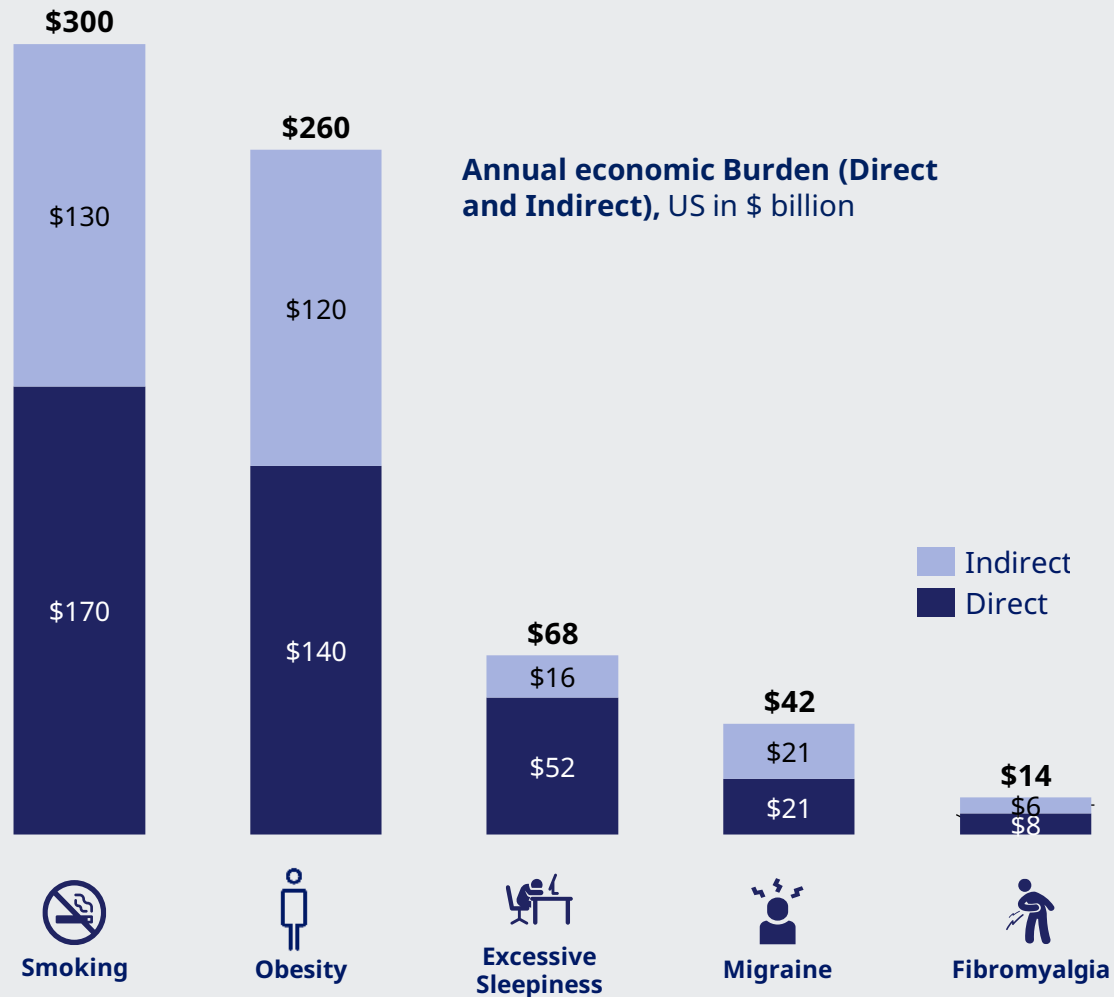
Annual productivity loss due to absenteeism, \$ thousands in a mid-size company\*



\*Based on disease prevalence among 500 employees (average medium-size employer); obesity is defined as BMI ≥ 30 kg/m<sup>2</sup>;

\*\*Calculated by multiplying annual average absenteeism added and disease prevalence

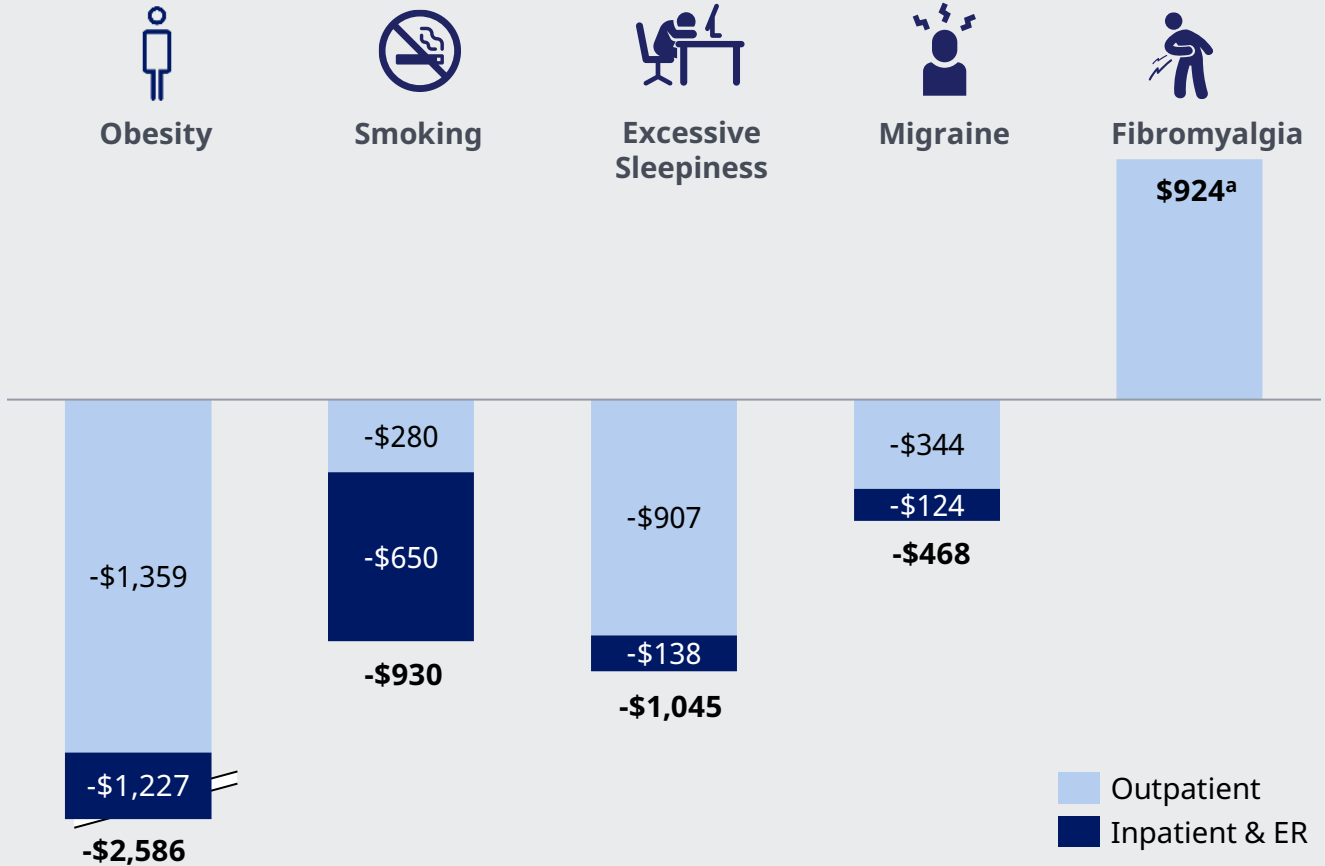
# With other **direct and indirect costs** adding to the economic burden<sup>31</sup>





# Obesity treatment leads to significant direct medical cost reduction<sup>31</sup>

Real-world annual medical cost change by treatment area, \$ per patient per year (in 2021 USD)



# Non-invasive treatment of obesity may not only **improve the lives of individuals** but **reduce economic burden**<sup>31</sup>

The adoption of AOMs may significantly decrease burden on the healthcare system while benefiting patients, payers, and employers

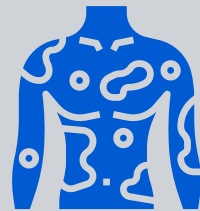


Currently, **only 10-15% of health plans cover AOMs**



Potential **reduction in annual medical costs**, when patients achieve a 15% weight loss

AOMs



Obesity's **association with comorbidities**; drives **high costs to payers and employers**



Studies show that weight reduction leads to an **annual reduction of at least 3 absenteeism days**

Medical & health system perspective

# Why is early treatment intervention important in the management of obesity?

*Dr. Angela Fitch*

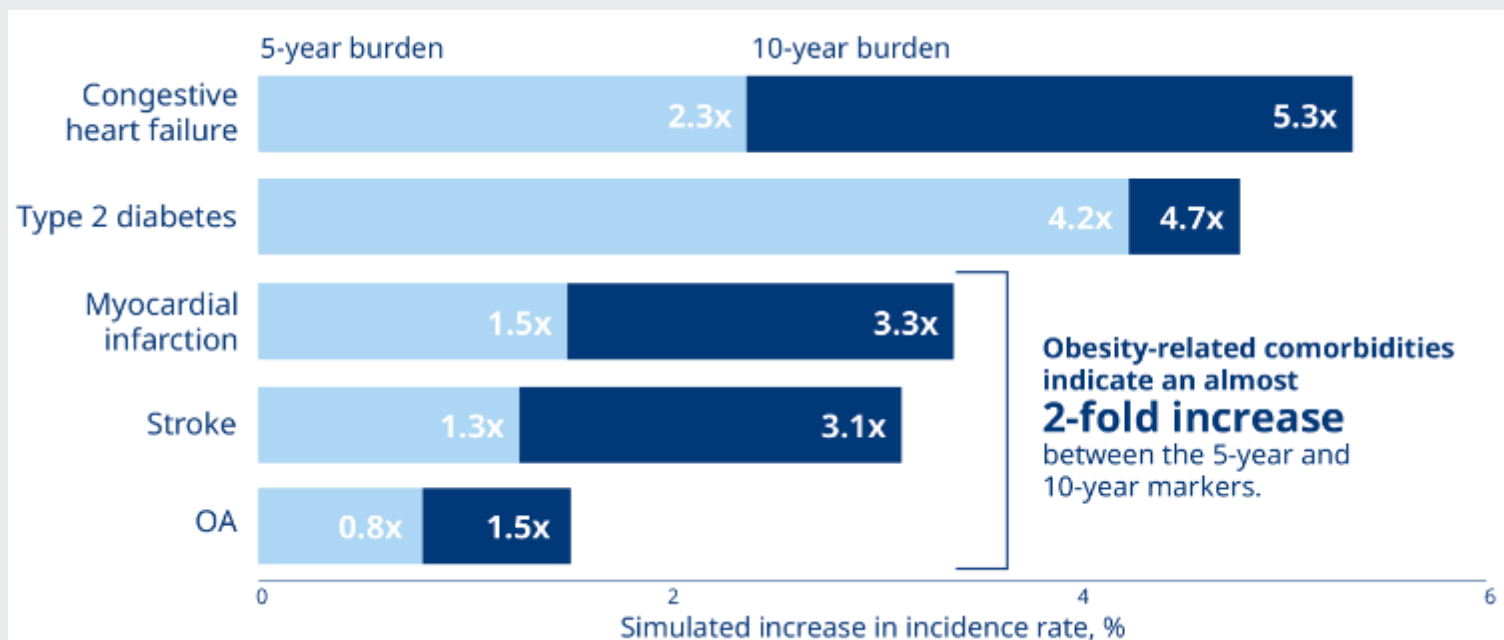
# Obesity is a disease of abnormal physiology<sup>1-3</sup>

Positive caloric balance in conjunction with sedentary lifestyle in genetically and environmentally susceptible individuals can drive pathophysiologic processes such as **adiposity** (accumulation of fat in adipocytes) and **adiposopathy** (dysfunction of adipocytes)<sup>38,39</sup>

Adiposopathy results in abnormal release of **inflammatory factors and other adipokines** from the dysfunctional adipocytes and can contribute to pathogenic interactions with other body organs<sup>39,40</sup>

Manifests **into clinical symptoms and conditions** such as prediabetes, type 2 diabetes, hypertension, dyslipidemia, among other diseases<sup>38</sup>

# Over time, untreated obesity can increase long-term incidence rates of complications<sup>41\*</sup>



**Obesity-related comorbidities may increase over time<sup>\*\*</sup>**

OA=osteoarthritis.

\*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. Patients with type 2 diabetes excluded.

\*\*With the exception of type 2 diabetes.



Scan for regionally-specific information

[www.countyhealthrankings.org/explore-health-rankings](http://www.countyhealthrankings.org/explore-health-rankings)

# People with obesity may benefit from the **combined efforts of stakeholders** who share their treatment goals

**Support guidelines** for clinical diagnosis and treatment by providing coverage for evidence-based programs and interventions<sup>42</sup>

**Work with providers** to identify treatment goals, take an active role in potential interventions<sup>42</sup>

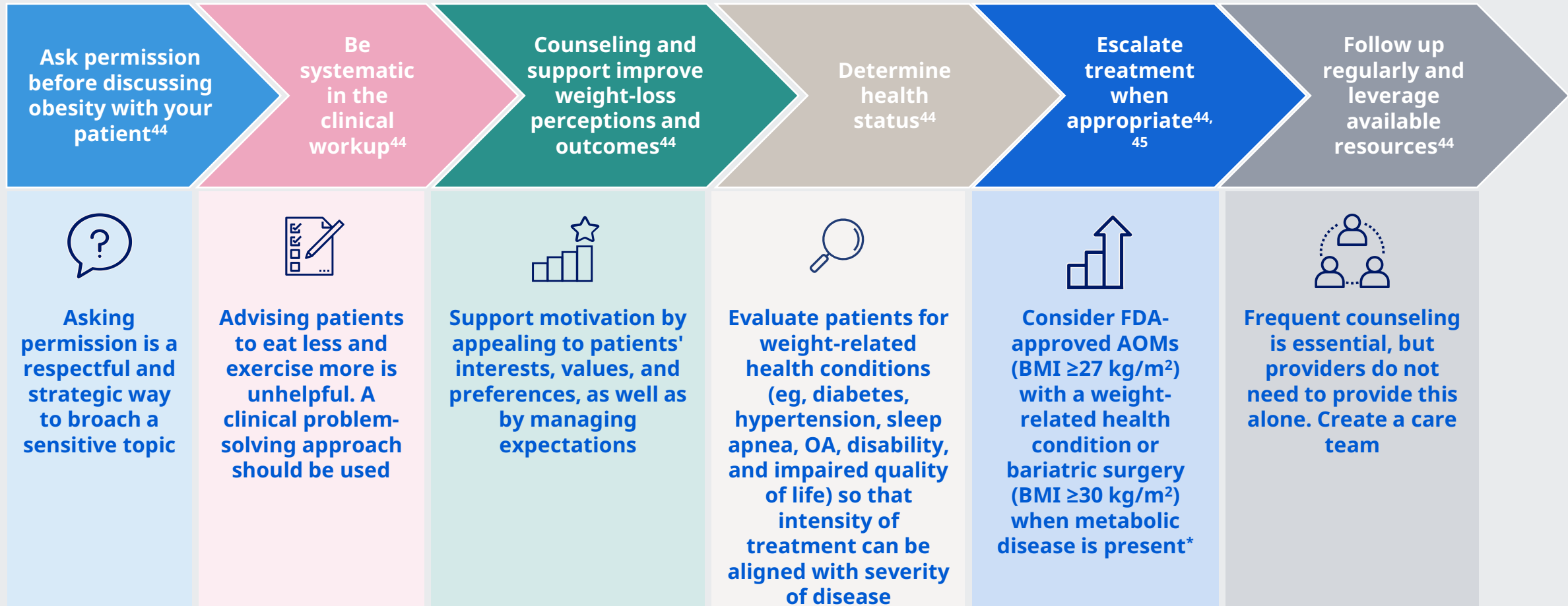


**Provide clinical evaluation**, as well as recommending treatment, such as evidence-based programs<sup>42</sup>

**Suggest long-term maintenance programs** and weight-loss incentive programs<sup>43</sup>

**Employ educational materials** for providers and patients, develop standardized screening and treatment pathways

# Implement a comprehensive clinical treatment pathway to support and empower patients through these steps



\*Bariatric surgery is recommended for patients with a BMI  $\geq 35$  kg/m<sup>2</sup> or BMI 30 kg/m<sup>2</sup> to 34.9 kg/m<sup>2</sup> with metabolic disease.

Employer, PBM & insurer perspective

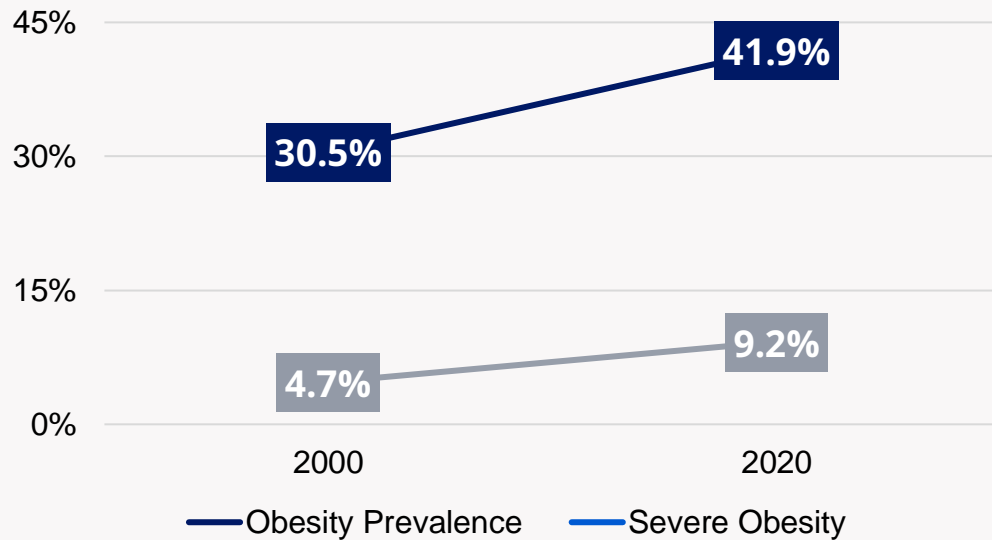
# Who should pay for obesity care and why?

*David Skomo*



# Prevalence of obesity and related problems

Steep increase in obesity  
over the past 20 years<sup>32</sup>



**\$2,505  
higher**

annual medical costs for  
adults with obesity<sup>33</sup>

**Over 40%**  
of adults in the US  
are living with  
obesity<sup>33</sup>

**60  
comorbidities**  
associated with obesity<sup>46</sup>

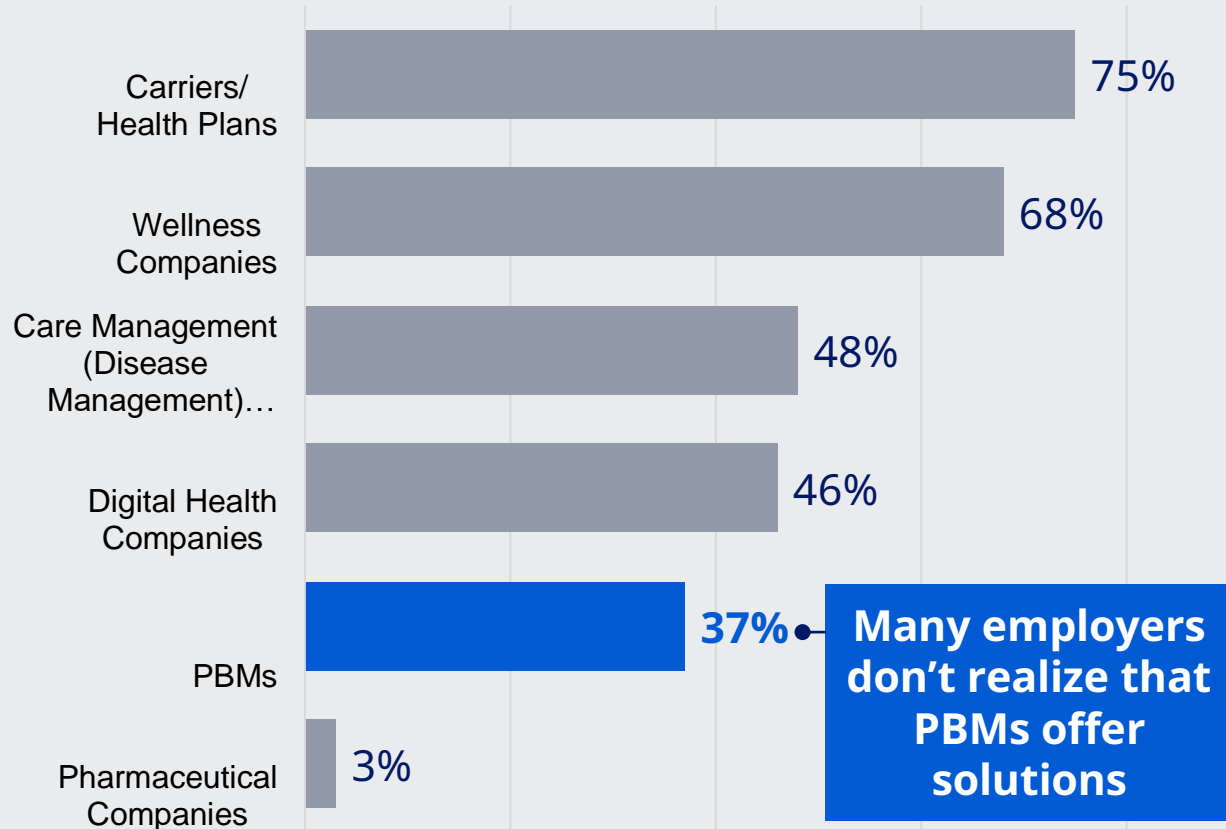
**13 types**  
of cancer are shown  
to be related to  
obesity<sup>47</sup>



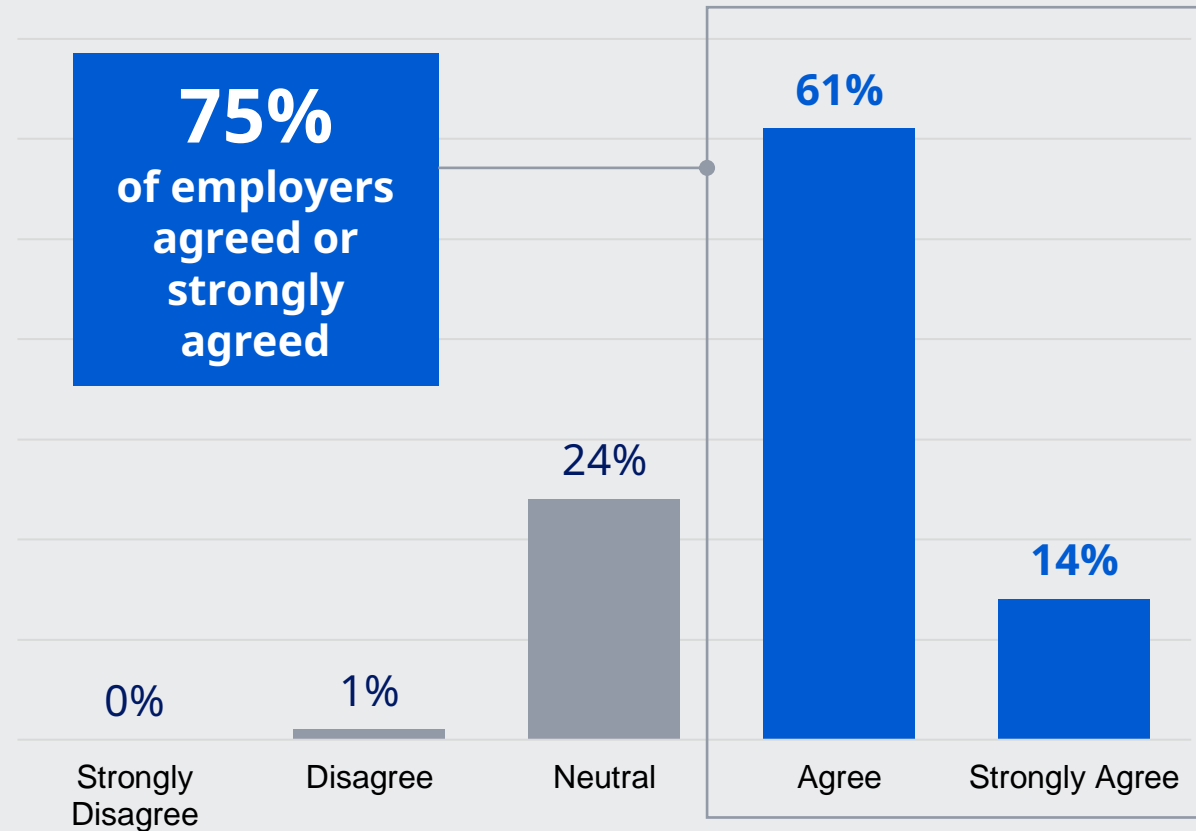
**What should we  
do to manage  
this disease?**

# Addressing obesity

## Roles of various organizations in obesity, according to employers<sup>34</sup>



## Employers interested in covering an obesity solution, if supported by evidence<sup>34</sup>



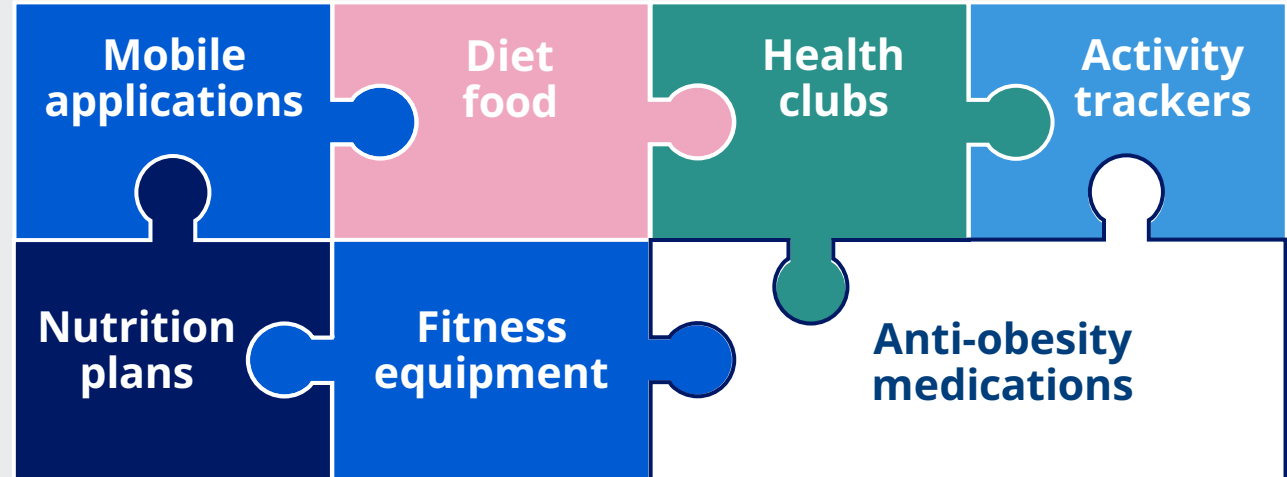
# Wellness programs are missing a key piece

**67%**  
of large employers offer wellness programs that incorporate employee benefits related to diet and exercise<sup>35</sup>

The global weight management market is significant and growing<sup>36</sup>

**~\$269**  
billion<sup>36</sup>  
projected by 2024

**~\$190**  
billion<sup>36</sup>  
estimated in 2018

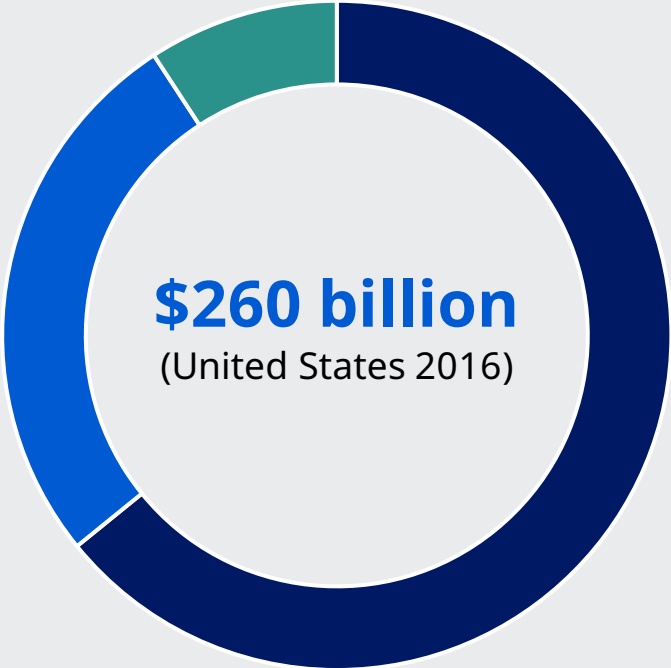


**Covering anti-obesity medications can help employers improve employee health and reduce downstream costs**

Advocating for AOM coverage with employers: the Novo Nordisk approach

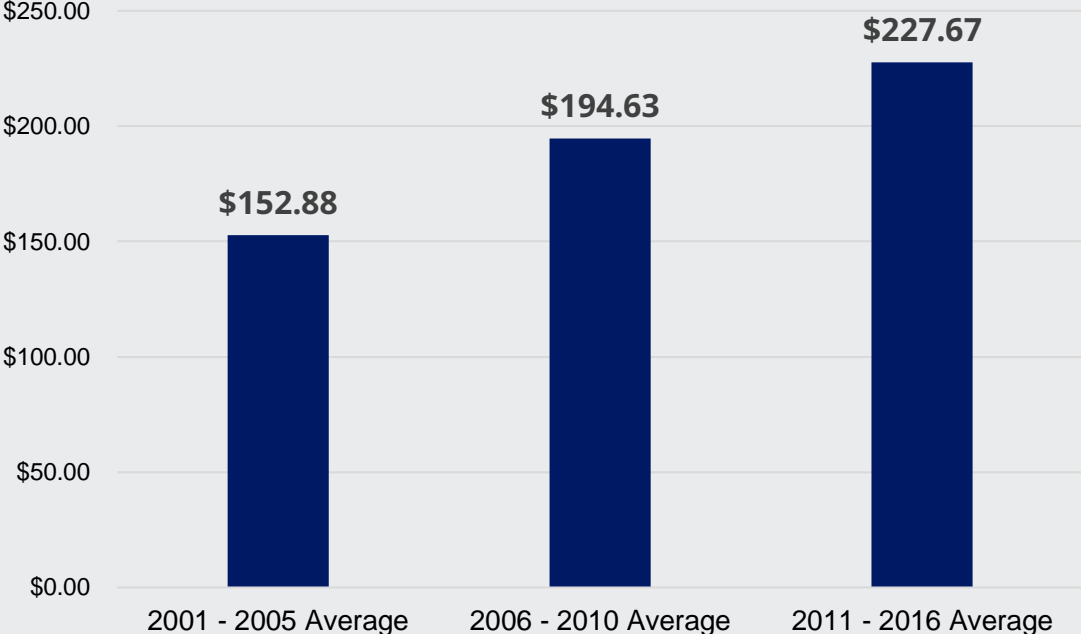
# Obesity-related medical expenditure

Obesity-related medical expenditure<sup>33</sup>



■ Private Payers ■ Public Payers ■ Out of Pocket

Average annual obesity-related medical expenditure (billions)<sup>33</sup>

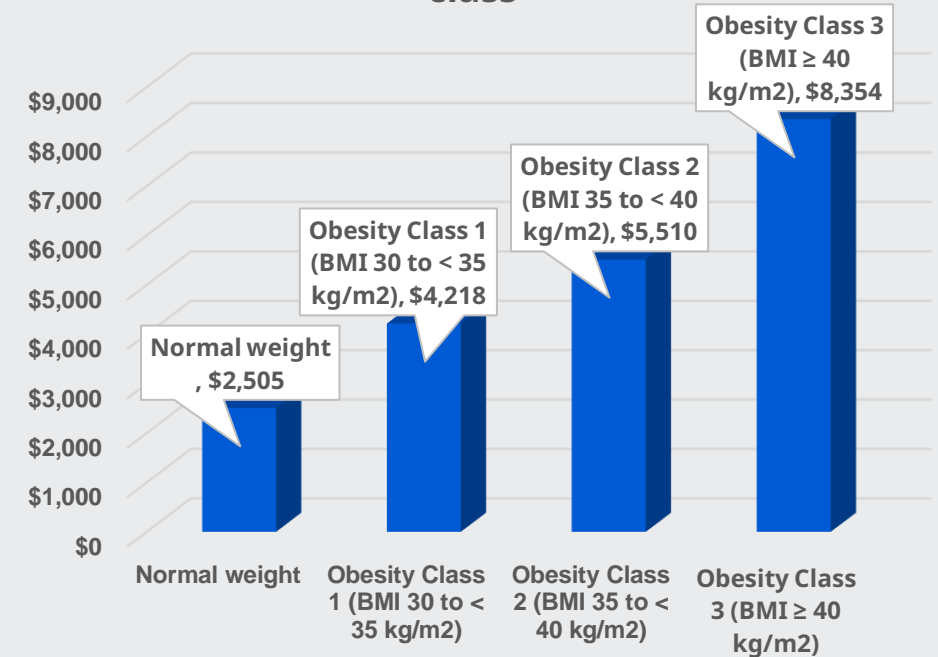


# Medical care costs

Adults with obesity in the United States experience **double the amount of medical care expense** as compared to adults of normal weight<sup>33</sup>

This varies significantly by obesity class with **class 1 being 68.4% more costly and class 3 being 233.6% more costly**<sup>33</sup>

Annual medical care costs by obesity class<sup>33</sup>



# A call to action for payers<sup>37</sup>



**Recognize the complexity of obesity and the implications this disease has on physical and emotional health, comorbidities and health-related quality of life**



**Improve the understanding of the cost-effectiveness of obesity treatment options**



**Implement medical and pharmacy coverage and reimbursement models that increase patient access to a range of treatment options**



**Use person-first language and respectful communication**

# Typical coverage criteria for **anti-obesity medications**

Individual currently has:

**Body mass index  
(BMI)  
≥  
30 kg/m<sup>2</sup>**

**OR**

**BMI ≥ 27 kg/m<sup>2</sup> and  
at least one weight-  
related comorbidity**

(Hypertension, type 2 diabetes, dyslipidemia,  
obstructive sleep apnea or cardiovascular  
disease)



# Coverage considerations

**Place agents on  
formulary  
as preferred  
brands**

**Encourage  
plan design  
coverage**

**Require  
prior  
authorization**

**Consider weight  
loss requirements  
for coverage  
continuation**

# Q&A

# Closing remarks

# How did you find the session?

Please go to [www.menti.com](https://www.menti.com) and use the code 11 87 62 6 to complete a short, three question survey.

Your feedback would be greatly appreciated.



# References



1. WHO. Global Health Observatory (GHO) data. 2017. Prevalence of obesity among adults. Available from [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-obesity-among-adults-bmi==30-\(age-standardized-estimate\)-\(-\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-obesity-among-adults-bmi==30-(age-standardized-estimate)-(-)). Accessed March 2021
2. WHO, Obesity & Overweight. 2020. Available from <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>. Accessed March 2021
3. World Obesity Federation. 2023. World Obesity Atlas 2023. Available from <https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2023>. Accessed 19 April 2023
4. World Obesity Federation. Ranking (% obesity by country). Available from <https://data.worldobesity.org/rankings/>. Accessed 19 April 2023
5. World Obesity Federation. United States. Available from <https://data.worldobesity.org/country/united-states-227/>. Accessed 19 April 2023
6. United States Census Bureau. 2021. U.S. Adult Population Grew Faster Than Nation's Total Population From 2010 to 2020. Available from <https://www.census.gov/library/stories/2021/08/united-states-adult-population-grew-faster-than-nations-total-population-from-2010-to-2020.html#:~:text=In%202020%2C%20the%20U.S.%20Census,from%20234.6%20million%20in%202010>. Accessed 19 April 2023
7. Ramasamy A et al. JOEM 2019;61:877-886; 2. American Diabetes Association. Diabetes care 2018;41:917-928; 3. Nwankwo C et al. J Natl Compr Canc Ne 2019;3:5:HSR19-102.
8. Sharma AM. Obes Rev 2010;11:808-809
9. Guh DP et al. BMC Public Health 2009;9:88
10. Luppino FS et al. Arch Gen Psychiatry 2010;67:220-229
11. Simon GE et al. Arch Gen Psychiatry 2006;63:824-830
12. Church TS et al. Gastroenterology 2006;130:2023-2030
13. Li C et al. Prev Med 2010;51:18-23
14. Hosler AS. Prev Chronic Dis 2009;6:A48
15. Fountain D et al. Br J Diabetes 2019;19:8-13
16. Rai, Rai and Bedi. Saudi J Kidney Dis Transpl 2019 30(6), p.1431
17. Kivimäki et al. Lancet Diabetes Endocrinol 2022
18. Dobbins, Decorby and Choi. ISRN Prev Med 2013 pp.1-16
19. Horn D et al. Postgrad Med. 2022;134:359-75
20. Garvey WT et al. Endocr Pract. 2016;22(Suppl. 3):1-203
21. Look AHEAD Research Group, Gregg EW et al. Lancet Diabetes Endocrinol. 2016;4:913-21
22. Lean ME et al. Lancet. 2018;391:541-51
23. Sundström J et al. Circulation. 2017;135:1577-85
24. Benraoune F & Litwin SE. Curr Opin Cardiol. 2011;26:555-61
25. Meerasa A & Dash S. Diabetes Care 2022;45:28-30
26. Teasdale, N et al. Int J Obes 2007;31:153-160
27. Ryan DH and Yockey SR. Curr Obes Rep 2017;6:187-94.
28. Kim et al. 2021 European Heart Journal, 42(34), 3388-3403
29. le Roux et al. European Journal of Preventive Cardiology. 2020; 1235-1241. doi:10.1177/2047487320925639
30. Leite et al. 2022 Diabetes Obes Metab; 24:1676-1680
31. Kim N, Estrada J, Chow I, Ruseva A, Ramasamy A, Burudpakdee C, Blanchette CM. The Relative Value of Anti-Obesity Medications Compared to Similar Therapies. Clinicoecon Outcomes Res. 2023;15:51-62 <https://doi.org/10.2147/CEOR.S392276>
32. "Adult Obesity Facts." Cdc.Gov, 17 May 2022, [www.cdc.gov/obesity/data/adult.html](http://www.cdc.gov/obesity/data/adult.html). Accessed 11 Apr. 2023.
33. Cawley, John PhD, et al. "Direct Medical Costs of Obesity in the United States and the Most Populous States." Journal of Managed Care & Specialty Pharmacy, vol. 27, no. 3, 2021, pp. 354-356, <https://doi.org/https://www.jmcp.org/doi/10.18553/jmcp.2021.20410>. Accessed 9 Apr. 2023.
34. Employer Research Findings: Workforce Obesity Awareness and Benefits Coverage in a COVID-19 Environment. Arthur J. Gallagher and Co. Summer 2020.
35. The Kaiser Family Foundation; Health Research & Educational Trust. Employer health benefits 2017 annual survey. <http://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2017>. Accessed December 21, 2020.
36. Weight management market: global industry trends, share, size, growth, opportunity and forecast 2019-2024. Research and Markets website. [https://www.researchandmarkets.com/reports/4828742/weightmanagement-market-global-industry-trends?utm\\_source=BW&utm\\_medium=PressRele%E2%80%A6](https://www.researchandmarkets.com/reports/4828742/weightmanagement-market-global-industry-trends?utm_source=BW&utm_medium=PressRele%E2%80%A6). Accessed December 21, 2020.
37. Fastenau, John, et al. "A Call to Action to Inform Patient-Centered Approaches to Obesity Management: Development of a Disease-Illness Model." Clinical Obesity, vol. 9, no. 3, 2019, <https://doi.org/10.1111/cob.12309>. Accessed 12 Apr. 2023.
38. Bays H. Adiposopathy, "sick fat," Ockham's razor, and resolution of the obesity paradox. Curr Atheroscler Rep. 2014 May;16(5):409. doi: 10.1007/s11883-014-0409-1. PMID: 24659222; PMCID: PMC3972445.
39. Bays HE. "Sick fat," metabolic disease, and atherosclerosis. Am J Med. 2009 Jan;122(1 Suppl):S26-37. doi: 10.1016/j.amjmed.2008.10.015. PMID: 19110085.
40. Su X, Chang D. Role of adiposopathy and physical activity in cardio-metabolic disorder diseases. Clin Chim Acta. 2020 Dec;511:243-247. doi: 10.1016/j.cca.2020.10.028. Epub 2020 Oct 22. PMID: 33148528.
41. Su W, Huang J, Chen F, Iacobucci W, Mocarski M, Dall TM, Perreault L. Modeling the clinical and economic implications of obesity using microsimulation. J Med Econ. 2015;18(11):886-97. doi: 10.3111/13696998.2015.1058805. Epub 2015 Aug 13. PMID: 26057567.
42. Dietz WH, Gallagher C. A Proposed Standard of Obesity Care for All Providers and Payers. Obesity (Silver Spring). 2019 Jul;27(7):1059-1062. doi: 10.1002/oby.22507. PMID: 31231954
43. Burguera B, Fitch A, Owens GM, Patel D, San Martin VT. Management of obesity: considerations in managed care medicine. J Man Care Med. 2018;3:23.
44. Kahan S, Manson JE. Obesity Treatment, Beyond the Guidelines: Practical Suggestions for Clinical Practice. JAMA. 2019 Apr 9;321(14):1349-1350. doi: 10.1001/jama.2019.2352. PMID: 30896727.
45. Eisenberg D, Shikora SA, Aarts E, Aminian A, Angrisani L, Cohen RV, De Luca M, Faria SL, Goodpaster KPS, Haddad A, Himpens JM, Kow L, Kurian M, Loi K, Mahawar K, Nimeri A, O'Kane M, Papasavas PK, Ponce J, Pratt JSA, Rogers AM, Steele KE, Suter M, Kothari SN. 2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery. Surg Obes Relat Dis. 2022 Dec;18(12):1345-1356. doi: 10.1016/j.soard.2022.08.013. Epub 2022 Oct 21. PMID: 36280539.
46. Bays HE, McCarthy W, Christensen S, et al. Obesity algorithm 2020. Presented by the Obesity Medicine Association. Accessed November 21, 2022. <https://obesitymedicine.org/obesity-algorithm>
47. Cancers associated with overweight and obesity make up 40 percent of cancers diagnosed in the United States. Centers for Disease Control and Prevention. Accessed November 22, 2022. <https://www.cdc.gov/media/releases/2017/p1003-vs-cancer-obesity.html>