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## Health Disparity Implications of Obesity by Race and Ethnicity: Pathway to Improving Health through Obesity Treatment

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## Executive Summary

The obesity epidemic in the United States is a pressing public health crisis, disproportionately affecting specific racial and ethnic populations. Over 100 million adults, representing 41.1% of the U.S. population, are classified as having obesity, with prevalence rates significantly higher among non-Hispanic Black (51.1%), Hispanic (43.6%), and Native Hawaiian and Other Pacific Islander (49.0%) adults. Obesity-related conditions, such as type 2 diabetes, cardiovascular disease, and certain cancers, exacerbate health disparities and impose substantial economic burdens.

Addressing disparities in obesity outcomes and treatment access can improve overall health, reduce disparities, and generate positive economic impacts. Health equity is defined as achieving the highest levels of health for all populations. Achieving health equity requires addressing barriers to healthcare ensuring all individuals have the opportunity to attain optimal health. This report explores the intersection of obesity, racial and ethnic disparities, and the broader economic and societal benefits of effective obesity treatment.

### Economic and Health Impact of Obesity

Study findings estimate that the total cost of obesity in the United States in 2024 is nearly \$933 billion, equal to 3.2% of the nation's gross domestic product. These costs include:

- **Medical expenditures:** Adults with obesity have average annual healthcare costs \$2,280 higher than those at a healthy weight.
- **Labor force participation:** Obesity is associated with reduced employment rates, particularly among women of Hispanic (6.0% lower) and White (3.7% lower) backgrounds.
- **Workplace productivity:** Individuals with obesity experience higher absenteeism (up to 1.9 additional missed days per year) and lower productivity due to health-related limitations, costing employers billions annually.
- **Disability and mortality:** Obesity increases reliance on Social Security Disability Insurance (SSDI), and causes 467,600 premature deaths annually with \$252.7 billion in lost societal value.

### Differences in Obesity-related Health and Economic Outcomes

Obesity disproportionately affects specific racial and ethnic populations, both in prevalence and related health outcomes. For example:

- **Type 2 diabetes rates:** Highest among Black (15.6%), American Indian or Alaska Native (15.0%), and Hispanic (14.3%) adults.
- **Hypertension prevalence:** Highest among Black adults (46.9%).

- **Mortality:** Between 2018 and 2023, obesity was a contributing factor in nearly 4.5 million adult deaths in the United States, accounting for approximately 2.8 million deaths attributable to obesity—equivalent to 15% of all deaths.

### Key Findings:

- **\$933 billion economic cost of obesity in 2024, equal to 3.2% of U.S. GDP**
- **41.1% adult obesity prevalence; highest among non-Hispanic Black (51.1%), Hispanic (43.6%), and Native Hawaiian/Pacific Islander (49.0%) adults**
- **467,600 deaths annually attributed to obesity**
- **15% of adult deaths attributed to obesity; highest among Native Hawaiian/Pacific Islander (26%), American Indian/Alaska Native (22%), Hispanic (19%), Black (18%), and White (14%) adults**
- **\$8,570 average obesity-related cost per adult with obesity; varies by race/ethnicity due to differences in healthcare access, workforce participation, and disease burden**
- **\$940 average obesity-related cost per US adult; highest among Black (\$1,600), multiracial (\$1,570), and American Indian/Alaska Native (\$1,210) adults; White (\$930), Hispanic (\$680), and Asian (\$270) adults have lower costs**
- **\$675.3 billion potential annual economic benefits from weight loss achievable with modern obesity medications, equal to 72% of obesity's total annual cost**

- On average, 467,600 deaths annually are attributed to obesity.
- Among adults with obesity, 61% of premature deaths among White adults and 74% among Native Hawaiian or Pacific Islander adults are linked to obesity.
- When considering all deaths, regardless of obesity status, obesity accounts for 14% of deaths among White adults, 18% among Black adults, 19% among Hispanic adults, 22% among American Indian or Alaska Native adults, and 26% among Native Hawaiian or Pacific Islander adults.
- **Economic outcomes:**
  - **Population level:** The magnitude of estimated economic burden of untreated obesity, totaling nearly \$933 billion nationally, varies across racial and ethnic groups driven by differences in population size, obesity prevalence, healthcare access, insurance coverage, and workforce participation. White adults account for \$588.1 billion, followed by Hispanic (\$159.6 billion), Black (\$137.2 billion), Asian (\$24.4 billion), American Indian or Alaska Native (\$7.6 billion), and Native Hawaiian and Other Pacific Islander adults (\$1.4 billion).
  - **Per adult with untreated obesity:** Obesity-related costs average \$8,570, but estimates vary by race and ethnicity due to several factors including differences in healthcare access, workforce participation, and disease burden (Exhibit ES-1). Black adults experience higher medical expenses and mortality impacts. Hispanic adults experience higher losses from reduced workforce participation and presenteeism. Asian adults incur costs primarily from medical expenditures and productivity losses. American Indian or Alaska Native adults bear costs largely tied to presenteeism and mortality. Native Hawaiian and Other Pacific Islander adults have the smallest total impact but face higher per-person costs due to medical care needs and disability rates.
  - **Per adult:** Obesity-related costs per adult, calculated across the entire U.S. adult population regardless of weight status, average \$940 nationally (Exhibit ES-2). Non-Hispanic Black adults bear the highest per-capita burden at \$1,600, followed by adults of multiple races (\$1,570) and American Indian or Alaska Native adults (\$1,210). White adults average \$930, Hispanic adults \$680, and Asian adults the lowest at \$270.

## The Value of Obesity Treatment

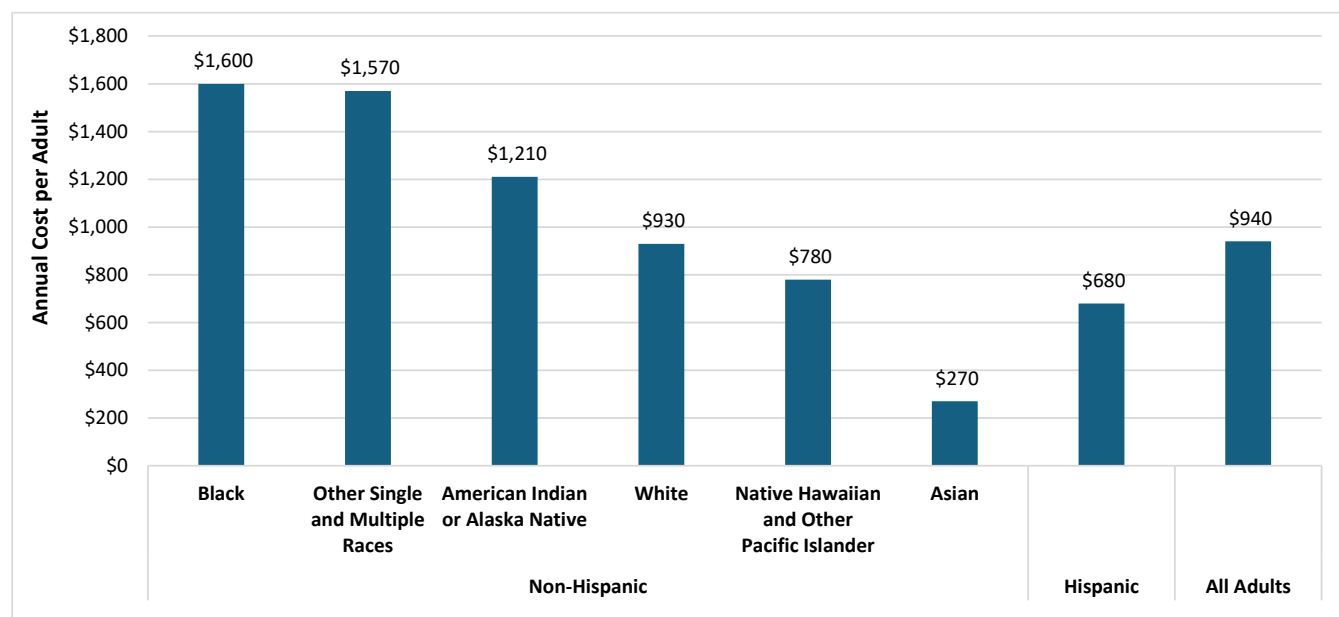
Expanding access to the full spectrum of evidence-based obesity treatments—including lifestyle counseling, FDA-approved medications, and surgical interventions—can improve health outcomes across all populations. Broadening access not only enhances overall population health but also helps reduce health and economic disparities by increasing workforce participation, boosting productivity, and lowering long-term healthcare costs.

- Simulation results show that in adults with obesity, weight loss from obesity treatment with modern medications may reduce the 10-year incidence of type 2 diabetes by 73% in Black adults, 69% in White adults, and 67% in Hispanic adults, with impact varying by insurance type. Treatment also may lower coronary heart disease (24–38%), heart attacks (28–39%), strokes (30–42%), and hypertension (41–49%) compared to no treatment. While not preventing all cases, treatment delays disease progression, providing substantial clinical and economic benefits. Some individuals with obesity may experience meaningful health and economic benefits from weight loss achieved through lifestyle counseling and first-generation obesity medications—despite their lower efficacy compared to modern treatments—and from surgical interventions.
- The economic impact of obesity treatment varies by intervention and racial/ethnic group, with achieving weight loss equivalent to what is achievable with modern OM treatment potentially reducing annual obesity-related economic costs by 72% (\$675.3 billion annually). The magnitude of components of savings (e.g., reduced medical costs, increased labor force participation and productivity) differ by race/ethnicity and by insurance type.

**ES Exhibit 1. Average Economic Impact of Untreated Obesity per Adult with Obesity by Race & Ethnicity**

| Race & Ethnicity |                                                         | Medical Costs <sup>a</sup> | Labor Force Participation <sup>a</sup> | Absenteeism <sup>b</sup> | Presenteeism <sup>b</sup> | Disability (SSDI) <sup>a</sup> | Mortality <sup>a</sup> | Total <sup>c</sup> |
|------------------|---------------------------------------------------------|----------------------------|----------------------------------------|--------------------------|---------------------------|--------------------------------|------------------------|--------------------|
| Non-Hispanic     | American Indian or Alaska Native                        | \$2,640                    | \$0                                    | \$1,400                  | \$5,080                   | \$500                          | \$1,910                | \$8,850            |
|                  | Asian                                                   | \$950                      | \$540                                  | \$540                    | \$3,190                   | \$270                          | \$1,020                | \$5,240            |
|                  | Black                                                   | \$3,090                    | \$240                                  | \$680                    | \$810                     | \$700                          | \$3,220                | \$8,230            |
|                  | Other Single and Multiple Races                         | \$3,520                    | \$1,120                                | \$520                    | \$710                     | \$1,150                        | \$400                  | \$7,040            |
|                  | Native Hawaiian and Other Pacific Islander <sup>d</sup> | \$1,570                    | \$980                                  | \$510                    | \$630                     | \$1,100                        | \$1,550                | \$5,980            |
|                  | White                                                   | \$2,310                    | \$1,400                                | \$770                    | \$2,510                   | \$850                          | \$2,580                | \$9,130            |
|                  | Hispanic                                                | \$1,530                    | \$1,860                                | \$630                    | \$3,070                   | \$560                          | \$1,240                | \$7,800            |
|                  | All Adults                                              | \$2,280                    | \$1,260                                | \$710                    | \$2,360                   | \$750                          | \$2,310                | \$8,570            |

Notes: <sup>a</sup> Cost per person with obesity. <sup>b</sup> Cost per employed person with obesity. <sup>c</sup> Cost per person with obesity, which differs from the sum of the columns to the left because not all adults with obesity are employed and therefore incur absenteeism and presenteeism costs. Estimates for some economic components may be less reliable due to small sample sizes for certain race/ethnicity groups, particularly American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations. <sup>d</sup> Estimates for labor force participation, absenteeism, presenteeism, and disability estimated from the NHIS use findings for the Other Single and Multiple Races population, as the Native Hawaiian and Other Pacific Islander designation is unavailable in NHIS and therefore this population is included in the Other Single and Multiple Races category.

**ES Exhibit 2. Average Economic Impact of Obesity per Adult by Race and Hispanic Ethnicity Regardless of Weight Status**


Note: Cost per adult regardless of body weight status.

### Recommendations for Advancing Health Equity in Obesity Care

Health equity ensures all individuals can achieve optimal health regardless of race, socioeconomic status, or location. Advancing equity in obesity care requires expanding healthcare access, addressing social determinants like education and food security, and promoting culturally competent care. Key strategies include improving data collection, eliminating structural healthcare barriers, and implementing public health initiatives that encourage healthy behaviors. National efforts such as the Affordable Care Act, Healthy People 2030, and the Health Resources and Services Administration 2025 Strategic

Plans emphasize community partnerships and policy integration. A comprehensive, collaborative approach engaging policymakers, employers, and healthcare systems is essential to reducing disparities in obesity treatment and outcomes.

The following recommendations highlight key actions for government leaders, employers, healthcare systems, and community organizations.

### Recommendations to Government Decision-Makers and Employers

1. **Enable comprehensive obesity insurance coverage and wellness programs for obesity care at parity with other chronic diseases:** In line with national recommendations, government decision makers and employers can ensure their health insurance plans (Medicaid, Medicare, and commercial plans) cover evidence-based obesity treatments, including intensive lifestyle and behavioral counseling<sup>1</sup>, nutrition support<sup>2</sup>, pharmacotherapy<sup>3</sup>, and metabolic/bariatric surgery<sup>4</sup>.
2. **Invest in community-based health initiatives:** Addressing the contributors to obesity requires improving access to safe, affordable spaces for physical activity, such as parks, recreational facilities, and walking paths in underserved areas. Expanding community-based nutrition programs, including farmers' markets, community gardens, and healthy food incentive programs, can increase access to nutritious foods. Additionally, implementing culturally tailored interventions, such as school-based nutrition and fitness education programs, can promote lifelong healthy habits and help close racial and ethnic health disparities.
3. **Increase research funding on obesity and health disparities:** Expanding research funding is essential to understanding the intersection of obesity, race, and ethnicity and developing evidence-based interventions that effectively address disparities. Increased investment should support large-scale, longitudinal studies to examine obesity-related health disparities over time, allowing researchers to track trends and assess the impact of interventions. Additionally, community-based research is critical for identifying effective, culturally tailored interventions that resonate with diverse populations. Strengthening public health data collection efforts will enable continuous monitoring of disparities, providing policymakers and healthcare professionals with the insights needed to develop targeted solutions that promote health equity in obesity care.

### Recommendation to Healthcare Systems and Providers

4. **Deliver culturally competent obesity treatment:** Ensure healthcare providers are trained to offer culturally sensitive care, recognizing and addressing social and cultural factors that affect attitudes toward obesity and treatment.

### Recommendations to Community Leadership, Grassroots Organizations, and Public Health Officials

5. **Develop tailored public health campaigns:** Design culturally and linguistically appropriate health campaigns that raise awareness about obesity risks and healthy lifestyle promotion. Campaigns should be tailored to align with community values to enhance engagement and participation in obesity prevention efforts.
6. **Community empowerment and engagement:** Support community-led initiatives such as health fairs, fitness programs, and nutrition workshops tailored to local needs. Foster partnerships between government, healthcare providers, and the private sector to develop comprehensive, community-based solutions. These partnerships should be strategically designed to address the community's immediate needs while also fostering long-term sustainability, ensuring that services are accessible, culturally responsive, and aligned with the lived experiences of the population.

By addressing disparities in obesity outcomes and access to treatment, policymakers, healthcare providers, and community leaders can mitigate the economic and societal burden of obesity while advancing health. This comprehensive approach will improve health outcomes, reduce disparities, and enhance economic productivity, creating a healthier society and robust economy.

## Background

The obesity epidemic in the United States is a stark reflection of the health disparities that persist across racial, ethnic, and socioeconomic lines. More than 100 million adults—representing 41.1% of the population—are classified as having obesity. While obesity affects individuals of all backgrounds, its prevalence and consequences are disproportionately severe in specific racial and ethnic communities.<sup>5,6</sup>

Specific racial and ethnic populations face the largest disparities, with 51.1% of non-Hispanic Black adults and 43.6% of Hispanic adults living with obesity—well above the national average. These groups also experience higher rates of obesity-related conditions, including type 2 diabetes, coronary heart disease, and certain cancers.<sup>7–10</sup> Such conditions contribute to increased healthcare costs, reduced quality of life, and negative impacts on workforce participation, productivity, and life expectancy.<sup>11–15</sup>

**Estimates of obesity prevalence across various racial and ethnic groups indicate that Asian adults exhibit a rate of 27.6%, White adults 39.5%, Hispanic adults 43.6%, American Indian or Alaska Native adults 45.1%, Native Hawaiian or Other Pacific Islander adults 49.0%, and Black adults 51.1%.**

This report examines the economic and health impact of obesity, and the value of obesity treatment for specific populations, including American Indian or Alaska Native, Asian, Black, Hispanic or Latino, and Native Hawaiian and Other Pacific Islander communities. Addressing obesity within the framework of health equity requires expanding public health policies and targeted interventions. By exploring the intersection of obesity, racial and ethnic inequities, and the social determinants of health, this report provides a foundation for evidence-based prevention and treatment strategies. Applying a health equity lens highlights the need for dismantling these barriers to improve outcomes for all communities and thereby reduce the societal and economic burdens of obesity.

## Defining Health Equity

Health equity is a multifaceted concept with varying definitions across the public health field. At its core, health equity often emphasizes three key themes: opportunity, the absence of disparities, and achieving the highest levels of health for all populations.<sup>16</sup> For example, the World Health Organization (WHO) defines health equity as a state in which all individuals and populations can attain their full potential for health, encompassing physical, mental, and social well-being.<sup>17</sup>

Achieving health equity requires addressing the systemic structures that shape healthcare accessibility. Many of these structures, rooted in political, legal, and economic systems, perpetuate discrimination and racial bias. These inequities stem from structural and social determinants of health, which influence access to resources, care, and opportunities essential for maintaining health. Racially based policies and systems have historically marginalized populations, limiting their access to institutions and resources. Disparities in access and quality of obesity care can significantly impact health outcomes for these populations, potentially exacerbating health inequities.<sup>18</sup> Generational inequities continue to widen the gap in social and health disparities, further underscoring the urgent need for systemic change.<sup>19</sup>

## Structural Contributors to Health Disparities

Health disparities, including those related to obesity, stem from a complex interplay of individual, structural, and systemic factors.<sup>20</sup> These conditions from societal structures condition inequities focused on the social, economic, physical, and media contexts of everyday life.<sup>21</sup> Addressing these disparities requires an understanding of the key contributors:

- **Social determinants of health (SDOH):** These non-medical factors embedded in societal systems influence health outcomes.<sup>22</sup> The Healthy People 2030 initiative identifies five key domains that shape daily life and health experiences:

healthcare access and quality, education access and quality, social and community context, economic stability, and neighborhood and built environment.<sup>23</sup> In the context of obesity, limited access to healthy foods, lack of safe recreational spaces, and inadequate preventive care contribute to disparities.<sup>6,18,22</sup> Food deserts, food insecurity, and limited nutrition education further widen health gaps. Addressing these factors through community-based interventions and policy reform is essential to reducing obesity-related disparities.

- **Racism and discrimination:** Racism and discrimination play a critical role in health disparities, affecting education, income, employment, housing, and healthcare access.<sup>24</sup> Implicit biases among healthcare providers can result in underdiagnosis, delayed treatment, and inequitable resource allocation, worsening health outcomes for marginalized populations. Cultural discrimination also shapes how healthcare is delivered. Stereotypes surrounding obesity can result in stigma, inadequate care, and lower rates of provider engagement. Combatting these issues requires culturally competent healthcare that respects and understands the diverse needs of racial and ethnic communities. These cultural determinants of health have led many to believe that revisiting their traditional values and cultural practices could be a solution to addressing health inequities.<sup>25</sup>
- **Access to healthcare:** Healthcare access is a critical determinant of health outcomes. Barriers such as inadequate insurance coverage, geographic location, and provider shortages disproportionately affect underserved communities. Individuals with limited or no insurance often forgo preventive care, leading to more severe and costly health conditions. For example, Black and Latino individuals experience higher rates of uninsurance and cost-related unmet medical needs compared to White individuals, limiting timely care and exacerbating obesity-related diseases. Expanding Medicaid coverage, employer-sponsored wellness programs, and public health initiatives can help close these access gaps.<sup>26</sup>
- **Policy and political influence:** Policy and political frameworks significantly shape healthcare accessibility, affordability, and public health investments. Historical and current policies—such as redlining, inequitable healthcare funding, and discriminatory practices—have entrenched disparities in healthcare access and quality.<sup>27,28</sup> Political decisions on healthcare coverage, funding allocation, and economic stability programs directly impact the ability of marginalized populations to receive adequate care.

Reducing health disparities requires a comprehensive approach that considers economic stability, cultural influences, and systemic barriers. Addressing the contributors of inequities—rather than just their symptoms—will allow for more sustainable, long-term improvements in obesity care and health equity. By integrating these insights into obesity prevention and treatment strategies, healthcare providers, policymakers, and community leaders can develop interventions that improve outcomes while promoting fair and equitable access to care.

## Disparities in Obesity Prevalence and Outcomes

Obesity has emerged as a critical public health challenge in the United States. However, the impact of obesity is not uniform across the population, with prevalence and associated outcomes varying widely by race, ethnicity, gender, and socioeconomic status. Understanding these disparities is essential to designing targeted interventions that address both the contributors to obesity and the inequities that exacerbate its consequences.

This chapter examines the prevalence of obesity and its related conditions, including type 2 diabetes and cardiovascular disease, as well as the healthcare costs, labor force outcomes, disability costs, and mortality rates associated with obesity. By analyzing these issues through a racial and ethnic lens, we aim to illuminate the inequities that contribute to obesity's disproportionate burden on certain populations and to identify opportunities for more equitable public health strategies. Through detailed data and analysis, this chapter highlights the urgent need for culturally competent interventions,

improved access to care, and systemic changes to address obesity-related health disparities and their broader societal implications.

## Prevalence of Obesity and Obesity Related Conditions

In 2024, an estimated 109.4 million U.S. adults were classified as having obesity, representing 41.1% of the adult population (Exhibit 1). This includes nearly 64.4 million White adults, 20.5 million Hispanic adults, 16.7 million Black adults, 4.7 million Asian adults, 860,000 American Indian or Alaska Native (AI/AN) adults, 240,000 Native Hawaiian and Other Pacific Islander adults, and 2.1 million adults of other single and multiple races. Prevalence rates vary widely by race and ethnicity:

- **Non-Hispanic Black** adults have the highest prevalence of obesity (51.1%), with Black women experiencing the highest rate among all demographic groups (54.9%).
- **Native Hawaiian and Other Pacific Islander** adults have an obesity prevalence of 49.0%.
- **American Indian or Alaska Native** adults have an obesity prevalence of 45.1%.
- **Hispanic** adults have an obesity prevalence of 43.6%.
- **Non-Hispanic White** adults have an obesity prevalence of 39.5%.
- **Asian** adults have the lowest obesity rate (27.6%).

Obesity is a major risk factor for over 200 chronic conditions, including type 2 diabetes and heart disease, which rank among the most prevalent and costly conditions associated with excess weight.<sup>7</sup> These obesity related conditions disproportionately impact certain racial and ethnic groups in the United States, emphasizing the need to understand these disparities to guide targeted public health interventions.

- **Diabetes:** Analysis of the 2021-2023 National Health Interview Survey (NHIS) finds that Black adults have the highest prevalence of diagnosed diabetes (15.6%), followed by American Indian or Alaska Native adults (15.0%) and Hispanic adults (14.3%) (Exhibit 2). In some years, NHIS estimates of diagnosed diabetes are highest among the AI/AN population, but small sample sizes for this population contributes to substantial fluctuations in estimated prevalence.
- **Cardiovascular Disease:** Coronary heart disease is most prevalent among White adults (6.7%), while hypertension rates are highest among Black adults (46.9%) (Exhibit 3).
- **Mortality Impact:** Heart disease remains the leading cause of death across most racial and ethnic groups, accounting for 17.4% of all U.S. adult deaths.<sup>29</sup> Among Black adults, it contributes to an even higher proportion (22.6%).

**Exhibit 1. Obesity Prevalence among Adults by Race & Ethnicity**

|                  |                                                         | Obesity Prevalence |       |       | Adults with Obesity <sup>d</sup> |                      |             |
|------------------|---------------------------------------------------------|--------------------|-------|-------|----------------------------------|----------------------|-------------|
| Race & Ethnicity |                                                         | Men                | Women | Total | Men                              | Women                | Total       |
| Non-Hispanic     | American Indian or Alaska Native <sup>a</sup>           | NA                 | NA    | 45.1% | 420,000 <sup>e</sup>             | 440,000 <sup>e</sup> | 860,000     |
|                  | Asian <sup>b</sup>                                      | 34.3%              | 21.4% | 27.6% | 2,740,000                        | 1,910,000            | 4,650,000   |
|                  | Black <sup>b</sup>                                      | 46.3%              | 54.9% | 51.1% | 7,160,000                        | 9,520,000            | 16,680,000  |
|                  | Other Single and Multiple Races <sup>b</sup>            | 40.5%              | 46.8% | 43.5% | 930,000                          | 1,150,000            | 2,080,000   |
|                  | Native Hawaiian and Other Pacific Islander <sup>c</sup> | NA                 | NA    | 49.0% | 120,000 <sup>e</sup>             | 120,000 <sup>e</sup> | 240,000     |
|                  | White <sup>b</sup>                                      | 38.5%              | 40.4% | 39.5% | 30,930,000                       | 33,480,000           | 64,410,000  |
|                  | Hispanic <sup>b</sup>                                   | 43.6%              | 43.6% | 43.6% | 10,300,000                       | 10,150,000           | 20,450,000  |
|                  | US Total <sup>b</sup>                                   | 40.0%              | 41.7% | 41.1% | 52,600,000                       | 56,770,000           | 109,370,000 |

Note: <sup>a</sup> American Indian or Alaska Native designation is unavailable in the National Health and Nutrition Examination Survey, so obesity prevalence is based on the 2023 National Health Interview Survey, which possibly understates obesity prevalence because it is based on self-reported height and weight.<sup>30</sup> <sup>b</sup> Estimates based on a sample of non-institutionalized civilian adults aged 20 and over from 2017-2023 NHANES; based on measured height and weight.<sup>31</sup> <sup>c</sup> Native Hawaiian and Other Pacific Islander designation is unavailable in NHANES, so obesity prevalence comes from Bacong et al (2024) and is based on electronic health record data from two large health systems in Hawaii and California.<sup>32</sup> <sup>d</sup> Adults with obesity is estimated based on US Census Bureau estimates of the number of adults as of July 2024, and the race/ethnicity distribution as of 2023.<sup>33</sup> <sup>e</sup> Estimated based on overall obesity prevalence number.

**Exhibit 2. Prevalence of Diagnosed Diabetes among Adults by Race & Ethnicity**

| Race & Ethnicity |                                            | Men   | Women | Total |
|------------------|--------------------------------------------|-------|-------|-------|
| Non-Hispanic     | American Indian or Alaska Native           | 10.6% | 17.7% | 15.0% |
|                  | Asian                                      | 9.7%  | 17.1% | 13.4% |
|                  | Black                                      | 15.3% | 15.9% | 15.6% |
|                  | Other Single and Multiple Races            | 11.2% | 11.6% | 11.4% |
|                  | Native Hawaiian and Other Pacific Islander | NA    | NA    | NA    |
|                  | White                                      | 14.8% | 13.6% | 14.2% |
|                  | Hispanic                                   | 14.0% | 14.5% | 14.3% |
|                  | US Total                                   | 14.4% | 14.3% | 14.3% |

Sources: Analysis of the 2021-2023 National Health Interview Survey of adults who have been told by a health professional that they had diabetes.

**Exhibit 3. Heart Disease Prevalence and Effects by Race & Ethnicity**

| Race & Ethnicity |                                            | Heart Disease Prevalence <sup>a</sup> | Hypertension Prevalence <sup>b</sup> | % Deaths with Heart Disease as Leading Cause <sup>c</sup> |
|------------------|--------------------------------------------|---------------------------------------|--------------------------------------|-----------------------------------------------------------|
| Non-Hispanic     | American Indian or Alaska Native           | 3.4%                                  | 35.5%                                | 15.5%                                                     |
|                  | Asian                                      | 3.8%                                  | 31.8%                                | 18.6%                                                     |
|                  | Black                                      | 4.3%                                  | 46.9%                                | 22.6%                                                     |
|                  | Other Single and Multiple Races            | 4.3%                                  | 36.8%                                | NA                                                        |
|                  | Native Hawaiian and Other Pacific Islander | NA                                    | NA                                   | 18.3%                                                     |
|                  | White                                      | 6.7%                                  | 44.1%                                | 18.0%                                                     |
|                  | Hispanic                                   | 3.1%                                  | 30.4%                                | 11.9%                                                     |
|                  | US Total                                   | 5.5%                                  | 41.3%                                | 17.4%                                                     |

Sources: <sup>a</sup> Analysis of the 2021-2023 National Health Interview Survey of adults who have been told by a health professional that they had coronary heart disease. <sup>b</sup> Analysis of the 2021-2023 National Health Interview Survey of adults who have been told by a health professional that they had hypertension. <sup>c</sup> CDC estimates based on the 2018-2023 WONDER Database.<sup>29</sup>

## Healthcare Costs

The financial burden of obesity is substantial, with increased medical expenditures affecting individuals, healthcare systems, employers, and insurers. Adults with obesity have higher annual healthcare costs due to a greater prevalence of chronic conditions such as type 2 diabetes, cardiovascular disease, and musculoskeletal disorders. These conditions lead to higher rates of hospitalization, medication use, physician visits, and other healthcare use significantly impacting healthcare spending.

To model the effects of obesity on annual medical expenditures, we utilized data from the Medical Expenditure Panel Survey (MEPS), a nationally representative survey that provides detailed information on healthcare utilization, expenditures, and insurance coverage for the U.S. civilian noninstitutionalized population. This analysis incorporated MEPS data (n = 80,895) from 2015, 2016, 2018, and 2020, focusing on adults aged 18 and older. All cost estimates were adjusted to 2024 dollars using the medical component of the Consumer Price Index (MCPI) to reflect changes in medical care costs over time.

Key variables included healthcare expenses, body mass index (BMI), race/ethnicity, and demographic factors such as age, sex, and marital status. To ensure a comprehensive analysis, three MEPS race/ethnicity variables were consolidated into seven mutually exclusive categories: Hispanic; and non-Hispanic American Indian or Alaska Native, Asian, Black, Multiple/Other Races, Native Hawaiian and Other Pacific Islander, and White.

We used a two-step regression method to estimate the impact of obesity on healthcare expenditures. First, a logit model was applied to determine the likelihood of incurring any healthcare costs. Second, a gamma regression model was used to predict the amount of healthcare expenditures among individuals with positive costs, stratified by BMI category and race/ethnicity. This method provides a robust estimation of obesity-related excess healthcare costs, accounting for the skewed distribution of medical expenditures while adjusting for key demographic factors such as age, sex, body weight (healthy weight [BMI 18.5–24.9], overweight [BMI 25–29.9], and obesity [BMI ≥30]).<sup>12,34,35</sup>

Adults with obesity incur average annual medical expenditures of \$9,270, which is \$2,280 higher than annual medical expenditures for their healthy weight peers (Exhibit 4). Results also vary by insurance type (Exhibit 5). These findings suggest that approximately 25% of medical costs for people with obesity are attributed to their obesity. The analysis highlights significant differences in the average annual medical costs attributed to obesity across racial and ethnic groups, both in dollar amounts and as a percentage of total healthcare expenditures.

- **Non-Hispanic Black** adults bear the highest annual costs attributed to obesity, averaging \$3,090, which represents 38% of their total medical expenditures. This underscores the disproportionate economic burden of obesity in this population and highlights systemic disparities.
- **Individuals of Multiple/Other Races** experience the second-highest obesity-attributed costs, averaging \$3,520 per year (34% of total expenditures). However, due to uncertainties in the racial composition of this category, further conclusions are limited.
- **American Indian or Alaska Native** adults face substantial obesity-related costs, averaging \$2,460 annually (36% of total healthcare spending). However, due to small sample sizes (Exhibit 6), the reliability and generalizability of these estimates may be limited.
- **Non-Hispanic White** adults incur an average of \$2,310 annually due to obesity, representing 22% of their total healthcare expenditures. While White adults have the highest overall healthcare expenditures, the proportion directly attributed to obesity is lower than in other groups, possibly due to greater healthcare access and preventive care.
- **Hispanic** adults incur an average obesity-attributed cost of \$1,530, representing 28% of their medical expenditures. Although this is lower in absolute dollars compared to other groups, the relative financial burden remains significant.

- **Asian** adults experience the lowest obesity-attributed costs, averaging \$950 per year, or 19% of their total healthcare expenditures.
- **Native Hawaiian and Other Pacific Islander** adults face \$1,570 in annual obesity-related healthcare costs (27% of total expenditures). However, due to wide confidence intervals (-\$1,080 to \$4,220) and small sample sizes (Exhibit 4), there is greater variability in these estimates, reducing certainty in the findings.

The 95% confidence intervals for obesity-attributed costs are relatively wide, indicating that while there are notable differences in these costs across racial and ethnic groups, not all differences are statistically significant.

To explore whether part of the racial and ethnic differences in obesity-attributed costs are due to differences in insurance mix, we estimated obesity-attributed costs by insurance type (Exhibit 5). Medicare primarily serves older adults, who often have more complex health conditions and higher healthcare utilization, leading to elevated costs. Medicaid, which provides coverage for low-income individuals and those with disabilities, tends to serve a sicker population with greater healthcare needs, resulting in even higher obesity-related expenditures. However, Medicaid prices are substantially lower than prices for privately-insured adults and Medicare beneficiaries. Uninsured individuals typically have less access to healthcare services, leading to lower reported costs despite potentially high unmet medical needs.

- **Medicare:** Across racial and ethnic groups, Medicare consistently reflects high obesity-attributed costs, with a national average of \$2,800. Black adults experience the highest costs under Medicare (\$3,200), while Asian adults have the lowest (\$2,140).
- **Medicaid:** Medicaid recipients incur the highest obesity-attributed costs, averaging \$3,370 nationally. Among this group, Black adults (\$4,030) and Native Hawaiian and Other Pacific Islander adults (\$4,430) face the highest expenditures.
- **Private Insurance:** Obesity-related costs under private insurance average \$2,160. Black adults (\$2,760) and individuals of Multiple Races (\$3,150) incur higher costs, while Asian adults experience the lowest (\$780).
- **Uninsured:** Uninsured individuals have the lowest reported obesity-attributed costs, averaging \$700 nationally. However, Black adults still have the highest costs in this group (\$970), while Asian adults have the lowest (\$320).

Small sample size for the Native Hawaiian and Other Pacific Islander and the American Indian or Alaska Native categories (Exhibit 6) reduce the reliability of findings for these populations.

**Exhibit 4. Average Annual Medical Expenditures by Race & Ethnicity**

| Race & Ethnicity |                                            | Healthy Weight | Overweight | Obesity  | Attributed to Obesity | 95% CI for Obesity Effect | % Attributed to Obesity |
|------------------|--------------------------------------------|----------------|------------|----------|-----------------------|---------------------------|-------------------------|
| Non-Hispanic     | American Indian or Alaska Native           | \$6,520        | \$7,140    | \$9,150  | \$2,640               | (\$870, \$4,410)          | 29%                     |
|                  | Asian                                      | \$4,190        | \$4,260    | \$5,140  | \$950                 | (\$340, \$1,570)          | 19%                     |
|                  | Black                                      | \$5,130        | \$6,050    | \$8,220  | \$3,090               | (\$2,670, \$3,510)        | 38%                     |
|                  | Other Single and Multiple Races            | \$6,760        | \$7,440    | \$10,280 | \$3,520               | (\$2,320, \$4,720)        | 34%                     |
|                  | Native Hawaiian and Other Pacific Islander | \$4,330        | \$4,260    | \$5,900  | \$1,570               | (-\$1,080, \$4,220)       | 27%                     |
|                  | White                                      | \$8,200        | \$8,580    | \$10,500 | \$2,310               | (\$1,990, \$2,620)        | 22%                     |
|                  | Hispanic                                   | \$3,980        | \$4,360    | \$5,510  | \$1,530               | (\$1,210, \$1,860)        | 28%                     |
| US Total         |                                            | \$6,990        | \$7,370    | \$9,270  | \$2,280               | (\$2,030, \$2,520)        | 25%                     |

Source: Analysis of the 2015, 2016, 2018 and 2020 files of the Medical Expenditure Panel Survey.

**Exhibit 5. Average Annual Medical Expenditures (95% CI) Attributed to Obesity by Race & Ethnicity and Insurance Type**

| Race & Ethnicity |                                            | Medicare                      | Private                       | Medicaid                       | Uninsured                      |
|------------------|--------------------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|
| Non-Hispanic     | American Indian or Alaska Native           | \$2,600<br>(\$1,060, \$4,110) | \$3,150<br>(\$1,750, \$4,560) | \$1,540<br>(-\$1,730, \$4,820) | \$2,100<br>(-\$1,450, \$5,640) |
|                  | Asian                                      | \$2,140<br>(\$1,610, \$2,660) | \$780<br>(\$270, \$1,290)     | \$2,770<br>(\$1,140, \$4,410)  | \$320<br>(-\$540, \$1,180)     |
|                  | Black                                      | \$3,200<br>(\$2,760, \$3,630) | \$2,760<br>(\$2,420, \$3,100) | \$4,030<br>(\$3,400, \$4,670)  | \$970<br>(\$560, \$1,390)      |
|                  | Other Single and Multiple Races            | \$3,570<br>(\$2,060, \$5,080) | \$3,150<br>(\$2,210, \$4,090) | \$3,330<br>(\$20, \$6,640)     | \$950<br>(-\$290, \$2,190)     |
|                  | Native Hawaiian and Other Pacific Islander | \$3,000<br>(-\$20, \$6,020)   | \$720<br>(-\$1,420, \$2,850)  | \$4,430<br>(\$490, \$8,380)    | \$630<br>(-\$1,600, \$2,860)   |
|                  | White                                      | \$2,650<br>(\$2,480, \$2,830) | \$2,180<br>(\$1,970, \$2,390) | \$3,100<br>(\$2,460, \$3,750)  | \$1,050<br>(\$540, \$1,560)    |
|                  | Hispanic                                   | \$2,300<br>(\$1,840, \$2,740) | \$1,440<br>(\$1,180, \$1,700) | \$2,800<br>(\$2,270, \$3,320)  | \$550<br>(\$370, \$730)        |
| US Total         |                                            | \$2,800<br>(\$2,600, \$3,010) | \$2,160<br>(\$1,990, \$2,340) | \$3,370<br>(\$2,930, \$3,810)  | \$700<br>(\$440, \$960)        |

Source: Analysis of the 2015, 2016, 2018 and 2020 files of the Medical Expenditure Panel Survey.

**Exhibit 6. Sample Sizes of the Population Analyzed by Race & Ethnicity and Insurance Type**

| Race & Ethnicity |                                            | Medicare | Private | Medicaid | Uninsured | Total   |
|------------------|--------------------------------------------|----------|---------|----------|-----------|---------|
| Non-Hispanic     | American Indian or Alaska Native           | 112      | 208     | 127      | 65        | 512     |
|                  | Asian                                      | 1,278    | 4,565   | 781      | 421       | 7,045   |
|                  | Black                                      | 3,435    | 7,962   | 4,419    | 1,736     | 17,552  |
|                  | Other Single and Multiple Races            | 403      | 1,337   | 499      | 170       | 2,409   |
|                  | Native Hawaiian and Other Pacific Islander | 33       | 108     | 41       | 15        | 197     |
|                  | White                                      | 15,762   | 28,539  | 5,783    | 2,620     | 52,704  |
|                  | Hispanic                                   | 3,072    | 10,640  | 5,834    | 5,691     | 25,237  |
| US Total         |                                            | 24,095   | 53,359  | 17,484   | 10,718    | 105,656 |

Source: Analysis of the 2015, 2016, 2018 and 2020 files of the Medical Expenditure Panel Survey.

## Labor Force Participation, Productivity, and Disability

Obesity, interconnected with race and ethnicity, is correlated with labor force participation, absenteeism, presenteeism, and disability.<sup>14,36,37</sup> These factors significantly impact individual productivity and contribute to broader economic costs. Using data from the 2019–2023 National Health Interview Survey (NHIS), this analysis examines the effects of obesity on employment-related metrics while examining variations across racial and ethnic groups. This study focuses on adults aged 18–69 to analyze the correlation between obesity and employment outcomes, assessing whether these relationships vary by race and ethnicity.

Regression analyses controlled for age group (18–29, 30–39, 40–49, 50–59, and 60–69 years) and survey year. Some variables, such as highest educational attainment, the presence of other chronic conditions, and overall health status, were intentionally omitted to avoid potential multicollinearity. However, marital status was included as a proxy for health-related behaviors and economic circumstances that may influence workforce participation.

Separate regression models were estimated for men and women within each racial and ethnic group.

- Labor force participation and disability likelihood were analyzed using logistic regression across all adults.
- Absenteeism (missed workdays) was modeled using logistic regression (whether any days missed) and Poisson regression (number of days missed if days >0) for employed adults, including a control for health insurance coverage.
- Presenteeism (reduced workplace productivity) was estimated using logistic regression, adjusting for age, marital status, and survey year.

### Labor Force Participation

Research finds that the effect of obesity on reduced labor force participation is greater for women than for men.<sup>38–40</sup> A study among young workers found that White and Black women with obesity experience significantly longer periods of unemployment compared to their healthy-weight White counterparts.<sup>40</sup> Similarly, White and Black men with obesity also face longer unemployment periods than their healthy-weight White peers, though the effect is generally smaller for men than for women. However, for either sex of Hispanic with obesity, BMI has no statistically significant impact on the duration of unemployment, suggesting potential racial and ethnic differences in how obesity affects employment outcomes.

Using the estimated regression parameters, obesity is associated with a 1.3 percentage point decline in employment probability for White men, but there is no detrimental effect for men of other race or ethnicity (Exhibit 7). Obesity is associated with a decrease in employment probability for women across all modeled populations with the exception of American Indian or Alaskan Native for which the NHIS has small sample size (n=312) combined across five survey years. Notably the 6.0 percentage point reduction in employment probability for Hispanic women is the largest effect, with declines of 3.7% for White women, 3.2% for other single or multiple races, 2.2% for Asian women, and 0.7% for Black women. The observed varying findings in unemployment duration and employment probability among Hispanic women may point to differences in the populations characteristics or other contextual factors influencing the outcomes.

This analysis does not capture economic differences in workforce exit decisions, such as the presence of another income earner, other household income sources, or net worth. Additionally, it does not distinguish whether individuals are unemployed due to health-related barriers, workplace discrimination, or other socioeconomic factors.

The US Bureau of Labor Statistics reports that the average earnings in 2023 were \$65,470 and average hourly wage was \$31.48, and with estimated salary increases averaging 3.6% in 2024 average earnings in 2024 are calculated as \$67,830 and daily earnings (assuming an 8-hour workday) is \$260.91.<sup>41,42</sup> Later, we estimate the total reduction in earnings associated with fewer people employed for obesity-related causes.

### Absenteeism

Missed work days due to illness or injury is modeled in two steps. First, using logistic regression we model the probability that a person will experience one or more missed work days during the year. Among White men 46.1% with healthy weight report missing work due to illness or injury, and this percentage increases to 48.5% for men with obesity (Exhibit 8). For White women, the percentage missing at least one day of work increases from 51.2% for women with healthy weight to 62.0% for women with obesity. In general, the likelihood of missing work days is higher for women than for men for all weight categories and race or ethnicity categories with a few exceptions for populations with small sample size in NHIS.

In addition, the average number of days missed (for employees with missed work days) is higher for people with obesity relative to people with healthy weight. Relative to their colleagues with healthy weight, White men missed 2.1 extra days while White women missed 1.5 extra days. For all other races, the obesity effect on number of missed work days is larger for women than for men. Combining the probability of missing days due to illness or injury and average length of time off, the obesity impact ranges from 0.5 days for Hispanic men to 1.9 days for Hispanic women, excluding the obesity effect for American Indian or Alaskan Native for which small sample size in NHIS makes the estimates less reliable.

Previous studies have suggested the use of wage multipliers to estimate the total economic cost of absenteeism from the employer's perspective.<sup>43–46</sup> This wage multiplier accounts not only for the immediate financial loss associated with absenteeism but also extends its scope to encompass broader repercussions within the organization, including factors such as team cohesion, knowledge transfer, and project continuity. In alignment with a recent study, our model employs a wage multiplier of 1.97 times the average wage to estimate productivity loss due to absenteeism.<sup>44</sup>

Using this methodology, the annual absenteeism cost per employee with obesity ranges from \$240 (Hispanic men) to \$970 (Hispanic women). Due to small sample sizes, estimates for American Indian or Alaska Native adults are less reliable.

### **Presenteeism**

Presenteeism occurs when employees are physically present at work but experience reduced productivity due to health-related issues, including illness, injury, or chronic conditions. Unlike absenteeism, which involves missing work entirely, presenteeism manifests when an employee is unable to perform at their full capacity due to physical, mental, or emotional challenges.

In the context of obesity, presenteeism may present as reduced focus, slower task completion, fatigue, or difficulty meeting work demands due to obesity-related health conditions such as chronic pain, sleep apnea, or limited mobility. While less visible than absenteeism, presenteeism can have a significant impact on workplace productivity, affecting team performance, work quality, and overall organizational efficiency. The costs to employers extend beyond immediate wage losses, encompassing delays in project completion, additional burdens on coworkers, and diminished long-term performance.

To assess presenteeism, we analyzed NHIS which collects self-reported data by asking respondents: “Are you limited in the kind or amount of work you can do because of a physical, mental, or emotional problem?” Using logistic regression to control for age, marital status, and survey year, this analysis estimates the likelihood of experiencing work limitations by weight status separately for men and women. Among White men, 7.7% of those with a healthy weight report experiencing work limitations, compared to 9.8% among those with obesity (Exhibit 9). Among White women, 7.6% of healthy-weight individuals report work limitations, increasing to 10.3% among those with obesity. Although the impact of obesity on presenteeism varies across racial and ethnic groups, the effect is consistently greater for women than for men.

Measuring presenteeism through lost employee wages alone underestimates its true cost to employers, as reduced productivity can result in lower-quality work, delays in task completion, and decreased efficiency across teams. As with absenteeism, a wage multiplier is applied to reflect both direct and indirect costs, accounting for team cohesion, knowledge transfer, and workplace disruptions.<sup>44,47</sup> Our model employs a published wage multiplier of 1.54 times the average wage to calculate productivity cost due to presenteeism.<sup>44</sup>

Using estimates of reduced productivity associated with obesity, the wage multiplier, and national average annual wages, this analysis finds that productivity losses are highest for Hispanic women (\$4,430 annually) and lowest for Black women (\$1,150 annually). Notably, Black men and men of Multiple/Other Races do not appear to experience a statistically significant impact of obesity on productivity.

For comparison, a 2017 review of nine studies found that obesity-related presenteeism costs ranged from \$14 to \$5,462 per worker annually, with a midpoint of \$2,738 (adjusted to 2024 dollars).<sup>37</sup> Similarly, a recent study estimated that obesity-related conditions lead to a 2.6% reduction in productivity, translating to an average annual cost of \$2,427 per worker.<sup>36</sup> Additionally, a 2008 study focusing on manufacturing employees (n=341) reported a 4.2% reduction in productivity among workers with a BMI  $\geq 35$  (class 2 or class 3 obesity).<sup>48</sup> This productivity loss was 1.18% higher than for workers with lower BMI levels and equates to approximately \$756 per worker annually, adjusted to 2024 dollars.

### **Disability**

Analysis of NHIS data measured the correlation between weight status and probability of receiving Social Security Disability Insurance (SSDI) payments, a federal program that provides monthly financial support to individuals with disabilities that prevent or limit their ability to work. Many conditions qualify for SSDI, including musculoskeletal disorders, circulatory diseases, and endocrine conditions—many of which are closely linked to obesity as a risk factor.

We used logistic regression to control for age, marital status, and survey year with separate analyses for men and women. Our analysis found that obesity is correlated with increased likelihood of receiving SSDI payments, with the magnitude for women being substantially larger than for men for all race/ethnicity categories except for American Indian or Alaskan Native, where for women the odds ratio for obesity is less than 1.0 but not statistically significant. While obesity increases the odds of SSDI payments for all other gender by race/ethnicity regressions, the effect is only statistically significant for non-Hispanic White men and non-Hispanic Black men. Applying the regression results to the population with obesity, we calculated the probability of receiving SSDI payments under different weight classifications. For example, for White males the SSDI probability is 6.2% for healthy weight males and 8.9% for males with obesity, or a 2.7 percentage point increase (Exhibit 10). For Black males, the probability is 13.7% for health weight individuals and 15.7% for men with obesity, or a 2.0 percentage point increase. While the obesity effect is not statistically significant for the other race/ethnicity and gender categories, the estimated effects are still the best estimators of the obesity effect. The average annual payment for SSDI is \$18,444.<sup>49</sup> Applying this rate to the obesity effect suggests that annual SSDI payments average approximately \$370 per Black male, and \$500 per White male, with estimates varying by gender and by race/ethnicity.

### Exhibit 7. Labor Force Participation Analysis

|                      | American Indian or<br>Alaskan Native |       | Asian |       | Black |       | White  |        | Other Single and<br>Multiple Races |       | Hispanic |       |
|----------------------|--------------------------------------|-------|-------|-------|-------|-------|--------|--------|------------------------------------|-------|----------|-------|
|                      | Men                                  | Women | Men   | Women | Men   | Women | Men    | Women  | Men                                | Women | Men      | Women |
| Sample size          | 411                                  | 312   | 3,628 | 3,143 | 6,770 | 5,025 | 35,189 | 33,514 | 994                                | 1,202 | 8,978    | 7,646 |
| Employed Probability |                                      |       |       |       |       |       |        |        |                                    |       |          |       |
| Healthy weight       | 56.4%                                | 46.8% | 77.6% | 66.8% | 61.7% | 61.9% | 74.1%  | 67.4%  | 71.5%                              | 65.5% | 75.9%    | 67.7% |
| Overweight           | 63.9%                                | 60.2% | 80.0% | 65.8% | 66.3% | 62.9% | 75.4%  | 65.5%  | 76.1%                              | 66.9% | 79.5%    | 64.0% |
| Obesity              | 58.9%                                | 59.8% | 81.0% | 64.6% | 66.3% | 61.2% | 72.8%  | 63.7%  | 74.4%                              | 62.3% | 78.8%    | 61.7% |
| Obesity - healthy    | 2.5%                                 | 13.0% | 3.4%  | -2.2% | 4.6%  | -0.7% | -1.3%  | -3.7%  | 2.9%                               | -3.2% | 2.9%     | -6.0% |

Notes: Based on analysis of the 2019-2023 National Health Interview Survey.

### Exhibit 8. Missed Work Days Analysis

|                                        | American Indian<br>or Alaskan Native |         | Asian |       | Black |       | White  |        | Other Single and<br>Multiple Races |       | Hispanic |       |
|----------------------------------------|--------------------------------------|---------|-------|-------|-------|-------|--------|--------|------------------------------------|-------|----------|-------|
|                                        | Men                                  | Women   | Men   | Women | Men   | Women | Men    | Women  | Men                                | Women | Men      | Women |
| Sample size                            | 208                                  | 260     | 2,525 | 2,575 | 3,535 | 4,610 | 24,969 | 26,364 | 859                                | 787   | 6,277    | 6,324 |
| % with >0 sick days                    |                                      |         |       |       |       |       |        |        |                                    |       |          |       |
| Healthy weight                         | 51.5%                                | 43.6%   | 32.5% | 39.5% | 38.3% | 46.1% | 46.1%  | 51.2%  | 48.1%                              | 52.7% | 38.7%    | 44.8% |
| Overweight                             | 46.8%                                | 54.8%   | 37.8% | 47.9% | 38.6% | 48.3% | 44.5%  | 54.8%  | 49.6%                              | 45.2% | 36.6%    | 45.0% |
| Obesity                                | 50.9%                                | 56.0%   | 43.6% | 52.6% | 39.0% | 50.2% | 48.5%  | 62.0%  | 53.3%                              | 61.3% | 39.8%    | 50.0% |
| Obesity - Healthy                      | -0.6%                                | 12.4%   | 11.1% | 13.1% | 0.7%  | 4.1%  | 2.4%   | 10.9%  | 5.3%                               | 8.6%  | 1.0%     | 5.2%  |
| # of sick days when #>0                |                                      |         |       |       |       |       |        |        |                                    |       |          |       |
| Healthy weight                         | 12.7                                 | 5.7     | 5.8   | 7.4   | 8.1   | 9.3   | 6.7    | 7.6    | 9.7                                | 9.3   | 8.0      | 7.9   |
| Overweight                             | 13.9                                 | 9.3     | 6.5   | 9.5   | 9.7   | 10.7  | 7.3    | 8.7    | 7.2                                | 8.9   | 8.0      | 10.2  |
| Obesity                                | 9.1                                  | 12.2    | 5.9   | 8.4   | 9.8   | 11.7  | 8.8    | 9.1    | 10.2                               | 10.1  | 9.0      | 10.8  |
| Obesity - healthy                      | -3.6                                 | 6.4     | 0.1   | 1.0   | 1.7   | 2.4   | 2.1    | 1.5    | 0.5                                | 0.8   | 0.9      | 3.0   |
| Obesity - Healthy Days Total Impact    | -1.9                                 | 4.3     | 0.7   | 1.5   | 0.7   | 1.6   | 1.2    | 1.8    | 0.8                                | 1.3   | 0.5      | 1.9   |
| Average obesity-attributed annual cost | \$0                                  | \$2,210 | \$350 | \$780 | \$360 | \$810 | \$610  | \$900  | \$400                              | \$650 | \$240    | \$970 |

Notes: Based on analysis of the 2019-2023 National Health Interview Survey.

Exhibit 9. Reduced Productivity Analysis

|                                        | American Indian or<br>Alaskan Native |         | Asian   |         | Black |         | White   |         | Other Single and<br>Multiple Races |         | Hispanic |         |
|----------------------------------------|--------------------------------------|---------|---------|---------|-------|---------|---------|---------|------------------------------------|---------|----------|---------|
|                                        | Men                                  | Women   | Men     | Women   | Men   | Women   | Men     | Women   | Men                                | Women   | Men      | Women   |
| Sample size                            | 208                                  | 260     | 2,525   | 2,575   | 3,535 | 4,610   | 24,969  | 26,364  | 859                                | 787     | 6,277    | 6,324   |
| Employed                               |                                      |         |         |         |       |         |         |         |                                    |         |          |         |
| Healthy weight                         | 12.1%                                | 10.3%   | 5.3%    | 6.1%    | 11.8% | 8.0%    | 7.7%    | 7.6%    | 8.3%                               | 8.4%    | 9.4%     | 7.7%    |
| Overweight                             | 9.7%                                 | 12.9%   | 5.6%    | 6.8%    | 9.2%  | 8.4%    | 7.5%    | 8.0%    | 6.2%                               | 9.7%    | 8.2%     | 8.1%    |
| Obesity                                | 16.4%                                | 15.5%   | 7.9%    | 9.8%    | 6.9%  | 9.1%    | 9.8%    | 10.3%   | 7.2%                               | 9.8%    | 8.2%     | 9.1%    |
| Obesity - healthy                      | 4.3%                                 | 5.2%    | 2.6%    | 3.7%    | -4.9% | 1.1%    | 2.1%    | 2.7%    | -1.1%                              | 1.4%    | -1.2%    | 1.4%    |
| Average obesity-attributed annual cost | \$4,430                              | \$5,450 | \$2,670 | \$3,830 | \$0   | \$1,150 | \$2,180 | \$2,780 | \$0                                | \$1,460 | \$0      | \$4,430 |

Notes: Based on analysis of the 2019-2023 National Health Interview Survey.

Exhibit 10. Disability Analysis

|                                        | American Indian or<br>Alaskan Native |       | Asian |       | Black |       | White  |         | Other Single and<br>Multiple Races |         | Hispanic |       |
|----------------------------------------|--------------------------------------|-------|-------|-------|-------|-------|--------|---------|------------------------------------|---------|----------|-------|
|                                        | Men                                  | Women | Men   | Women | Men   | Women | Men    | Women   | Men                                | Women   | Men      | Women |
| Sample size                            | 411                                  | 312   | 3,628 | 3,143 | 6,770 | 5,025 | 35,189 | 33,514  | 994                                | 1,202   | 8,978    | 7,646 |
| Receiving SSDI                         |                                      |       |       |       |       |       |        |         |                                    |         |          |       |
| Healthy weight                         | 14.1%                                | 18.3% | 1.8%  | 1.8%  | 13.7% | 10.5% | 6.2%   | 5.1%    | 8.7%                               | 5.5%    | 5.5%     | 4.0%  |
| Overweight                             | 13.1%                                | 11.4% | 2.0%  | 2.1%  | 11.6% | 10.8% | 5.9%   | 7.3%    | 7.3%                               | 9.9%    | 4.9%     | 5.8%  |
| Obesity                                | 19.6%                                | 17.9% | 2.4%  | 4.5%  | 15.7% | 15.6% | 8.9%   | 11.5%   | 11.8%                              | 14.3%   | 6.5%     | 9.0%  |
| Obesity - healthy                      | 5.5%                                 | -0.4% | 0.6%  | 2.7%  | 2.0%  | 5.1%  | 2.7%   | 6.4%    | 3.1%                               | 8.8%    | 1.0%     | 5.0%  |
| Average obesity-attributed annual cost | \$1,020                              | \$0   | \$110 | \$500 | \$370 | \$940 | \$500  | \$1,180 | \$580                              | \$1,610 | \$190    | \$930 |

Notes: Based on analysis of the 2019-2023 National Health Interview Survey.

## Mortality

Obesity significantly increases the risk of premature mortality by contributing to chronic conditions such as heart disease, diabetes, cancer, and respiratory disorders and reducing life expectancy by nearly 2.4 years.<sup>50–52</sup> Nearly 500,000 premature deaths annually in the United States are linked to excess body weight, with mortality rates higher among women than men and highest among Black non-Hispanic adults.<sup>50</sup> On average, obesity reduces life expectancy by 3.3 years for Black non-Hispanic adults, 2.2 years for Hispanic adults, 2.2 years for White non-Hispanic adults, and 1.5 years for Other, non-Hispanic adults, with Black non-Hispanic women experiencing the greatest loss at 3.7 years.<sup>50</sup>

Between 2018 and 2023, approximately 18.7 million adult deaths were recorded in the U.S., according to the CDC WONDER Database (Exhibit 11).<sup>53</sup> Of these, obesity was listed as a contributing factor in nearly 4.5 million deaths. Using published mortality risk ratios, we calculate that about 2.8 million of these deaths—15% of total deaths during this period—were directly attributable to obesity.<sup>54,55</sup> This translates to an average of 467,600 obesity-attributed deaths annually which is similar to a published estimate.<sup>50</sup>

The proportion of deaths attributable to obesity varies significantly by race and ethnicity. Among adults with obesity, 61% of premature deaths among White adults and 74% among Native Hawaiian/Pacific Islander adults are attributed to their obesity. Considering all deaths among the population of adults regardless of their obesity status, obesity is responsible for an estimated 14% of White adult deaths, 18% of Black adult deaths, 19% of Hispanic adult deaths, 22% of American Indian/Alaska Native adult deaths, and 26% of Native Hawaiian/Pacific Islander adult deaths.

**Obesity is responsible for an estimated 14% of White adult deaths, 18% of Black adult deaths, 19% of Hispanic adult deaths, 22% of American Indian/Alaska Native adult deaths, and 26% of Native Hawaiian/Pacific Islander adult deaths.**

However, these estimates might understate the true disparities. The percentages are based on published risk ratios that report averages by disease diagnosis category, which may not fully capture differences in access to medical care and disease management across populations. Limited access to appropriate care could exacerbate disease progression and mortality risk in underserved groups. As a result, the actual racial and ethnic disparities in obesity-attributed mortality could be larger than these estimates suggest.

Applying published estimates of the reduced life expectancy per premature death<sup>50</sup>, we estimate that the 467,600 annual deaths attributed to obesity equates to nearly 1.1 million life years lost. For federal government planning purposes, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) proposed “low”, “central” and “high” values per statistical life year of, respectively, \$231,000, \$495,000 and \$754,000.<sup>56</sup> Using the central value would suggest that the annual national cost of obesity-attributed deaths exceeds \$541.5 billion. For our analysis, we conservatively use \$231,000 per statistical life year which suggests about \$252.7 billion in total societal costs associated with obesity-attributed premature mortality.

**Exhibit 11. Obesity Impact on Mortality by Race & Ethnicity: 2018-2023**

|                  |                                               | Adults with Obesity                      |                                                              |                         |                                                       |                                                            |                                            | Total Adults                                                          |                                            |                         |
|------------------|-----------------------------------------------|------------------------------------------|--------------------------------------------------------------|-------------------------|-------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------|-------------------------|
| Race & Ethnicity |                                               | Total Deaths<br>(2018-2023) <sup>a</sup> | Obesity-<br>Attributed<br>Deaths<br>(2018-2023) <sup>a</sup> | % Obesity<br>Attributed | Average<br>Annual<br>Obesity-<br>Attributed<br>Deaths | Average<br>Lost Life<br>Years<br>per<br>Death <sup>b</sup> | Average<br>Annual<br>Years of<br>Lost Live | Annual<br>Value of<br>Lost Life<br>Years<br>(\$millions) <sup>c</sup> | Total<br>Deaths,<br>2018-2023 <sup>a</sup> | % Obesity<br>Attributed |
| Non-Hispanic     | American Indian or<br>Alaska Native           | 41,100                                   | 28,400                                                       | 69%                     | 4,700                                                 | 1.50                                                       | 7,100                                      | \$1,640                                                               | 130,800                                    | 22%                     |
|                  | Asian                                         | 129,500                                  | 82,400                                                       | 64%                     | 13,700                                                | 1.50                                                       | 20,600                                     | \$4,759                                                               | 494,900                                    | 17%                     |
|                  | Black                                         | 619,600                                  | 417,700                                                      | 67%                     | 69,600                                                | 3.34                                                       | 232,500                                    | \$53,714                                                              | 2,344,300                                  | 18%                     |
|                  | Multiple/Other Races                          | 21,000                                   | 14,300                                                       | 68%                     | 2,400                                                 | 1.50                                                       | 3,600                                      | \$825                                                                 | 86,000                                     | 17%                     |
|                  | Native Hawaiian and<br>Other Pacific Islander | 8,600                                    | 6,400                                                        | 74%                     | 1,100                                                 | 1.50                                                       | 1,600                                      | \$372                                                                 | 25,000                                     | 26%                     |
|                  | White                                         | 3,188,300                                | 1,959,800                                                    | 61%                     | 326,600                                               | 2.20                                                       | 718,600                                    | \$165,994                                                             | 14,117,800                                 | 14%                     |
|                  | Hispanic                                      | 436,900                                  | 296,900                                                      | 68%                     | 49,500                                                | 2.22                                                       | 109,900                                    | \$25,375                                                              | 1,532,900                                  | 19%                     |
|                  | US Total                                      | 4,445,000                                | 2,805,900                                                    | 63%                     | 467,600                                               |                                                            | 1,093,900                                  | 252,679                                                               | 18,731,700                                 | 15%                     |

Source: <sup>a</sup> Analysis of the CDC WONDER Database, 2018-2023 deaths, combined with estimated of published risk ratios for obesity-attributed deaths among people with obesity by leading cause of death.<sup>53-55</sup> <sup>b</sup> Average lost life years from Ward et al. (2022).<sup>50</sup> <sup>c</sup> Estimated using the value per statistical life year lost from Office of the Assistant Secretary for Planning and Evaluation (2024), using the “low” value of \$231,000 per year—versus the “central” and “high” values of \$495,000 and \$754,000.<sup>56</sup>

## Total Economic Costs of Obesity

In 2024, estimated economic costs associated with obesity totaled nearly \$933 billion (Exhibit 12). These costs encompass higher medical expenditures, reduced labor force participation, increased absenteeism and presenteeism for employed individuals, elevated SSDI expenses, and societal costs linked to premature mortality. Excluded from these estimates are employer-paid short- and long-term disability payments (\$31.5 billion in 2023) and Workers' Compensation Program payments (\$5.2 billion in 2023), as reported in other research.<sup>36</sup> Additionally, the value of reduced quality of life associated with obesity and its comorbidities is excluded. With gross domestic product (GDP) of nearly \$29 trillion in 2024, these modeled costs represent approximately 3.2% of the nation's GDP.

The total economic impact varies by race and ethnicity, reflecting differences in population size, obesity prevalence, labor force participation, healthcare access and insurance coverage, and other factors affecting health and wellbeing.

- White adults, representing the largest population group, bear the greatest share of the economic burden, with obesity-related costs totaling \$588.1 billion—over 60% of the national total.
- Black adults experience \$137.2 billion in costs, primarily due to high medical expenses and significant mortality impacts.
- Hispanic adults account for \$159.6 billion, with notable contributions from reduced labor force participation and presenteeism.
- Asian adults incur \$24.4 billion in obesity-related costs, largely driven by presenteeism and medical expenditures.
- American Indian or Alaska Native adults account for \$7.6 billion in obesity-related costs, primarily due to presenteeism and elevated mortality rates.
- Native Hawaiian and Other Pacific Islander adults have the smallest total impact at \$1.4 billion, reflecting their smaller population size but significant per-person costs related to medical care and disability.

**The estimated economic impact of obesity totaled nearly \$933 billion in 2024, equivalent to 3.2% of GDP. White adults accounted for the largest share of costs (\$588.1 billion), followed by adults who are Hispanic (\$159.6 billion), Black (\$137.2 billion), Asian (\$24.4 billion), Other Single and Multiple Races (\$14.6 billion), American Indian or Alaska Native (\$7.6 billion), or Native Hawaiian and Other Pacific Islander (\$1.4 billion).**

Exhibit 13 highlights the average economic impact per adult with obesity (average cost per employed adult with obesity for absenteeism and presenteeism) across various racial and ethnic groups, revealing notable differences in cost drivers:

- White adults face the highest total average cost at \$9,130 per adult with obesity, driven primarily by labor force participation losses and medical expenses.
- American Indian or Alaska Native adults have a significant average economic impact of \$8,870, largely due to costs associated with presenteeism and mortality.
- Black adults incur an average total cost of \$8,230, with medical expenses and mortality serving as the largest contributors.
- Hispanic adults experience an average total cost of \$7,800, with labor force participation and presenteeism as key factors.
- Native Hawaiian and Other Pacific Islander adults have an average cost of \$5,900, driven by notable expenditures in disability and medical care.
- Asian adults incur the lowest average cost at \$5,240, with presenteeism contributing a substantial portion.

**Exhibit 12. Total Annual Economic Impact of Obesity by Race and Hispanic Ethnicity (\$Millions)**

| Race & Ethnicity |                                                         | Medical Costs | Labor Force Participation | Absenteeism | Presenteeism | Disability (SSDI) | Mortality | Total     |
|------------------|---------------------------------------------------------|---------------|---------------------------|-------------|--------------|-------------------|-----------|-----------|
| Non-Hispanic     | American Indian or Alaska Native                        | \$2,270       | \$0                       | \$710       | \$2,570      | \$430             | \$1,640   | \$7,610   |
|                  | Asian                                                   | \$4,430       | \$2,510                   | \$1,660     | \$9,740      | \$1,260           | \$4,760   | \$24,360  |
|                  | Black                                                   | \$51,520      | \$4,010                   | \$7,480     | \$8,920      | \$11,600          | \$53,710  | \$137,240 |
|                  | Other Single and Multiple Races                         | \$7,330       | \$2,320                   | \$760       | \$1,020      | \$2,390           | \$830     | \$14,650  |
|                  | Native Hawaiian and Other Pacific Islander <sup>a</sup> | \$380         | \$230                     | \$80        | \$100        | \$260             | \$370     | \$1,420   |
|                  | White                                                   | \$148,580     | \$90,260                  | \$30,080    | \$98,180     | \$54,970          | \$165,990 | \$588,060 |
|                  | Hispanic                                                | \$31,330      | \$38,130                  | \$9,110     | \$44,230     | \$11,400          | \$25,380  | \$159,580 |
| All Adults       |                                                         | \$245,840     | \$137,460                 | \$49,880    | \$164,760    | \$82,310          | \$252,680 | \$932,930 |

Note: Estimates for some economic components may be less reliable due to small sample sizes for certain race/ethnicity groups, particularly American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations. <sup>a</sup> Estimates for labor force participation, absenteeism, presenteeism, and disability estimated from the NHIS use findings for the Other Single and Multiple Races population, as the Native Hawaiian and Other Pacific Islander designation is unavailable in NHIS and therefore this population is included in the Other Single and Multiple Races category.

**Exhibit 13. Average Annual Economic Impact per Adult with Obesity by Race and Hispanic Ethnicity**

| Race & Ethnicity |                                                         | Medical Costs <sup>a</sup> | Labor Force Participation <sup>a</sup> | Absenteeism <sup>b</sup> | Presenteeism <sup>b</sup> | Disability (SSDI) <sup>a</sup> | Mortality <sup>a</sup> | Total <sup>c</sup> |
|------------------|---------------------------------------------------------|----------------------------|----------------------------------------|--------------------------|---------------------------|--------------------------------|------------------------|--------------------|
| Non-Hispanic     | American Indian or Alaska Native                        | \$2,640                    | \$0                                    | \$1,400                  | \$5,080                   | \$500                          | \$1,910                | \$8,870            |
|                  | Asian                                                   | \$950                      | \$540                                  | \$540                    | \$3,190                   | \$270                          | \$1,020                | \$5,230            |
|                  | Black                                                   | \$3,090                    | \$240                                  | \$680                    | \$810                     | \$700                          | \$3,220                | \$8,230            |
|                  | Other Single and Multiple Races                         | \$3,520                    | \$1,120                                | \$520                    | \$710                     | \$1,150                        | \$400                  | \$7,050            |
|                  | Native Hawaiian and Other Pacific Islander <sup>d</sup> | \$1,570                    | \$980                                  | \$510                    | \$630                     | \$1,100                        | \$1,550                | \$5,900            |
|                  | White                                                   | \$2,310                    | \$1,400                                | \$770                    | \$2,510                   | \$850                          | \$2,580                | \$9,130            |
|                  | Hispanic                                                | \$1,530                    | \$1,860                                | \$630                    | \$3,070                   | \$560                          | \$1,240                | \$7,800            |
| All Adults       |                                                         | \$2,280                    | \$1,260                                | \$710                    | \$2,360                   | \$750                          | \$2,310                | \$8,570            |

Notes: <sup>a</sup> Cost per person with obesity. <sup>b</sup> Cost per employed person with obesity. <sup>c</sup> Cost per person with obesity, which differs from the sum of the columns to the left because not all adults with obesity are employed and therefore incur absenteeism and presenteeism costs. Estimates for some economic components may be less reliable due to small sample sizes for certain race/ethnicity groups, particularly American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations. <sup>d</sup> Estimates for labor force participation, absenteeism, presenteeism, and disability estimated from the NHIS use findings for the Other Single and Multiple Races population, as the Native Hawaiian and Other Pacific Islander designation is unavailable in NHIS and therefore this population is included in the Other Single and Multiple Races category.

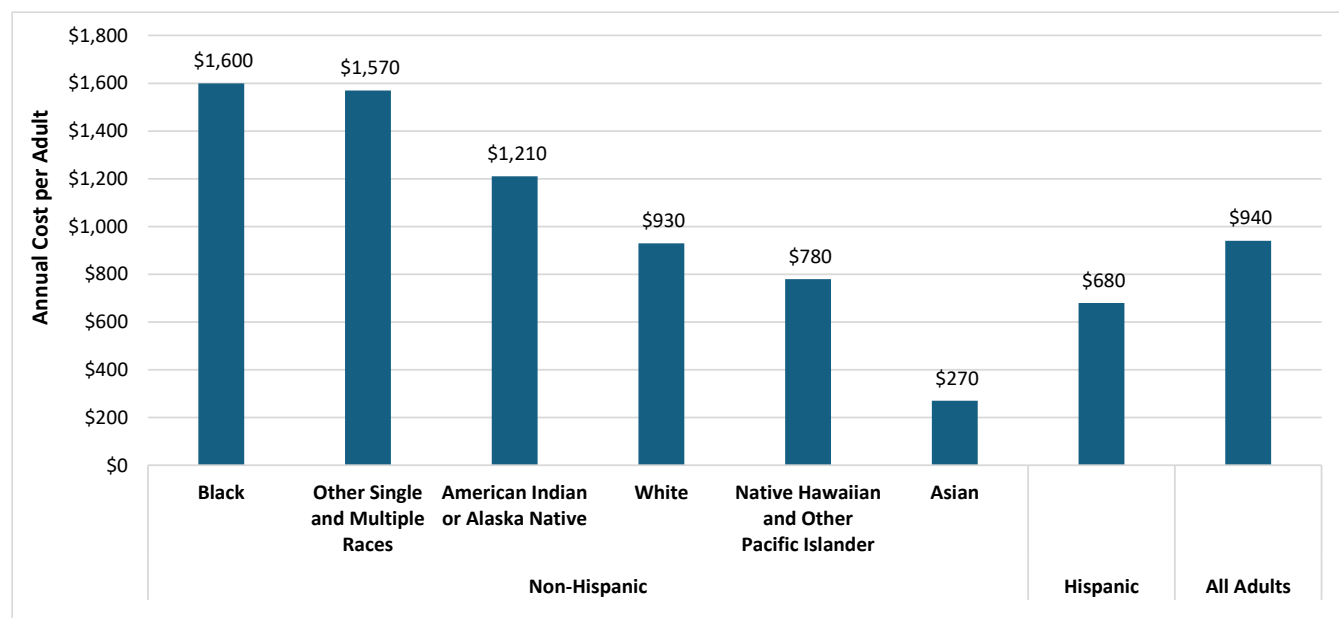
The above average cost per person with obesity potentially under-reflects the impact of obesity on specific racial and ethnic populations due to differences in obesity prevalence and other socioeconomic circumstances that affect labor force participation or comprehensiveness of and prices for healthcare services. For example, specific racial and ethnic populations might be more likely to be enrolled in Medicaid, with lower prices for Medicaid services reducing the estimated cost per person with obesity.

Due to economic factors, including occupation and industry mix, some populations might have less flexibility to take time off from work due to illness or less flexibility to leave the workforce due to illness or injury.

To reflect differences by race and ethnicity in obesity prevalence, Exhibit 14 summarizes the average cost per adult by dividing total obesity costs in Exhibit 12 by the number of adults in each race and ethnicity category regardless of obesity status. The estimates show that obesity-related costs range from an average of \$1,600 per Black adult to \$270 per Asian adult, with a national average of \$940 per adult in the U.S. Average cost is \$680 per Hispanic adult.

**Obesity-related costs range from an average of \$1,600 per Black adult to \$270 per Asian adult, with a national average of \$940 per adult in the U.S. Average cost is \$680 per Hispanic adult.**

**Exhibit 14. Average Economic Impact per Adult by Race and Hispanic Ethnicity**



Note: Cost per adult regardless of body weight status.

# Value of Obesity Treatment to Improve Health Equity

Expanding access to obesity treatment can help reduce health disparities and economic inequities. Providing equitable access to evidence-based interventions, including lifestyle counseling, medications, and surgical treatments, may lessen the impact of obesity-related conditions, improve employment outcomes, and lower long-term healthcare costs. This chapter summarizes modeling analyses on the potential role of obesity treatment in advancing health equity.

## Simulation Model

The Disease Prevention and Treatment Microsimulation Model (DPTMM) projects clinical, health, and economic outcomes for four obesity treatment options: high-intensity lifestyle intervention, first-generation obesity medications (OMs), modern OMs, and metabolic/bariatric surgery (MBS). Using a Markov-based approach, the model estimates how changes in biomarkers—such as body weight, blood pressure, cholesterol levels, and HbA1c—affect future risks of obesity-related diseases. It calculates healthcare costs and clinical improvements over a 10-year period based on public datasets, published studies, and clinical trials. The DPTMM framework has been used in prior studies to estimate potential direct medical savings resulting from changes in health indicators.<sup>57–61</sup> More technical details of the model can be found [online](#).

The microsimulation tracks each individual's health status annually, considering age, sex, race/ethnicity, and existing conditions. It models disease outcomes such as type 2 diabetes, hypertension, ischemic heart disease, congestive heart failure, myocardial infarction, chronic kidney disease, respiratory conditions, musculoskeletal conditions, and various cancers, using biomarker inputs, demographic factors, and lifestyle behaviors like smoking status. This structure allows for projections of treatment impacts, including reductions in disease incidence and severity and associated healthcare cost savings.

To account for variability in treatment responses, the model simulates multiple weight loss scenarios based on different obesity treatment modalities and previous weight loss findings. This comparative analysis provides detailed estimates of the health and economic impacts of each intervention. The model includes the following scenarios:

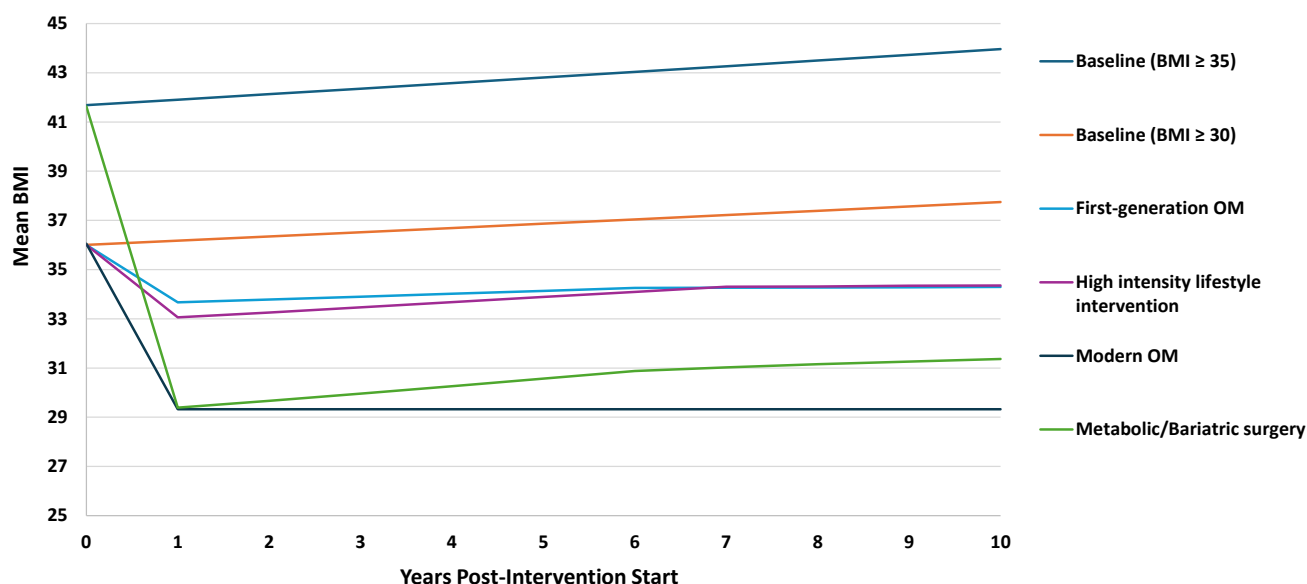
- **Baseline scenario:** This scenario represents disease progression without intervention. Adults with BMI  $\geq 30$  are projected to gain 1.7 BMI points over 10 years, while those with BMI  $\geq 35$  gain 2.3 BMI points on average (Exhibit 15). Some degree of weight gain occurs across all scenarios due to natural aging processes.
- **High intensity lifestyle intervention scenario:** This scenario includes structured support through counseling, personalized diet plans, and supervised exercise programs. Based on Look AHEAD outcomes, the scenario models an 8.5% weight loss in the first year, with roughly half regained by year 10, leading to an initial BMI reduction of 2.9, which stabilizes at 1.6 points lower than baseline by year 10.<sup>62</sup>
- **First-generation OM scenario:** This evaluates the outcomes of older obesity medications such as orlistat, phentermine/topiramate, and bupropion/naltrexone. These medications yield a weight loss of 6.5% in the first year, with weight regain of nearly one third of the initial weight loss in subsequent years.<sup>63–65</sup> Initially, BMI drops by 2.3, on average, and at year 10 BMI is 1.7 lower than pre-intervention BMI. However, in year 10 BMI is still 3.3 lower than it would be among this population in the absence of intervention. This modeled scenario assumes persistent OM use.
- **Modern OM scenario:** This scenario models injectable incretin-based therapies (IIs), including dual glucose-dependent insulinotropic polypeptide (GIP) and glucagon-like peptide-1 (GLP-1) receptor agonists (GIP/GLP-1 RAs) and glucagon-like peptide-1 receptor agonists (GLP-1 RAs). Patients in clinical trials achieved average weight loss up to 20.1%, with minimal weight regain when treatment is maintained.<sup>66–69</sup> The model predicts an average BMI reduction of 6.6 in the

first year, reaching 8.4 points lower than the baseline projection by year 10. This modeled scenario assumes persistent OM use.

- Metabolic or bariatric surgery scenario:** This scenario models outcomes for individuals with severe obesity (BMI  $\geq 35$ ), particularly those who may not respond sufficiently to lifestyle or medication-based treatments. The model estimates an average 29.1% weight loss, resulting in a BMI reduction of 12.1 points. Some weight regain occurs, leaving a net BMI reduction of 10.1 by year 10.<sup>70–72</sup> Among those with BMI  $\geq 35$ , the model estimates that by year 10, average BMI remains 10.2 points lower than pre-surgery levels and 12.3 points lower than in the absence of intervention.

Exhibit 15 presents the modeled population's average BMI changes across the treatment options and over time.

**Exhibit 15. Population Mean Simulated BMI by Treatment Option**



Source: Simulations using the Disease Prevention and Treatment Microsimulation Model.

The DPTMM prediction equations are derived from clinical trials, meta-analyses, and observational studies, offering insights into how specific biomarkers influence disease progression and health outcomes. For example, the relationship between weight loss and HbA1c improvements follows data from the CONQUER trial, which finds that each 1-kg weight loss corresponds to a 0.071% reduction in HbA1c for individuals with BMI 27–45.<sup>73</sup> A meta-analysis of clinical trials indicates that for every 1-kg weight loss, systolic blood pressure (SBP) decreases by 1.05 mmHg.<sup>74</sup> Cholesterol levels are modeled using data from the Framingham Heart Study, which provides longitudinal estimates of cholesterol changes associated with aging and weight loss.<sup>75</sup> The UK Prospective Diabetes Study (UKPDS) Outcomes Model 2 informs prediction equations for diabetes-related complications, such as retinopathy, renal failure, and amputations.<sup>76</sup>

Healthcare costs associated with different health outcomes are analyzed using 2018–2021 Medical Expenditure Panel Survey (MEPS) data. This dataset estimates annual medical expenditures through a generalized linear model with a gamma distribution and log link. Cost estimates incorporate demographics, chronic disease status, smoking history, and body weight category, with all values inflation-adjusted to 2024 dollars using the medical component of the Consumer Price Index (CPI). The indirect economic benefits of obesity treatment, including improved workforce participation and productivity, are estimated using prediction equations derived from 2020–2023 NHIS data, as described in previous sections.

To model the value of obesity treatment, the analysis constructs a representative sample of adults with obesity using pooled data from the 2017–2023 National Health and Nutrition Examination Survey (NHANES). Each individual record includes demographic characteristics (age, sex, race/ethnicity, insurance status), chronic disease prevalence (e.g., type 2 diabetes, hypertension, ischemic heart disease, congestive heart failure, chronic kidney disease), metabolic markers (BMI, HbA1c, SBP, total cholesterol, HDL cholesterol), and lifestyle factors (e.g., smoking status).

Direct and indirect outcomes are analyzed for Non-Hispanic Asian, Non-Hispanic White, Non-Hispanic Black, Hispanic (Mexican American and Other Hispanic), and individuals of Other Single or Multiple Races. The full adult population with obesity (or those with severe obesity for the MBS treatment scenario) is included in the simulation, regardless of prior disease history. This approach provides a comprehensive assessment of how different obesity treatments impact long-term health outcomes, healthcare costs, and economic burdens across diverse population groups.

## Value of Obesity Treatment

Simulation results for obesity treatment over a 10-year period demonstrate substantial reductions in disease incidence (Exhibit 16 and Exhibit 17) and improved economic outcomes (Exhibit 18 through Exhibit 20) compared to projected outcomes without intervention.

For illustration, Exhibit 16 presents the estimated 10-year reduction in obesity-related disease incidence across racial and ethnic groups with weight loss levels achieved through modern OM treatment. Key modeled findings include a 73% reduction in type 2 diabetes incidence among Black adults and a 69% reduction among White adults, relative to no treatment. Other racial and ethnic groups experience reductions ranging from 48% to 67%. Additionally, obesity treatment leads to significant reductions in other chronic conditions, including a 24–38% decrease in coronary heart disease incidence, a 28–39% reduction in heart attacks, a 30–42% drop in strokes, and a 41–49% decline in hypertension compared to no treatment. While treatment may not fully prevent disease onset for all individuals, it can delay progression and provide meaningful clinical and economic benefits over time.

Similarly, Exhibit 17 highlights the modeled reduced incidence of obesity-related diseases for Hispanic adults by insurance type. This pattern is similar across all racial and ethnic populations, where the reduced incidence of disease is highest for the Medicare population, followed by the Medicaid and commercially insured populations. This pattern suggests that obesity treatment has a larger immediate impact on populations that are older and likely with more fragile health.

Exhibit 16. Estimated 10-Year Reductions in Disease Incidence from Modern Obesity Medication Treatments

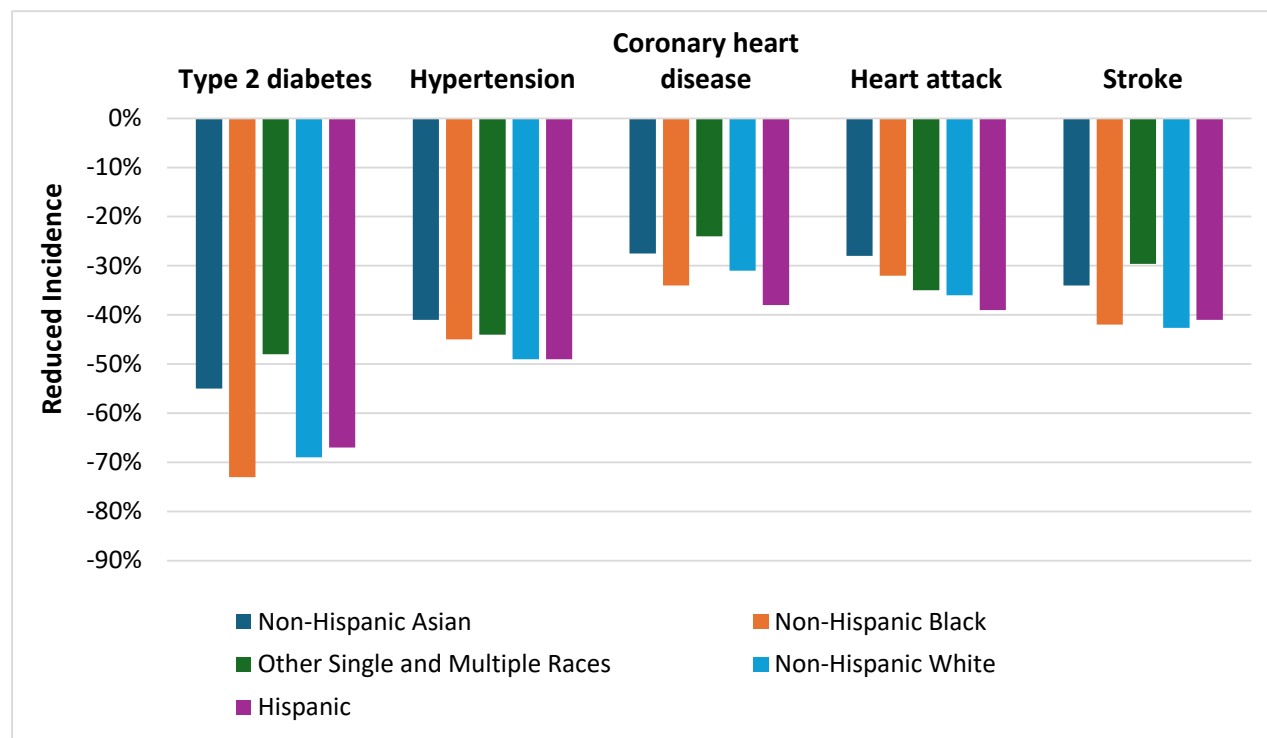


Exhibit 17. Estimated 10-Year Reductions in Disease Incidence from Modern Obesity Medication Treatments for Hispanic Adults by Insurance Type

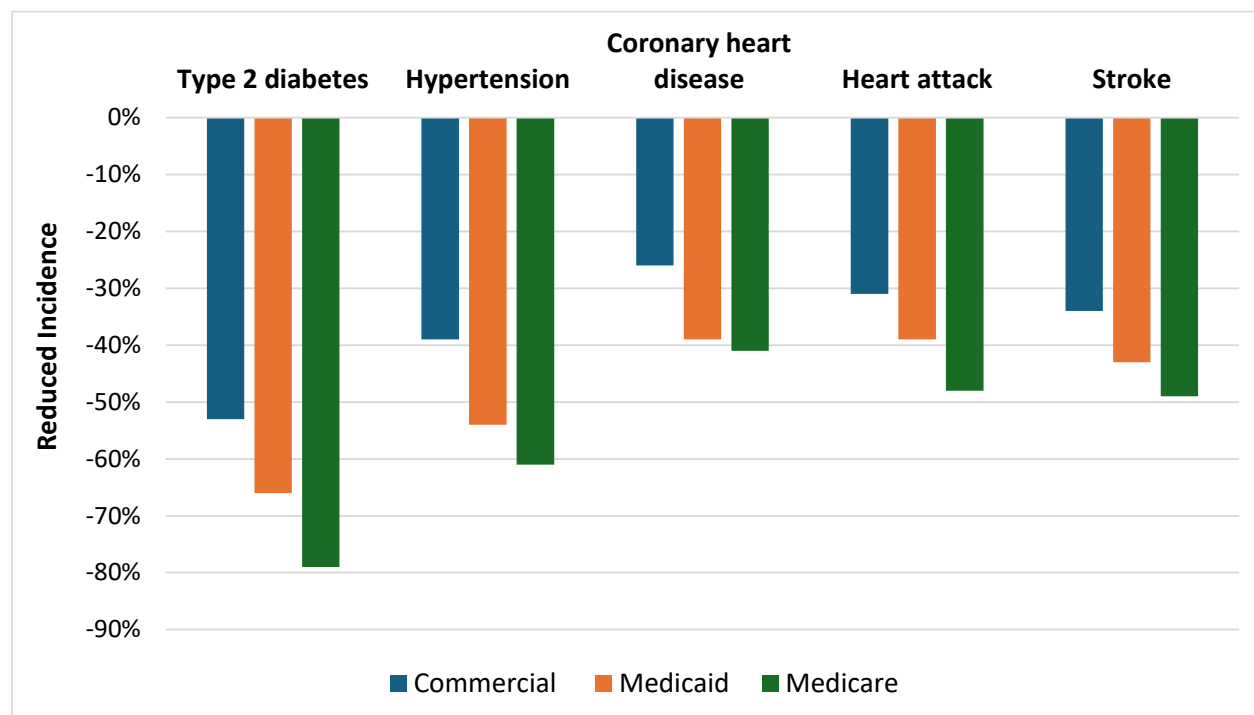


Exhibit 18 presents the total estimated economic benefits of obesity treatment across racial and ethnic groups for each intervention if all people with obesity were treated. These estimates include medical cost savings, increased productivity due to higher labor force participation, reduced absenteeism and presenteeism among employed individuals, lower Social Security Disability Insurance (SSDI) expenses, and reduced societal costs associated with premature mortality. The values reflect the annual average over 10 years.

The total annual economic benefits associated with achieving average weight loss associated with high-intensity lifestyle intervention among adults with obesity is projected to be \$336.2 billion for White adults, \$89.5 billion for Hispanic adults, \$77.4 billion for Black adults, \$13.6 billion for Asian adults, and \$8.5 billion for adults of other single and multiple races. Across all adults with obesity, weight loss associated with this intervention is associated with \$525.2 billion in potential annual economic benefits. These totals include direct medical cost savings of \$97.1 billion for White adults, \$31.2 billion for Black adults, \$19.1 billion for Hispanic adults, \$2.8 billion for Asian adults, and \$4.6 billion for adults of other single and multiple races.

Average weight loss associated with first-generation OM treatment could generate annual benefits of \$379.7 billion across all adults with obesity, with \$243 billion attributed to White adults, \$64.7 billion to Hispanic adults, \$56 billion to Black adults, \$9.8 billion to Asian adults, and \$6.2 billion to adults of other single and multiple races.

Achieving average weight loss associated modern OM treatment yields the greatest potential economic benefits due to their higher treatment effectiveness, with \$675.3 billion in total potential economic benefits. Total potential benefits include \$432.3 billion for White adults, \$115.3 billion for Hispanic adults, \$99.2 billion for Black adults, \$17.6 billion for Asian adults, and \$10.9 billion for adults of other single and multiple races.

For adults with BMI  $\geq 35$ , achieving and maintaining average weight loss associated with MBS has the potential to produce \$724.5 billion in annual economic benefits. This total amount modeled is smaller than estimated potential benefits for Modern OM, reflecting a smaller population modeled (i.e., patients with BMI  $\geq 35$  rather than all patients with obesity).

The findings above illustrate the potential economic benefits if all modeled individuals with obesity achieved average weight loss associated with each specific treatment option—as reflected in clinical trials. However, in practice, prescribing the appropriate treatment, treatment effectiveness and cost efficiency vary based on individual characteristics. Those with a lower starting BMI may achieve the best outcomes through lifestyle interventions, while individuals with a higher starting BMI may benefit more from medical treatments or surgical options that demonstrate greater efficacy in weight loss and long-term health improvements. Additionally, individual responses to treatment can differ, and some patients may not achieve their desired results with a particular intervention. Treatment selection should be an evidence based and patient centric decision, made in collaboration between patients and their healthcare providers, taking into account individual circumstances, medical history, and evidence-based clinical guidelines. These figures represent estimated gross benefits, excluding treatment costs. While treating a large population would entail substantial expense, scaling treatment could lower per capita costs over time.

Exhibit 19 presents the average annual economic benefit per adult with obesity based on the expected weight loss associated with each intervention type and the sources of those economic benefits. The average economic value of obesity treatment varies across racial and ethnic groups and by treatment option. It is important to note that the Total column does not equal the sum of the individual components, as the absenteeism and presenteeism estimates are calculated per employed individual with obesity, while the other components—including the total—are calculated per person with obesity, regardless of employment status.

- Non-Hispanic White adults are projected to see the greatest potential economic gains by achieving average weight loss levels reported for each treatment type. Modeled average annual benefits are \$4,850 from lifestyle intervention, \$3,530 from first-generation OMs, \$6,560 from modern OMs, and \$7,190 from MBS. As shown in Exhibit 19, the distribution of savings varies by race and ethnicity across different benefit components, including reductions in medical

costs, increased labor force participation and productivity, and lower disability payments and mortality costs. Differences by race and ethnicity in estimated medical cost savings may reflect systematic variations in insurance coverage, as commercial insurance prices are typically higher than those of Medicaid or Medicare. As a result, the same level of healthcare utilization reduction can generate greater dollar savings for individuals with commercial insurance than for those covered by public programs. Similarly, differences in labor force participation rates and industry or occupation mix influence the economic benefits of improved health, particularly in terms of absenteeism and presenteeism reductions.

- Black and Hispanic adults experience comparable potential economic benefits, with estimated average savings ranging from \$3,110 to \$6,530 for Black adults and \$3,100 to \$6,170 for Hispanic adults, based on the expected weight loss for each treatment. However, the composition of these economic benefits differs. Hispanic adults see greater gains from increased labor force participation and presenteeism, while Black adults benefit more from higher medical cost savings and reduced mortality costs.
- Asian adults have the lowest estimated potential economic benefits from weight loss, with savings ranging from \$2,080 for first-generation OMs to \$4,070 for MBS.
- Due to insufficient data, the American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations could not be modeled separately. These groups are included in the Other Single and Multiple Races category.

In addition, DPTMM estimated the average annual potential medical savings by insurance status and racial/ethnic group if individuals achieved the average expected weight loss under each treatment option (Exhibit 20). The potential cost offsets vary based on insurance type, reflecting differences in healthcare utilization, reimbursement rates, and baseline medical costs associated with obesity.

- Among Medicaid beneficiaries, Black and Hispanic adults are projected to experience the greatest medical cost savings from obesity treatments. Estimated average medical cost offsets range from \$1,460 to \$3,410 for Black adults and \$880 to \$1,870 for Hispanic adults.
- Among Medicare beneficiaries, Black and White adults see the highest potential savings, with average reductions in medical costs of up to \$3,050 and \$2,590, respectively.
- Among adults with commercial insurance, Black and White adults also experience higher average medical savings compared to other racial and ethnic groups.
- Asian adults have lower estimated medical savings across all insurance types, likely due to lower baseline obesity-related medical costs within this population.

Exhibit 18. Total Simulated Annual Economic Benefits of Obesity Treatment by Race &amp; Ethnicity (\$Billions)

| Treatment                             | Race & Ethnicity                | Medical Costs | Labor Force   |             |              | Disability (SSDI) | Mortality | Total   |
|---------------------------------------|---------------------------------|---------------|---------------|-------------|--------------|-------------------|-----------|---------|
|                                       |                                 |               | Participation | Absenteeism | Presenteeism |                   |           |         |
| High intensity lifestyle intervention | Non-Hispanic Asian              | \$2.8         | \$1.4         | \$1.0       | \$5.3        | \$0.6             | \$2.5     | \$13.6  |
|                                       | Non-Hispanic Black              | \$31.2        | \$2.3         | \$4.4       | \$4.8        | \$6.0             | \$28.7    | \$77.4  |
|                                       | Other Single and Multiple Races | \$4.6         | \$1.3         | \$0.4       | \$0.6        | \$1.2             | \$0.4     | \$8.5   |
|                                       | Non-Hispanic White              | \$97.1        | \$51.3        | \$17.8      | \$53.0       | \$28.4            | \$88.6    | \$336.2 |
|                                       | Hispanic                        | \$19.1        | \$21.7        | \$5.4       | \$23.9       | \$5.9             | \$13.5    | \$89.5  |
|                                       | All Adults                      | \$154.8       | \$78.0        | \$29.0      | \$87.6       | \$42.1            | \$133.7   | \$525.2 |
| First-generation OMs                  | Non-Hispanic Asian              | \$2.0         | \$1.0         | \$0.7       | \$3.8        | \$0.5             | \$1.8     | \$9.8   |
|                                       | Non-Hispanic Black              | \$22.6        | \$1.7         | \$3.2       | \$3.5        | \$4.3             | \$20.7    | \$56.0  |
|                                       | Other Single and Multiple Races | \$3.3         | \$1.0         | \$0.3       | \$0.4        | \$0.9             | \$0.3     | \$6.2   |
|                                       | Non-Hispanic White              | \$70.2        | \$37.1        | \$12.9      | \$38.3       | \$20.5            | \$64.0    | \$243.0 |
|                                       | Hispanic                        | \$13.8        | \$15.7        | \$3.9       | \$17.2       | \$4.3             | \$9.8     | \$64.7  |
|                                       | All Adults                      | \$111.9       | \$56.5        | \$21.0      | \$63.2       | \$30.5            | \$96.6    | \$379.7 |
| Modern OMs                            | Non-Hispanic Asian              | \$3.6         | \$1.8         | \$1.3       | \$6.8        | \$0.8             | \$3.3     | \$17.6  |
|                                       | Non-Hispanic Black              | \$39.3        | \$3.0         | \$5.7       | \$6.2        | \$7.8             | \$37.2    | \$99.2  |
|                                       | Other Single and Multiple Races | \$5.7         | \$1.7         | \$0.6       | \$0.7        | \$1.6             | \$0.6     | \$10.9  |
|                                       | Non-Hispanic White              | \$122.2       | \$66.6        | \$23.1      | \$68.7       | \$36.8            | \$114.9   | \$432.3 |
|                                       | Hispanic                        | \$24.0        | \$28.1        | \$7.0       | \$31.0       | \$7.6             | \$17.6    | \$115.3 |
|                                       | All adults                      | \$194.8       | \$101.2       | \$37.7      | \$113.4      | \$54.6            | \$173.6   | \$675.3 |
| Metabolic/Bariatric Surgery           | Non-Hispanic Asian              | \$3.9         | \$2.0         | \$1.4       | \$7.3        | \$0.9             | \$3.5     | \$19.0  |
|                                       | Non-Hispanic Black              | \$43.0        | \$3.2         | \$6.1       | \$6.6        | \$8.3             | \$39.5    | \$106.7 |
|                                       | Other Single and Multiple Races | \$6.3         | \$1.8         | \$0.6       | \$0.8        | \$1.7             | \$0.6     | \$11.8  |
|                                       | Non-Hispanic White              | \$133.9       | \$70.8        | \$24.6      | \$73.1       | \$39.1            | \$122.2   | \$463.7 |
|                                       | Hispanic                        | \$26.3        | \$29.9        | \$7.4       | \$32.9       | \$8.1             | \$18.7    | \$123.3 |
|                                       | All adults                      | \$213.4       | \$107.7       | \$40.1      | \$120.7      | \$58.1            | \$184.5   | \$724.5 |

Note: Estimates for some economic components may be less reliable due to small sample sizes for certain race/ethnicity groups, particularly American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations. <sup>a</sup> Estimates for labor force participation, absenteeism, presenteeism, and disability estimated from the NHIS use findings for the Other Single and Multiple Races population, as the Native Hawaiian and Other Pacific Islander designation is unavailable in NHIS and therefore this population is included in the Other Single and Multiple Races category.

**Exhibit 19. Average Simulated Annual Economic Benefits per Treated Adult with Obesity by Race & Ethnicity**

| Treatment                             | Race & Ethnicity                | Medical Costs <sup>a</sup> | Labor Force Participation <sup>a</sup> | Absenteeism <sup>b</sup> | Presenteeism <sup>b</sup> | Disability (SSDI) <sup>a</sup> | Mortality <sup>a</sup> | Total <sup>c</sup> |
|---------------------------------------|---------------------------------|----------------------------|----------------------------------------|--------------------------|---------------------------|--------------------------------|------------------------|--------------------|
| High intensity lifestyle intervention | Non-Hispanic Asian              | \$560                      | \$310                                  | \$320                    | \$1,720                   | \$140                          | \$540                  | \$2,890            |
|                                       | Non-Hispanic Black              | \$1,540                    | \$140                                  | \$400                    | \$440                     | \$360                          | \$1,720                | \$4,310            |
|                                       | Other Single and Multiple Races | \$850                      | \$640                                  | \$310                    | \$380                     | \$590                          | \$210                  | \$2,770            |
|                                       | Non-Hispanic White              | \$1,130                    | \$800                                  | \$460                    | \$1,350                   | \$440                          | \$1,380                | \$4,850            |
|                                       | Hispanic                        | \$750                      | \$1,060                                | \$370                    | \$1,660                   | \$290                          | \$660                  | \$4,190            |
|                                       | All Adults                      | \$1,070                    | \$720                                  | \$420                    | \$1,270                   | \$390                          | \$1,230                | \$4,490            |
| First-generation OMs                  | Non-Hispanic Asian              | \$400                      | \$220                                  | \$230                    | \$1,240                   | \$100                          | \$390                  | \$2,080            |
|                                       | Non-Hispanic Black              | \$1,110                    | \$100                                  | \$290                    | \$320                     | \$260                          | \$1,240                | \$3,110            |
|                                       | Other Single and Multiple Races | \$740                      | \$460                                  | \$220                    | \$280                     | \$430                          | \$150                  | \$2,130            |
|                                       | Non-Hispanic White              | \$840                      | \$580                                  | \$330                    | \$980                     | \$320                          | \$1,000                | \$3,530            |
|                                       | Hispanic                        | \$620                      | \$760                                  | \$270                    | \$1,200                   | \$210                          | \$480                  | \$3,100            |
|                                       | All Adults                      | \$790                      | \$520                                  | \$300                    | \$920                     | \$280                          | \$890                  | \$3,260            |
| Modern OMs                            | Non-Hispanic Asian              | \$730                      | \$400                                  | \$420                    | \$2,230                   | \$180                          | \$710                  | \$3,760            |
|                                       | Non-Hispanic Black              | \$2,200                    | \$180                                  | \$520                    | \$570                     | \$470                          | \$2,230                | \$5,800            |
|                                       | Other Single and Multiple Races | \$1,350                    | \$830                                  | \$400                    | \$500                     | \$770                          | \$280                  | \$3,850            |
|                                       | Non-Hispanic White              | \$1,740                    | \$1,030                                | \$590                    | \$1,760                   | \$570                          | \$1,790                | \$6,560            |
|                                       | Hispanic                        | \$1,190                    | \$1,370                                | \$480                    | \$2,150                   | \$380                          | \$860                  | \$5,660            |
|                                       | All adults                      | \$1,640                    | \$930                                  | \$550                    | \$1,650                   | \$500                          | \$1,600                | \$6,080            |
| Metabolic/Bariatric Surgery           | Non-Hispanic Asian              | \$770                      | \$420                                  | \$440                    | \$2,370                   | \$190                          | \$750                  | \$4,070            |
|                                       | Non-Hispanic Black              | \$2,590                    | \$200                                  | \$580                    | \$630                     | \$520                          | \$2,460                | \$6,530            |
|                                       | Other Single and Multiple Races | \$1,510                    | \$910                                  | \$440                    | \$550                     | \$850                          | \$310                  | \$4,240            |
|                                       | Non-Hispanic White              | \$1,930                    | \$1,140                                | \$650                    | \$1,940                   | \$630                          | \$1,970                | \$7,190            |
|                                       | Hispanic                        | \$1,320                    | \$1,520                                | \$530                    | \$2,370                   | \$410                          | \$950                  | \$6,170            |
|                                       | All adults                      | \$1,820                    | \$1,030                                | \$600                    | \$1,820                   | \$550                          | \$1,770                | \$6,660            |

Notes: <sup>a</sup> Cost per person with obesity. <sup>b</sup> Cost per employed person with obesity. <sup>c</sup> Cost per person with obesity, which differs from the sum of the columns to the left because not all adults with obesity are employed and therefore incur absenteeism and presenteeism costs. Estimates for some economic components may be less reliable due to small sample sizes for certain race/ethnicity groups, particularly American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations. <sup>d</sup> Estimates for labor force participation, absenteeism, presenteeism, and disability estimated from the NHIS use findings for the Other Single and Multiple Races population, as the Native Hawaiian and Other Pacific Islander designation is unavailable in NHIS and therefore this population is included in the Other Single and Multiple Races category.

**Exhibit 20. Average Simulated Medical Cost Offset per Treated Adult with Obesity by Insurance Status and Race & Ethnicity**

| Treatment                             | Race & Ethnicity                | Medicaid | Medicare | Uninsured | Commercial insurance | All     |
|---------------------------------------|---------------------------------|----------|----------|-----------|----------------------|---------|
| High intensity lifestyle intervention | Non-Hispanic Asian              | \$540    | \$640    | \$200     | \$620                | \$560   |
|                                       | Non-Hispanic Black              | \$2,030  | \$1,820  | \$670     | \$1,410              | \$1,540 |
|                                       | Other Single and Multiple Races | \$900    | \$1,330  | \$480     | \$680                | \$850   |
|                                       | Non-Hispanic White              | \$910    | \$1,520  | \$490     | \$1,190              | \$1,130 |
|                                       | Hispanic                        | \$1,060  | \$950    | \$260     | \$640                | \$750   |
|                                       | All Adults                      | \$1,180  | \$1,340  | \$480     | \$1,030              | \$1,070 |
| First-generation OMs                  | Non-Hispanic Asian              | \$380    | \$460    | \$140     | \$440                | \$400   |
|                                       | Non-Hispanic Black              | \$1,460  | \$1,310  | \$480     | \$1,010              | \$1,110 |
|                                       | Other Single and Multiple Races | \$780    | \$1,160  | \$410     | \$590                | \$740   |
|                                       | Non-Hispanic White              | \$680    | \$1,130  | \$360     | \$880                | \$840   |
|                                       | Hispanic                        | \$880    | \$790    | \$220     | \$530                | \$620   |
|                                       | All Adults                      | \$870    | \$990    | \$360     | \$760                | \$790   |
| Modern OMs                            | Non-Hispanic Asian              | \$740    | \$880    | \$270     | \$850                | \$770   |
|                                       | Non-Hispanic Black              | \$2,570  | \$2,300  | \$850     | \$1,780              | \$1,950 |
|                                       | Other Single and Multiple Races | \$1,250  | \$1,850  | \$660     | \$940                | \$1,180 |
|                                       | Non-Hispanic White              | \$1,480  | \$2,470  | \$790     | \$1,930              | \$1,840 |
|                                       | Hispanic                        | \$1,950  | \$1,750  | \$480     | \$1,180              | \$1,380 |
|                                       | All adults                      | \$1,590  | \$1,800  | \$650     | \$1,390              | \$1,440 |
| Metabolic/Bariatric Surgery           | Non-Hispanic Asian              | \$770    | \$910    | \$280     | \$880                | \$800   |
|                                       | Non-Hispanic Black              | \$3,410  | \$3,050  | \$1,130   | \$2,360              | \$2,590 |
|                                       | Other Single and Multiple Races | \$1,600  | \$2,370  | \$840     | \$1,200              | \$1,510 |
|                                       | Non-Hispanic White              | \$1,550  | \$2,590  | \$830     | \$2,020              | \$1,930 |
|                                       | Hispanic                        | \$1,870  | \$1,670  | \$460     | \$1,130              | \$1,320 |
|                                       | All adults                      | \$2,010  | \$2,280  | \$820     | \$1,760              | \$1,820 |

# Recommendations for Advancing Health in Obesity Care

Health equity aims to create a fair and just healthcare system where all individuals have the opportunity to achieve optimal health, regardless of race, ethnicity, socioeconomic status, or geographic location. Addressing social, economic, and environmental factors that drive health disparities is essential, particularly for racial and ethnic minorities, low-income populations, and other underserved groups. We first summarize key social goals around health equity, and then present actionable recommendations that align with these social goals.

## Key Social Goals for Health Equity

1. **Expanding access to healthcare.** Equitable access to preventive care, chronic disease management, and mental health services is essential for reducing health disparities. The Affordable Care Act has played a pivotal role in expanding healthcare coverage, particularly through Medicaid expansion and insurance marketplaces, improving access to care for millions of underserved individuals. The ACA also mandates preventive services, including obesity screening and counseling, which are critical for addressing chronic disease risk factors.
2. **Addressing social determinants of health:** Factors such as education, employment, housing, and food security significantly influence health outcomes. The Healthy People 2030 initiative by the U.S. Department of Health and Human Services (HHS) prioritizes reducing health disparities by targeting these determinants. Addressing these systemic barriers is essential for reducing obesity rates and mitigating chronic disease burdens that disproportionately affect specific racial and ethnic populations.
3. **Promoting culturally competent care:** To ensure equitable healthcare, services must be culturally and linguistically appropriate. The Culturally and Linguistically Appropriate Services Standards, issued by the Office of Minority Health, aim to improve healthcare quality for racial and ethnic minority groups by integrating cultural competency into care delivery.
4. **Expanding data collection and research:** Improved data collection and research on health disparities is necessary to inform targeted interventions and policies. The Patient Protection and Affordable Care Act mandates better data collection on health disparities, while the National Institute on Minority Health and Health Disparities promotes research and education efforts to improve health outcomes for underserved populations.
5. **Eliminating structural barriers to health:** Systemic inequities such as discrimination in healthcare settings, unequal distribution of healthcare resources, and gaps in healthcare affordability must be addressed to achieve health equity. Policies should focus on reducing bias in medical decision-making, improving equitable access to obesity treatment, and increasing provider awareness of health disparities.
6. **Promoting public health and preventive strategies:** The National Prevention Strategy emphasizes the importance of community-based initiatives that encourage healthy behaviors and prevent chronic diseases. Expanding access to healthy foods, promoting physical activity opportunities, and increasing education on obesity prevention are critical for addressing racial and ethnic disparities in obesity prevalence. The Health Resources and Services Administration (HRSA) 2025 Strategic Plan highlights the need for community partnerships, disease prevention, and policy integration to advance health equity in obesity care.<sup>77</sup> Goal 1 (Take Actionable Steps to Achieve Health Equity and Improve Public Health) includes objectives such as maximizing community partnerships with historically underserved groups, promoting disease prevention across populations, and incorporating health equity concepts into HRSA programs and

policies. HRSA emphasizes the importance of collaborating with stakeholders and communities that have historically experienced health disparities to achieve this goal.

Effectively addressing obesity and related health disparities requires a comprehensive strategy focused on prevention, education, and access to care. The following recommendations highlight key actions for government leaders, employers, healthcare systems, and community organizations.

#### Recommendations to Government Decision-Makers and Employers

1. **Enable comprehensive obesity insurance coverage and wellness programs for obesity care at parity with other chronic diseases:** In line with national recommendations, government decision makers and employers can ensure their health insurance plans (Medicaid, Medicare, and commercial plans) cover evidence-based obesity treatments, including intensive lifestyle and behavioral counseling<sup>1</sup>, nutrition support<sup>2</sup>, pharmacotherapy<sup>3</sup>, and metabolic/bariatric surgery<sup>4</sup>.
2. **Invest in community-based health initiatives:** Addressing the contributors to obesity requires improving access to safe, affordable spaces for physical activity, such as parks, recreational facilities, and walking paths in underserved areas. Expanding community-based nutrition programs, including farmers' markets, community gardens, and healthy food incentive programs, can increase access to nutritious foods. Additionally, implementing culturally tailored interventions, such as school-based nutrition and fitness education programs, can promote lifelong healthy habits and help close racial and ethnic health disparities.
3. **Increase research funding on obesity and health disparities:** Expanding research funding is essential to understanding the intersection of obesity, race, and ethnicity and developing evidence-based interventions that effectively address disparities. Increased investment should support large-scale, longitudinal studies to examine obesity-related health disparities over time, allowing researchers to track trends and assess the impact of interventions. Additionally, community-based research is critical for identifying effective, culturally tailored interventions that resonate with diverse populations. Strengthening public health data collection efforts will enable continuous monitoring of disparities, providing policymakers and healthcare professionals with the insights needed to develop targeted solutions that promote health equity in obesity care.

#### Recommendation to Healthcare Systems and Providers

4. **Deliver culturally competent obesity treatment:** Ensure healthcare providers are trained to offer culturally sensitive care, recognizing and addressing social and cultural factors that affect attitudes toward obesity and treatment.

#### Recommendations to Community Leadership, Grassroots Organizations, and Public Health Officials

5. **Develop tailored public health campaigns:** Design culturally and linguistically appropriate health campaigns that raise awareness about obesity risks and healthy lifestyle promotion. Campaigns should be tailored to align with community values to enhance engagement and participation in obesity prevention efforts.
6. **Community empowerment and engagement:** Support community-led initiatives such as health fairs, fitness programs, and nutrition workshops tailored to local needs. Foster partnerships between government, healthcare providers, and the private sector to develop comprehensive, community-based solutions. These partnerships should be strategically designed to address the community's immediate needs while also fostering long-term sustainability, ensuring that services are accessible, culturally responsive, and aligned with the lived experiences of the population.

## Limitations

This study addresses a critical gap in the literature by examining the economic implications of obesity across different racial and ethnic populations, leveraging the most recent available data. However, several limitations should be acknowledged.

First, despite pooling multiple years of data from national sources such as NHIS, MEPS, and NAMCS, small sample sizes for certain racial and ethnic groups—particularly American Indian or Alaska Native and Native Hawaiian and Other Pacific Islander populations—limit the reliability and precision of estimates for these populations. Additionally, portions of the analysis rely on self-reported data from NHIS, which may introduce recall bias or inaccuracies in reported height and weight, potentially leading to BMI misclassification and affecting the measurement of obesity prevalence and associated costs.<sup>78</sup>

The study primarily focuses on direct medical expenses, productivity-related indirect costs, and mortality costs, omitting other significant economic burdens such as reduced quality of life, mental health impacts, caregiver burden, and societal stigma. These exclusions likely result in an underestimation of the total economic impact of obesity. Furthermore, the analysis is limited to the adult population with obesity, excluding children and adolescents, despite the rising prevalence of obesity among younger populations and its long-term implications for healthcare costs and workforce productivity.

Another limitation is the potential underrepresentation of certain subpopulations, including undocumented immigrants and other marginalized groups, who may face unique barriers to healthcare access and experience distinct economic consequences of obesity.

Additionally, cost estimates are based on cross-sectional data and do not account for potential shifts over time in healthcare policies, treatment advancements, or changes in labor force dynamics that could influence obesity-related economic burdens.

Lastly, the analysis does not explicitly model the interactions between obesity and broader social determinants of health, such as education, housing instability, and systemic racism, which may further exacerbate the economic burden for certain racial and ethnic groups.

These limitations highlight the need for future research that incorporates longitudinal data, explores a broader range of economic and societal costs, and integrates social determinants of health to fully capture the burden of obesity and its disparities across populations.

## Conclusions

This report highlights the significant economic and societal burden of obesity in the United States, with total costs reaching nearly \$933 billion in 2024, or 3.2% of GDP. White adults account for the largest share of costs (\$588.1 billion), followed by Hispanic (\$159.6 billion) and Black adults (\$137.2 billion). These estimates reflect differences in population size, obesity prevalence, healthcare access, workforce participation, and social determinants of health all of which contribute to various health outcomes among different communities. The economic burden per person with obesity also varies: White adults face the highest costs due to medical expenses and lost productivity, Black adults experience higher mortality-related costs, and American Indian or Alaska Native adults are disproportionately affected by presenteeism and mortality-related losses. Although Asian and Native Hawaiian and Other Pacific Islander adults have lower overall costs, they still incur substantial medical and disability-related expenses. When viewed on a per-capita basis (dividing total national costs by the entire adult population regardless of weight status), non-Hispanic Black adults experience the highest economic burden (\$1,600 per person), followed by adults of multiple races (\$1,570) and American Indian or Alaska Native adults (\$1,210), while Asian

adults have the lowest (\$270). Hispanic adults average \$680, and White adults average \$930. The national average economic burden of obesity is \$940 per adult.

Over a 10-year period, simulation results demonstrate that obesity treatment may significantly reduce disease incidence and improves economic outcomes. Modern OM treatments provide the greatest potential health benefits, reducing type 2 diabetes incidence by up to 73% in Black adults and 69% in White adults, with other racial and ethnic groups experiencing reductions of 48–67%. Additionally, obesity treatment leads to a 24–38% reduction in coronary heart disease, a 28–39% drop in heart attacks, a 30–42% decline in strokes, and a 41–49% decrease in hypertension. Even when treatment does not completely prevent disease onset, it may delay progression, improving long-term health outcomes and economic stability. The economic impact of obesity treatment varies by intervention and racial/ethnic group, with achieving weight loss equivalent to what is achievable with modern OM treatment potentially reducing annual obesity-related costs by 72% (\$675.3 billion annually). Achieving weight loss at levels typically observed with other interventions—such as high-intensity lifestyle interventions, first-generation OMs, and metabolic/bariatric surgery—also yields significant economic benefits, reducing healthcare costs and improving productivity across diverse populations.

Achieving health equity in obesity care involves a practical, multi-faceted approach that addresses systemic barriers, social determinants of health, and differences in healthcare access. Expanding access to preventive care, chronic disease management, and mental health services could help reduce obesity-related disparities, particularly for racial and ethnic minorities, low-income populations, and underserved communities. While policies such as the Affordable Care Act have improved healthcare access, further efforts to address inequities in education, employment, housing, and food security may support long-term health improvements. Culturally competent care, including linguistically appropriate services and treatment approaches that account for social and cultural factors, may improve engagement and adherence to obesity care. Strengthening data collection and research on obesity-related disparities could also provide valuable insights for developing targeted, evidence-based interventions and policies.

For policymakers seeking to advance health equity in obesity care, several strategies may serve as a roadmap for success. Expanding insurance coverage for evidence-based obesity treatments, including behavioral counseling, pharmacotherapy, and metabolic/bariatric surgery, could improve access to care. Community-driven initiatives—such as nutrition programs, increased availability of fitness spaces, and culturally relevant health education—may provide additional opportunities for impact. Increased research funding could further enhance the understanding of obesity's effects across different populations, helping to refine interventions that account for diverse needs. Healthcare systems that integrate culturally competent care may help ensure that treatments are more accessible and effective for all individuals.

Additionally, addressing the economic and health effects of obesity may be supported through policies that prioritize community-based solutions. Efforts to increase access to nutritious foods, promote physical activity, and provide culturally tailored health education could contribute to broader strategies for reducing obesity prevalence. Recognizing the role of social determinants of health—such as economic stability, housing, and healthcare access—may also inform future policy discussions and resource allocation. Strengthening research and data collection could enable policymakers to track progress, refine interventions, and measure the long-term impact of various approaches.

Ultimately, reducing the burden of obesity and advancing health equity may be supported through a combination of clinical, community, and policy-level strategies. A well-coordinated approach could improve health outcomes, reduce healthcare expenditures, and enhance economic productivity, contributing to broader efforts to create a more equitable society.

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