ITIF | INFORMATION TECHNOLOGY & INNOVATION FOUNDATION
CENTER FOR LIFE SCIENCES INNOVATION

A Shot at a Healthier Future: The Transformative Potential of GLP-1s

SANDRA BARBOSU AND NATALIE KHOO | AUGUST 2025

Obesity affects over 42 percent of U.S. adults, costing the nation more than $400 billion annually. Traditional weight-loss methods alone have proved to be insufficient in addressing this growing public health burden. But GLP-1 receptor agonists now offer the potential to profoundly transform obesity care. Public policies should support their wider adoption.

KEY TAKEAWAYS

- Obesity costs the United States more than $400 billion annually, including $173 billion in health-care expenditures, as well as significant losses in productivity, wages, and economic output.
- The indirect costs of obesity ripple across multiple sectors—including transportation, food, infrastructure, and emergency services—further compounding its overall economic burden.
- Prior efforts to reduce the obesity crisis through advice about dieting and exercise have failed.
- GLP-1 therapies deliver clinically meaningful weight loss and help reduce the risk of type 2 diabetes, cardiovascular disease, and other chronic conditions.
- Broad adoption of GLP-1 therapies could reduce long-term health care costs, boost labor force participation, and generate economic benefits across multiple sectors.
- Key policy priorities include continued support for GLP-1 research, equitable access to these therapies, and incorporating dynamic scoring in CBO modeling to better capture the broader economic impact of obesity reduction.

CONTENTS

INTRODUCTION

Over the past several decades, the United States has made significant progress in many population health indicators, including increased life expectancy, reduced smoking rates, and decreased substance use among youth.[1] However, in stark contrast, obesity rates have surged, nearly doubling since the early 2000s.[2] Obesity now affects 42.4 percent of American adults, making it a significant driver of both preventable disease and health care costs—an estimated $173 billion annually, according to the Centers for Disease Control and Prevention (CDC).[3]

The United States also faces rising obesity among children and adolescents, with nearly one in five youth classified as obese.[4] Obesity is commonly defined as a body mass index (BMI) of 30 kg/m^2 or higher.[5] This trend is not unique to the United States, as rising obesity rates have been observed across many countries worldwide. According to the World Obesity Federation, 38 percent of the global population is currently overweight or obese—a figure projected to reach 51 percent by 2035, with associated costs expected to exceed $4 trillion annually by 2035, or nearly 3 percent of current global gross domestic product (GDP).[6] This rapid rise in obesity has led many experts to classify it as a global epidemic—one with far-reaching health, social, and economic consequences, from increased rates of type 2 diabetes, heart disease, and cancer to decreased workforce productivity and rising disability burdens.[7]

The widespread prevalence of obesity poses a serious threat to both individual health and healthcare systems around the world. A key feature of obesity is an excessive accumulation of body fat—also known as adipose tissue—that is metabolically active, releasing hormones and inflammatory markers that contribute to several conditions, including insulin resistance, inflammation, and cardiovascular damage.[8] Obese individuals therefore have an increased risk of developing numerous chronic conditions, including type 2 diabetes, cardiovascular disease, hypertension, and certain cancers.[9]

Obesity rates have surged, nearly doubling since the early 2000s.

In addition to physical health complications, obesity is also associated with mental health challenges, including depression, anxiety, and social stigma, further exacerbating the burden on affected individuals.[10] Although lifestyle interventions are a cornerstone of clinical treatments for obesity, traditional weight-loss strategies, such as calorie restriction and increased physical activity, have shown limited long-term success.[11] Many individuals struggle to maintain weight loss due to biological mechanisms that regulate appetite and metabolism, which often drive the body to regain lost weight.

Recognizing the urgent need for more effective obesity interventions, the scientific and medical communities have increasingly pursued innovative approaches to address this complex, chronic condition. Among the most promising breakthroughs in recent years has been the development of glucagon-like peptide-1 (GLP-1) receptor agonists (henceforth, GLP-1s)—a class of medications originally developed to treat type 2 diabetes. Therapies such as Eli Lilly's Mounjaro and Novo Nordisk's Ozempic and Wegovy have shown remarkable efficacy in promoting weight loss, marking a significant advancement over earlier generations of weight-loss drugs, which often had more-limited effectiveness or more-pronounced side effects.[12] These therapies work by mimicking GLP-1, a naturally occurring hormone that regulates key biological pathways involved

in appetite and metabolism. Specifically, they increase satiety and slow gastric emptying, leading to reduced caloric intake and clinically meaningful weight loss—approximately 15 percent in clinical trials.[13] Crucially, by targeting the underlying drivers of obesity such as insulin resistance and hormonal dysregulation, GLP-1s represent a potential paradigm shift in obesity treatment. As access expands and long-term data accumulates, these therapies may become a cornerstone of comprehensive, evidence-based obesity care.

However, amid growing fiscal pressures, questions about the sustainability and accessibility of advanced obesity treatments are inevitable. While scaling back health care spending may seem prudent during times of economic uncertainty, underinvesting in innovative obesity therapies risks undermining long-term economic growth. The costs of obesity-related conditions extend well beyond direct medical expenses—they reduce workforce productivity, increase disability rates, and strain insurance programs. As this report outlines, advancing the development and accessibility of obesity treatments has the potential not only to improve population health, but also to lower long-term health care costs, enhance labor force participation, and generate cross-sector economic benefits, which could save the United States more than $400 billion annually.

This report examines the role of GLP-1s in obesity management, evaluating their clinical effectiveness, economic implications, and broader societal impact. It explores the potential of these therapies not only to support weight loss, but also to mitigate obesity-related comorbidities, reduce health care expenditures, and enhance workforce productivity. The report also considers the ripple effects across multiple industries, including transportation, the food industry, and emergency services. While GLP-1s present a transformative opportunity, challenges related to cost, access, and long-term sustainability remain. The report offers policy considerations for integrating these treatments into a comprehensive obesity care model. These include support for basic research and dynamic scoring in Congressional Budget Office (CBO) modeling to account for the impact of a reduction in obesity across multiple sectors of the economy. As obesity is increasingly recognized as a chronic disease requiring medical intervention, GLP-1s may offer renewed hope to millions struggling with weight challenges and their associated health risks.

THE SCALE OF THE PROBLEM

To fully grasp the transformative potential of GLP-1 therapies, it is essential to first understand the scale and complexity of the obesity epidemic they aim to address. Today, concerns about weight and health are more widespread than ever—and with good reason. Obesity rates have surged over recent decades, turning what was once viewed primarily as an individual medical issue into a major public health crisis. The numbers are striking: Approximately one in three U.S. adults are overweight, and more than two in five have obesity.[14] This translates to roughly 110 million American adults living with obesity—a number comparable to the combined populations of Italy, Spain, and Denmark.[15]

The United States has one of the highest obesity rates among high-income countries.[16] In 2023, at least 23 states reported adult obesity rates of 35 percent or higher—a dramatic rise from a decade earlier, when no state had reached that threshold.[17] These figures highlight the escalating scale of the crisis and the urgent need for more effective interventions beyond traditional lifestyle modifications such as diet and exercise, which have shown limited long-term success.[18]

Gender differences add another layer of complexity to the obesity public health challenge. Women are approximately 40 percent more likely than men to be obese, placing them at increased risk for obesity-related comorbidities.[19] Research suggests that these disparities are driven by a combination of biological, environmental, and behavioral factors.[20] Notably, gender-based differences in food cravings—including the type, intensity, frequency, and regulation of cravings—have been linked to the higher prevalence of obesity among women. Compared with men, women report more frequent and intense cravings, particularly for sweet, high-calorie foods such as chocolate and pastries, which may contribute to excessive caloric intake and long-term weight gain.[21]

Childhood obesity statistics are equally concerning. Nearly one in five American children and adolescents (19.7 percent) are classified as obese—a rate that has more than tripled from 5.5 percent in the 1970s.[22] Excess weight in childhood is a strong predictor of adult obesity, reinforcing a cycle of poor health conditions that can persist throughout life.[23] Early onset obesity also significantly increases the risk of developing chronic conditions such as type 2 diabetes, hypertension, and cardiovascular disease at younger ages, contributing to long-term health complications and rising health care costs.[24]

If current trends in youth obesity persist, younger generations are likely to experience obesity-related conditions earlier in life, placing increasing strain on the healthcare system. U.S. studies estimate that a child with obesity at age 10 incurs an additional lifetime medical cost of $16,300 to $19,300 compared with a child with a healthy weight.[25] Moreover, obesity-related health care expenses among fifth graders alone are estimated to be $17 billion higher than those for peers who maintained a healthy weight during childhood but gained excess weight later in life.[26]

UNHEALTHY NUMBERS: THE ECONOMIC TOLL OF OBESITY

As obesity rates continue to rise, so too do the economic costs for both individuals and society. According to the CDC, obesity-related health care expenditures in the United States total approximately $173 billion annually, with individuals with obesity incurring an average of $1,861 more in medical costs each year than do those at a healthy weight.[27] However, the economic impact extends beyond direct medical spending—obesity also reduces workforce participation and productivity, contributing to an estimated 4.4 percent decline in GDP.[28] As innovative therapies such as GLP-1s offer new hope for addressing obesity, quantifying its broader economic burden helps underscore the value and potential return on investment of such therapeutic advances.

Individual Costs of Obesity

The burden of obesity begins at the individual level—not only as a medical concern, but as a persistent financial strain embedded in daily life. From higher health care expenses to lost wages and increased insurance premiums, individuals with obesity face escalating economic challenges over time. Research shows that medical costs rise significantly with an increasing BMI.[29] Obesity is defined as a BMI of 30 kg/m^2 or higher and is further classified into distinct categories based on severity. (See table 1.)

Table 1: BMI Classifications[30]

Medical Classification	BMI Range (kg/m²)
Underweight	Under 18.5
Healthy Weight	18.5–24.9
Overweight	25.0–29.9
Obesity (Class 1)	30.0–34.9
Obesity (Class 2)	35.0–39.9
Obesity (Class 3, a.k.a. Severe Obesity)	Above 40.0

A 2021 study found that adults with obesity incurred average annual health care expenses of $5,010—double the $2,504 spent by individuals at a healthy weight.[31] Among individuals covered by large employer-sponsored insurance, the cost burden of obesity is equally evident. In 2021, enrollees who were overweight or obese incurred an average of $12,588 in total annual health costs—more than double the $4,699 spent by individuals at a healthy weight.[32] This disparity is also reflected in out-of-pocket spending, which has risen more sharply for those with excess weight. Over the past decade, average out-of-pocket costs for obese individuals with employer coverage have increased by 37 percent, reaching $1,487 in 2021.[33] In comparison, individuals without obesity saw a 25 percent increase, averaging $698 per year. Notably, these rising costs do not affect only those with obesity. As insurers adjust premiums to absorb growing obesity-related expenses, healthier individuals may also face higher insurance costs—despite not incurring the higher direct medical expenditures themselves.[34]

Beyond its economic impact, obesity also significantly reduces life expectancy. On average, obesity is associated with 4.7 years of life lost per affected individual and has been estimated to reduce overall U.S. life expectancy by 2.1 years.[35] Put differently, obesity is a leading contributor to premature mortality in the United States, accounting for more than 1,300 excess deaths each day.[36] If the burden of obesity were reduced or eliminated, the resulting life expectancy gains would roughly equal the total lifespans of the population of Indiana (6.75 million people).[37] Fortunately, the increasing availability of innovative treatments offers a promising opportunity to reduce obesity's toll and improve public health outcomes.

On average, obesity is associated with 4.7 years of life lost per affected individual and has been estimated to reduce overall U.S. life expectancy by 2.1 years.

Healthcare System Costs of Obesity

Beyond the personal toll, obesity imposes substantial and immediate financial strain on the U.S. healthcare system. Obesity-related conditions are now among the most significant drivers of rising federal health care spending and long-term fiscal imbalances. Over the next decade, such illnesses are projected to add $5.6 trillion to the U.S. federal primary deficit, with approximately $4.1 trillion stemming from increased costs in programs such as Medicare and Medicaid.[38]

Notably, obesity alone is estimated to account for nearly 42 percent of the federal primary deficit during this period.[39]

This matters because reducing the primary deficit is essential to stabilizing the debt-to-GDP ratio—a key indicator of a nation's fiscal health. If left unaddressed, rising obesity-related expenditures may continue to crowd out other public investments and place federal debt on an increasingly unsustainable path. In particular, obesity-related health care spending could divert resources from productivity-enhancing investment priorities such as education, infrastructure, and research and development (R&D).

In addition to future fiscal projections, current health care spending trends already underscore the scale of the obesity crisis. As of 2016, adult obesity was associated with $260.6 billion in aggregate medical costs in the United States.[40] Looking ahead, the 2025 Joint Economic Report estimates that obesity will generate between $8.2 trillion and $9.1 trillion in excess medical expenditures over the next decade—if America fails to foster an environment in which medical innovation can effectively address obesity.[41]

While employer-sponsored insurance bears the majority of obesity-related costs, Medicare and Medicaid still account for roughly 25 percent of the national burden.[42] This is particularly concerning given the high prevalence of obesity-related chronic conditions among program beneficiaries. More than 14 million Medicare enrollees—over one in five—have been diagnosed with obesity, and over 17.7 million are living with type 2 diabetes, a condition strongly linked to excess weight.[43]

At the state level, the economic impact of obesity becomes even more pronounced. Recent research reveals significant geographic variation in obesity-related health care costs. Among the four most populous U.S. states, the estimated increase in health care spending associated with a single additional BMI unit ranged from $55 in Florida to a staggering $373 in California.[44] In total, average annual medical expenditures for adults with obesity in California reached $5,812—nearly four times higher than the $1,502 spent by individuals at a healthy weight. While the effects were less dramatic in other states, the overarching message is clear: obesity acts as a cost multiplier throughout the healthcare system, at both federal and state levels.

Heavy Losses: Reduced Economic Output

As obesity rates continue to rise, the U.S. economy faces mounting losses in workforce participation, productivity, and long-term growth potential. Obesity reduces life expectancy, which in turn shrinks the pool of working-age individuals contributing to the economy.[45] According to established economic models, a 1 percent increase in the labor supply is associated with a 0.8 percent rise in long-term economic activity.[46] When applied to the years of working life lost due to obesity-related premature deaths, the implications are striking: the United States is projected to forfeit between $10.9 trillion and $11.9 trillion in GDP over the next decade from labor force reductions alone. This loss corresponds to an estimated $1.93 trillion to $2.12 trillion in forgone federal tax revenue—driven by a smaller, less-active workforce.[47]

These labor supply effects are further compounded by the productivity losses obesity imposes on individuals who remain in the workforce. Obesity-related absenteeism and presenteeism—where employees are either absent from work or unable to perform at full capacity—are among the most persistent and costly challenges for employers.[48] Research shows that employees with obesity

miss an average of 2 to 2.5 more workdays per year than do their healthy-weight peers.[49] In 2023, obesity-related absenteeism was estimated to cost U.S. employers approximately $82.3 billion, while health-related presenteeism associated with obesity had a cost of $160.3 billion.[50] Additionally, productivity losses due to presenteeism amount to an estimated 2 percent reduction in total output for these individuals. When scaled across the economy, this seemingly modest productivity loss translates into a projected $2.6 trillion to $2.8 trillion reduction in U.S. GDP between 2024 and 2033, along with corresponding federal tax revenue losses nearing $470 billion.[51]

Beyond day-to-day losses, obesity significantly increases the risk of workplace injuries, especially in physically demanding industries including construction and manufacturing. Employees with obesity are more likely to experience impaired mobility, reduced stamina, and comorbidities such as sleep apnea, which can impair alertness and coordination. These physical limitations therefore increase the likelihood of on-the-job accidents, early retirement, and workforce attrition. As a result, employers face higher rates of workers' compensation claims, alongside rising costs for medical care and indemnity payments.[52] Research shows that employees with obesity file nearly twice as many workers' compensation claims, incur 7 times the medical costs, and generate 11 times the indemnity expenses of their healthy-weight counterparts.[53] These outcomes translate into tangible financial consequences. In 2023 alone, obesity-related disability costs reached approximately $31.1 billion, while workers' compensation programs absorbed an additional $5.2 billion in related expenses.[54] These outcomes impose a substantial burden on employers through increased insurance premiums, reduced productivity, and greater employee turnover—underscoring the broader economic stakes of the obesity epidemic in the workplace.

At the macroeconomic level, obesity's impact on the labor market can undermine national growth potential. A smaller, less-productive workforce leads to fewer innovations, reduced capital formation, and slower economic expansion. Over time, this dynamic hinders both human and physical capital development, placing downward pressure on the economy's long-term growth trajectory.[55] The outlook is especially urgent given the projected rise in obesity prevalence. By 2030, more than half of American adults are expected to be classified as obese, with a substantial increase in severe obesity.[56] If unaddressed, this trend will further erode America's economic potential, placing unprecedented strain on public programs, employer budgets, and national productivity. Yet, this trajectory is not inevitable. Strategic investments in effective obesity interventions—including innovative treatments such as GLP-1 therapies and targeted public health initiatives—could yield significant economic returns by preserving workforce participation, enhancing productivity, and improving population health.[57]

Workplace Discrimination and Wage Gaps

While the physiological and economic effects of obesity are well documented, the social costs—particularly in the workplace—are often overlooked. Obesity stigma can influence hiring decisions, promotional opportunities, and compensation, contributing to persistent wage gaps and employment inequality. Studies consistently show that individuals with obesity earn less than their healthy-weight peers do, even after controlling for education, experience, and job performance.[58]

Women, in particular, face disproportionately steep economic penalties. A landmark study published in the *Journal of Human Resources* finds that white women with obesity earn

approximately 9 percent less than their healthy-weight counterparts do. Although wage penalties for men also exist, they tend to be smaller and less consistent.[59] Other studies suggest that the economic return from weight loss can rival that of an additional educational qualification. For example, losing around 65 pounds—the approximate amount a moderately obese woman of average height would need to reach a healthy BMI—could, in theory, yield a wage increase comparable to earning a master's degree, which is associated with an 18 percent pay premium.[60]

This wage gap cannot be explained solely by differences in productivity. Instead, it also stems from implicit biases and appearance-based discrimination.[61] Employers may—consciously or unconsciously—associate obesity with traits such as laziness, lack of discipline, or poor health, even when those assumptions are unfounded.[62] These biases influence not only hiring decisions but also performance evaluations, training opportunities, and career advancement. The impact is particularly pronounced in industries that emphasize physical appearance, such as customer-facing roles.[63] Individuals with obesity may be passed over for positions, excluded from leadership pipelines, or denied training opportunities. Over time, these disadvantages accumulate, limiting career trajectories and reinforcing long-term income inequality.

What makes this particularly harmful is its intersection with race and socioeconomic status. As obesity rates continue to rise disproportionately among low-income populations and communities of color, wage penalties and employment discrimination risk further deepening economic inequality. Projections suggest that by 2030, severe obesity will be most prevalent among Black adults, low-income individuals, and women—groups that already face barriers in the labor market.[64] Moreover, employers who fail to support or accommodate employees with obesity may face higher turnover, lower morale, and reduced inclusivity—all of which can negatively impact organizational performance.[65] As the financial and social costs of obesity continue to rise, it is increasingly clear that systemic solutions—such as innovative therapies—are needed.

THE INDIRECT COSTS OF OBESITY: IMPLICATIONS ACROSS INDUSTRIES

Rising obesity rates in the United States represent not only a pressing public health challenge but also a growing source of strain on public infrastructure and services. As the prevalence of obesity increases, so too do its effects ripple across sectors—from transportation and logistics to public services and more. These indirect costs affect how systems are designed, operated, and maintained. This section highlights several key cross-sectoral impacts that underscore the far-reaching consequences of the obesity epidemic.

Transportation and Fuel Efficiency

Obesity has a measurable impact on transportation energy consumption. Increases in average body weight lead to higher fuel usage across multiple modes of travel—including personal vehicles and commercial aviation. A CDC study estimates that, in the year 2000 alone, increased passenger weight led U.S. airlines to burn an additional 350 million gallons of jet fuel, at an added cost to the industry of $275 million.[66] The following illustrative example provides a conservative estimate of current obesity-related fuel costs to U.S. aviation at approximately $684 million a year.

Airlines are already adapting to the economic and operational challenges associated with rising passenger weights. In regions with high obesity prevalence—such as the Pacific Islands—airlines such as Samoa Airways have introduced weight-based ticket pricing models in which fares are

scaled proportionally to a traveler's weight.[67] Meanwhile, European carriers including Finnair have begun experimenting with voluntary passenger weigh-ins to more accurately estimate fuel requirements. These measures underscore the growing economic and environmental implications of increasing body weights for the aviation industry.[68]

Illustrative Example: Obesity-Related Fuel Costs in U.S. Aviation

To illustrate the current real-world implications of rising obesity rates on the aviation sector, we estimated the additional fuel burden associated with excess passenger weight on U.S. flights.

Baseline Assumptions

- Average U.S. adult weight: 185.3 lbs. (based on a 50/50 male-female split). Where male: 199.8 lbs.; 5'9".[69] (BMI 29.5, overweight); and female: 170.8 lbs.; 5'3".[70] (BMI 30.3, obese).
- Weight loss with GLP-1 therapy (e.g., semaglutide): ~15 percent body weight reduction (~27.6 lbs. per person).[71]
- Aircraft model: Boeing 737-300 (short-haul), capacity ~128 passengers.[72]
- Excess weight on such a flight: 27.6 lbs. × 128 passengers = 3,532.8 lbs.

Fuel Impact Estimate

- Fuel burn rate (FAA estimates): 0.003 gallons per pound per hour.[73]
- Flight duration (short-haul): 3 hours
- Extra fuel burned per flight: 3,532.8 lbs. × 0.003 gal./lb./hr. × 3 hrs. = ~31.8 gallons.
- Jet fuel price (April 1, 2025): $2.27 per gallon.[74]
- Added fuel cost per flight: ~31.8 gallons × $2.27 = ~$72.

Industry-Wide Impact

- Annual U.S. scheduled flights: ~10 million.[75]
- Estimated short- and medium-haul share: 95 percent = 9.5 million flights.[76]
- Total annual cost of excess passenger weight to U.S. aviation industry: 9.5 million flights × $72 = ~$684 million per year.

A Conservative Estimate

This figure likely underestimates the true impact. It excludes:

- long-haul flights, where excess passenger weight can drive even greater fuel consumption;
- secondary effects such as increased maintenance, emissions, and operational costs; and
- adjustments for fuel burn over medium-haul distances, given pooled flight data availability (i.e., estimate is based on short-haul flights of 3 hours). As fuel costs rise with flight duration, the actual fuel-related costs associated with obesity are likely higher than estimated.

Food Industry: Shifting Consumer Demand and Healthcare System Implications

GLP-1 therapies are poised to significantly reshape consumer food choices, with wide-ranging consequences for the food and beverage industry, public health, and the broader healthcare system. A recent study from Cornell University finds that households with at least one GLP-1 user reduced grocery spending by 5.5 percent within six months of adoption—equivalent to approximately $416 less per household per year.[77] This decline was especially pronounced among higher-income households and was concentrated in specific product categories, particularly ultra-processed foods such as snacks, sweets, and baked goods.[78] With over 40 percent of American adults living with obesity, even a conservative estimate of 10 percent uptake of GLP-1 therapies within this population would amount to approximately 10 million users. If each of these households reduced grocery spending by $416 annually, the aggregate decline in excess food expenditures could total $4.16 billion per year. This figure reflects a substantial shift in household consumption patterns and underscores the broader economic ripple effects of GLP-1 adoption.

These changes show the appetite-suppressing effects of GLP-1 therapies, which reduce cravings for calorie-dense, nutrient-poor foods.[79] For the food and beverage industry, these evolving consumer preferences present not only challenges but also opportunities—encouraging innovation in healthier product lines that align with a growing demand for nutrition-conscious eating.

Beyond industry impacts, this trend also has important implications for national health outcomes and health care costs. Ultra-processed foods currently account for roughly 60 percent of caloric intake in the United States—compared with 14 to 44 percent in Europe—and are associated with chronic diseases such as hypertension, diabetes, cardiovascular disease, and certain cancers.[80] According to a recent survey, the United States also leads the world in per capita sugar consumption at 126.4 grams per year, contributing to higher disease burdens and long-term medical expenditures.[81] While the U.S. healthcare system excels in treatment innovation and high survival rates for complex conditions, Americans often enter care in worse health than their counterparts in other high-income countries—an issue rooted, in part, in dietary patterns shaped by the food environment.[82]

Healthcare System Adaptation

As obesity rates continue to rise in the United States and globally, healthcare systems are facing mounting pressures that extend well beyond traditional clinical care. The growing prevalence of obesity has prompted significant adaptations across emergency services and hospital infrastructure.[83] This section examines how the healthcare sector is responding to the physical and economic demands of treating patients with obesity.

Emergency Services and Bariatric Equipment

The rising prevalence of obesity has created substantial operational and financial challenges for emergency services (EMS).[84] Standard ambulances and emergency protocols often fall short when transporting individuals with severe obesity, prompting the development of specialized "bariatric ambulances."[85] These vehicles are equipped with reinforced stretchers, mechanical lifts, widened doorways, and hoists capable of accommodating patients weighing up to 1,000 pounds.[86] However, these enhancements come at a steep cost: bariatric ambulances were estimated to cost $110,000 as of 2008—a figure significantly more than their standard

counterparts, and likely higher today due to inflation and expanded equipment needs.[87] These costs extend beyond the vehicles themselves, often requiring additional personnel, specialized training, and longer response times due to logistical complexity.[88]

The growing demand for bariatric EMS reflects broader systemic pressures. A 2013 review reported a steady increase in obesity-related EMS callouts, often involving complications such as respiratory distress, limited mobility, or diabetic crises.[89] These incidents place significant strain on personnel and resources and increase the risk of injury and burnout among first responders. International trends mirror these challenges. For example, in response to a tenfold increase in hospital visits linked to obesity, the North West Ambulance Service (United Kingdom) has invested £184,000 (approximately $245,025) in specialized equipment to accommodate this demographic.[90]

Beyond vehicle infrastructure, emergency responders face complex logistical and physical demands. Safely moving patients with obesity often requires more crew members than standard dispatch protocols allow, leading to delays in care and increased risk of injury to staff.[91] Without proper training and equipment—such as hover mattresses, bariatric stretchers, and mechanical winches—both patient and staff safety are compromised. Back injuries, already a leading cause of occupational incapacity among these workers, are exacerbated by inadequate equipment and training.[92]

Equipment limitations also affect clinical care. Standard immobilization tools, such as spinal boards and cervical collars, are often too small to be effective for larger patients.[93] Air ambulances and imaging equipment such as CT scanners present additional barriers due to weight and size restrictions, further complicating triage and diagnosis.[94] These constraints highlight the growing need for specialized bariatric protocols, training, and vehicle fleets—both ground and air—to ensure safe and timely emergency care for individuals with obesity.

Hospital Infrastructure and Diagnostic Limitations

Hospitals are increasingly investing in bariatric infrastructure to meet the rising demand for obesity-appropriate care. While many facilities previously rented equipment such as wider beds, reinforced wheelchairs, and mechanical lifts, growing patient volume has prompted a shift toward permanent retrofitting.[95] Outfitting a single bariatric-ready hospital room can cost upwards of $43,000, underscoring the significant capital required to make facilities truly accessible.[96]

Despite these efforts, many health care facilities—especially in rural areas—continue to face critical diagnostic equipment gaps. A 2008 national survey found that only 5 percent of rural hospitals and 3 percent of critical access hospitals had CT scanners capable of accommodating patients over 450 pounds.[97] Even among bariatric surgery centers, just 21 percent had large-capacity imaging equipment.[98] These diagnostic limitations can delay or prevent timely and accurate care, negatively affecting treatment outcomes for individuals with obesity.

Environmental Impact

While the medical and economic burdens of obesity are well established, its environmental costs are gaining increased attention. Emerging research shows that obesity contributes to higher global greenhouse gas (GHG) emissions through associated dietary patterns, increased energy use, transportation needs, and broader lifestyle shifts. Individuals with obesity are estimated to

account for roughly 20 percent more GHG emissions than those within a healthy weight range—introducing a new dimension to the obesity conversation and the need for medical innovation in this space.[99]

As average body weights increase, so too does overall energy demand.[100] Individuals with obesity require more basal energy due to increased lean mass, which supports greater body size and drives higher oxygen consumption and carbon dioxide (CO_2) production.[101] This results in an estimated 81 kilograms of additional CO_2 emissions per person annually.[102] With approximately 609 million adults living with obesity globally in 2015, the total excess metabolic CO_2 emissions produced globally could reach 609 million × 81 kg = 49.1 megatons—comparable to the emissions generated by 183 million individuals of healthy weight.[103]

Viewed through this lens, the case for innovation in obesity treatment—including the use of GLP-1 therapies—becomes even more compelling. Reducing obesity not only improves health outcomes and lowers health care costs, but also serves as a meaningful intervention in the global effort to combat climate change.

National Security and Military Readiness

Obesity poses a growing challenge to the effectiveness of the U.S. Armed Forces, undermining recruitment, operational readiness, and long-term retention.[104] As global security challenges intensify, ensuring a healthy and deployable military is more vital than ever. Rising obesity rates risk eroding this foundation. For example, in 2023, approximately 52,000 applicants were disqualified from military service due to excess weight—surpassing the 41,000-person recruitment gap the Department of Defense (DOD) had hoped to close.[105] Obesity has now become the most common disqualifying factor for enlistment, outpacing prior concerns such as educational deficits and criminal records.[106]

Additionally, retention rates have also deteriorated throughout the years. According to the Medical Surveillance Monthly Report, service members who are diagnosed as overweight or obese are significantly more likely to exit military service early—on average, 18 months (obesity) and 9 months (overweight) sooner than their healthy-weight counterparts.[107] This early departure represents not just a loss of trained personnel but also a costly disruption to force structure. In recent years, chronic obesity-related conditions such as osteoarthritis, hypertension, and fatty liver disease have overtaken traditional combat injuries as the leading causes of non-deployability.[108] These growing medical burdens make it increasingly difficult to sustain a force that is both mission ready and medically fit for deployment.

In response, military branches have increasingly resorted to loosening fitness standards, issuing weight waivers, and retaining individuals with obesity in order to meet force requirements.[109] While these measures may help address short-term shortages, they often delay, rather than prevent, the downstream health complications associated with excess weight. Many recruits attempt to meet entry standards through rapid, unsustainable weight loss—sometimes shedding as much as 1.7 percent of body fat per week.[110] However, these reductions are typically short lived, with weight rapidly returning post-enlistment. The resulting cycle of weight gain, injury, and early separation contributes to long-term physical and psychological harm, including higher risks of depression, anxiety, eating disorders, and cardiovascular strain.

Moreover, the fiscal consequences are equally concerning. According to recent estimates by the American Security Project, the DOD incurred approximately $1.25 billion in direct medical costs to treat active-duty service members with obesity-related conditions and an additional $99 million due to lost productivity as a result of hospitalizations.[111]

Fortunately, advances in medical science offer hope. Many of the health conditions associated with obesity—such as cardiovascular disease, diabetes, and liver disease—can be managed or prevented through timely, evidence-based treatments. Pharmacotherapies such as GLP-1s have shown significant promise in supporting weight loss and metabolic control, especially when paired with sustained lifestyle and behavioral interventions. If embraced and integrated into military healthcare systems, these tools could not only reduce the clinical burden of obesity, but also extend the careers and capabilities of active-duty personnel.

In 2023, approximately 52,000 applicants were disqualified from military service due to excess weight—surpassing the 41,000-person recruitment gap the Department of Defense had hoped to close.

Table 2 summarizes the wide-ranging economic burden of obesity in the United States, totaling an estimated $452.6 billion annually, or roughly 2.3 percent of 2021 real U.S. GDP ($19.6 trillion).[112] The costs are broken into direct medical expenses, productivity losses due to absenteeism and presenteeism, and sector-specific burdens such as aviation fuel costs. The data underscore the systemic nature of obesity's economic impact across both the healthcare sector and the broader economy. It is important to note that this estimate is conservative, as it does not capture all sector-specific costs that further increase the total economic burden.

Table 2: Annual direct and indirect costs of obesity[113]

Cost	Total (Billions)	Share of Real U.S. GDP (2023)
Direct Medical Costs	$173.0	0.9%
Workers' Compensation Program	$5.2	~0.0%
Disability Costs	$31.1	0.2%
Absenteeism	$82.3	0.4%
Presenteeism	$160.3	0.8%
Aviation Fuel Costs	$0.7	~0.0%
Total Costs	**$452.6**	**2.3%**

WHAT IS A GLP-1 RECEPTOR AGONIST?

In light of the substantial health and economic costs of obesity, there is growing interest in scalable interventions that can meaningfully reduce obesity's prevalence and associated burdens. Among the most promising are GLP-1s. This section explores the development of GLP-1 therapies—from their scientific discovery to their mechanism of action in treating obesity.

The origins of GLP-1s trace back to foundational research in the 1980s, when scientists identified GLP-1 as a hormone critical for regulating insulin secretion and blood glucose levels.[114] Although early findings were promising, the natural form of GLP-1 degraded too rapidly in the body to serve as a viable therapeutic agent.[115]

Around the same time, researchers studying the venom of the Gila monster (*Heloderma suspectum*), a lizard native to the southwestern United States, identified a hormone that slows digestion, allowing the animal to survive on just a few meals each year.[116] This research led to the discovery of exendin-4, a molecule that mimics the action of GLP-1 by stimulating insulin secretion. Crucially, exendin-4 offered a major therapeutic advantage: unlike human GLP-1, it resists rapid enzymatic degradation in the body, making it significantly more stable and longer-acting. These properties positioned exendin-4 as a promising candidate for treating type 2 diabetes and, later, for addressing obesity.[117]

This discovery led to the development of Byetta (exenatide), the first GLP-1 receptor agonist approved by the U.S. Food and Drug Administration (FDA) in 2005 for the treatment of type 2 diabetes. Derived from exendin-4, exenatide mimics the effects of human GLP-1 by stimulating insulin secretion, reducing glucagon levels, and slowing gastric emptying. These mechanisms are central to improving blood glucose control. Exendin-4's enhanced stability and resistance to enzymatic breakdown marked a major breakthrough, paving the way for a new class of therapies that would ultimately reshape not only diabetes care but also the treatment of obesity.[118]

Continued R&D investment led to the creation of semaglutide, a next-generation GLP-1 receptor agonist. Unlike exenatide, which is derived from exendin-4, semaglutide is a synthetic analog of human GLP-1, engineered for a significantly longer half-life and greater potency.[119]

Although both drugs fall under the same therapeutic class, their differing pharmacological profiles illustrate how follow-on biopharmaceutical innovation can enhance clinical efficacy, usability, and patient reach over time.

Whereas exenatide requires twice-daily or weekly injections, semaglutide's design allows for once-weekly dosing—and, in some formulations, oral administration—improving patient convenience and adherence. Although both drugs fall under the same therapeutic class, their differing pharmacological profiles illustrate how follow-on biopharmaceutical innovation can enhance clinical efficacy, usability, and patient reach over time.[120]

GLP-1 therapies are effective because they can replicate a natural hormone released by the gut in response to food intake. This hormone helps regulate blood sugar by stimulating insulin secretion and also signals the brain to promote feelings of fullness.[121] When administered, GLP-1 therapies mimic the body's natural post-meal response—even in the absence of food—resulting

in prolonged satiety, delayed digestion, and sustained insulin release. These combined effects help improve blood glucose control and support meaningful weight loss.[122]

The development of GLP-1 therapies illustrates how transformative biopharmaceutical innovation can emerge from unexpected sources. Inspired by the Gila monster's unique physiology, these treatments exemplify biomimicry—the practice of applying insights from nature to solve complex human health challenges. The success of GLP-1 drugs underscores the value of sustained investment in basic research and the importance of exploring unconventional scientific pathways to drive breakthrough therapies.[123]

The Weight Is Over: Increasing Demand for Anti-Obesity Medications

Scientific advances and rising public health urgency have converged to drive substantial investment in GLP-1 therapies. Initially developed to treat type 2 diabetes, these drugs have since gained widespread attention for their effectiveness in managing obesity—a shift that reflects both evolving clinical evidence and changing societal attitudes toward weight management. What was once considered a secondary benefit—appetite suppression—is now a major indication fueling one of the healthcare sector's fastest-growing markets.

For decades, obesity treatment options were limited, and outcomes were often disappointing.[124] Today, traditional approaches, including diet, exercise, and behavioral therapy, remain essential but frequently fail to deliver sustained results, particularly for individuals facing underlying metabolic or hormonal challenges. Pharmacological interventions, historically scarce, have been marred by safety concerns and modest efficacy.[125] Drugs such as fenfluramine-phentermine (fen-phen), sibutramine, and rimonabant were withdrawn from the market, as they were associated with serious adverse effects.[126]

If adoption of GLP-1s expands at rapid scale, the U.S. economy could experience a 0.4 percent increase in GDP—equivalent to hundreds of billions of dollars in added output.

In contrast, GLP-1s—including semaglutide (Wegovy, Ozempic) and tirzepatide (Mounjaro, Zepbound)—represent a significant departure from previous treatment paradigms.[127] By mimicking natural satiety signals and regulating appetite through the gut-brain axis, these medications offer a new kind of intervention that can address core drivers of obesity.[128] Clinical trials have demonstrated average weight loss of 15 percent, comparable to outcomes previously only achievable through bariatric surgery.[129] This level of efficacy, combined with growing demand, marks a potential inflection point in how obesity is treated.

The rapid uptake of anti-obesity medications (AOMs) reflects both their clinical promise and growing public demand. Once considered a niche category, the global AOM market is now projected to exceed $100 billion by 2030, drawing interest from biotech start-ups, major pharmaceutical firms, and investors.[130] A 2024 analysis by Goldman Sachs Research underscores the potential scale and economic impact of these therapies.[131] The report estimates that 133 million Americans could fall within the potential user base for GLP-1 medications, including 74 million for obesity treatment alone (excluding diabetes management). If adoption of GLP-1s expands at rapid scale, the U.S. economy could experience a 0.4 percent increase in GDP—equivalent to hundreds of billions of dollars in added output.[132]

For policymakers, this moment presents both a challenge and an opportunity. The challenge lies in managing rising demand for AOMs while ensuring affordability, equitable access, and long-term sustainability within the healthcare system. The opportunity is equally significant: to redefine how we invest in, regulate, and deliver obesity care in a way that reflects both clinical progress and economic potential. The growing scale of the AOM market—combined with compelling evidence of health and productivity gains—highlights the strategic importance of supporting innovation in the GLP-1 space. Realizing this potential will require policy approaches that continue to foster scientific advancement and expand access without discouraging future discovery.

BEYOND WEIGHT LOSS: THE BROADER PROMISE OF GLP-1S

Emerging clinical evidence underscores the broad therapeutic potential of GLP-1s, even extending beyond weight loss. Their multifaceted biological mechanisms and systemic effects position them as promising interventions across a range of chronic conditions.[133] GLP-1 therapies have shown the potential to reduce disease burden, enhance overall health and quality of life, and lower long-term health care costs. Given their far-reaching impact, sustained investment in research and innovation will be essential to fully realize their clinical and societal value.

The Expansive Health Benefits of GLP-1 Therapies

GLP1-s can contribute to improving cardiovascular, cognitive and neurological, and behavioral health.

Cardiovascular Health

Numerous clinical trials have shown that GLP-1s produce substantial and sustained weight loss in both diabetic and nondiabetic populations.[134] Beyond their metabolic effects, these therapies have shown notable cardiovascular benefits, underscoring their broader clinical utility, particularly in high-risk groups. In patients with type 2 diabetes, clinical trials have shown that GLP-1s significantly reduce the risk of major adverse cardiovascular events, including nonfatal heart attacks and strokes.[135] For example, semaglutide has been associated with a 20 percent reduction in such events, highlighting its potential to improve cardiovascular outcomes.[136] In June 2025, the American College of Cardiology (ACC) advocated for the early use of GLP-1 therapies as primary treatments for obesity to reduce cardiovascular risk, urging clinicians to consider these drugs as first-line options, highlighting that they outperform lifestyle interventions in efficacy and lower cardiovascular risk with fewer dangers than surgery. Experts also stress the need to expand access to these therapies for those most likely to benefit, noting that inadequate insurance coverage remains a major barrier for patients.[137]

These benefits likely arise from a combination of mechanisms, including weight loss, improved glycemic control, reduced ectopic fat deposition, and decreased systemic inflammation, all of which contribute to enhanced vascular health. In addition, emerging evidence points to the role of GLP-1 therapies in addressing related cardiometabolic conditions such as obstructive sleep apnea (OSA). Given the high comorbidity of obesity, type 2 diabetes, and OSA—with prevalence estimates of OSA reaching up to 86 percent among individuals with both conditions—therapies that target multiple disease drivers are of significant clinical and public health value.[138] Since weight loss is a cornerstone of OSA management, GLP-1 therapies may offer therapeutic benefits by indirectly reducing the frequency and severity of apneic episodes.

Cognitive and Neurological Health

In addition to their established roles in metabolic and cardiovascular health, GLP-1s are gaining recognition for their potential neuroprotective and cognitive-enhancing effects. The discovery that GLP-1 receptors are present in regions of the brain associated with spatial memory and learning—particularly the hippocampus—has prompted a growing body of research into how these therapies might support neurological health.[139] This area of investigation is especially relevant given the enormous economic and societal burdens of neurological diseases. Alzheimer's disease alone costs the United States $238 billion annually—with costs projected to more than double by 2050 as the population ages.[140] In this context, advancing innovation in neurological applications of GLP-1 therapies is not only a health care priority but also a strategic economic opportunity.

In Alzheimer's disease, a condition characterized by progressive neurological degeneration, research suggests that GLP-1s may help mitigate cognitive decline.[141] Preclinical studies indicate that these therapies may protect against the toxic effects of amyloid-beta proteins—a hallmark of Alzheimer's—by enhancing insulin signaling in the brain, reducing inflammation, and preventing neuronal death. These effects are believed to occur through pathways that promote neuronal repair, synaptic plasticity, and cell survival.

Similar promise has been observed for Parkinson's and Huntington's diseases, as GLP-1s have shown promise in animal studies, improving motor function, preserving dopaminergic neurons, and reducing oxidative stress.[142] Their ability to enhance glucose metabolism and reduce insulin resistance—mechanisms believed to be implicated in the progression of neurodegeneration—adds further rationale for exploration in these conditions.

Additional areas of interest include stroke and diabetic peripheral neuropathy.[143] Experimental evidence suggests that GLP-1 therapies may limit brain damage following ischemic stroke and support functional recovery. In diabetic neuropathy, they also appear to promote nerve health and repair, offering a novel therapeutic option for a common and debilitating complication of diabetes.

Although large-scale clinical trials are ongoing, the early evidence is compelling. GLP-1s may represent a paradigm shift in the treatment of neurological diseases, with the potential to significantly improve patient outcomes and deliver long-term economic and societal benefits. Realizing this potential will require targeted policy support, including investments in innovation, streamlined clinical research pathways, and incentives to accelerate biopharmaceutical development in this space.

Behavioral Health

Emerging evidence suggests that GLP-1s may even have applications in behavioral health, particularly in the treatment of substance use disorders. A recent Phase II, placebo-controlled trial conducted by researchers at the University of North Carolina examined the effects of once-weekly semaglutide injections on individuals diagnosed with alcohol use disorder.[144] The study finds that nearly 40 percent of participants receiving semaglutide reported a significant reduction in alcohol cravings over a nine-week period. While the number of drinking days did not change, participants in the treatment group consumed fewer drinks per drinking day, suggesting an effect on consumption intensity rather than frequency.

Notably, participants who smoked and received semaglutide also reported a reduction in daily cigarette use, raising the possibility that GLP-1 therapies may dampen reward-seeking behaviors across multiple domains.[145] These findings align with anecdotal reports that GLP-1s not only reduce appetite for food but also lessen broader cravings, pointing to a potential mechanism involving the brain's reward circuits.[146]

Consequently, these emerging findings could significantly reshape how substance use disorders are addressed—both in terms of treatment and broader societal cost mitigation. Alcohol and tobacco use remain among the most significant preventable and avoidable causes of deaths and morbidity worldwide, and their economic toll is substantial.[147] Together, these cost the U.S. economy over $700 billion annually, driven by increased health care expenditures, lost productivity, and crime.[148] Tobacco use accounts for an estimated $168 billion in annual health care costs and contributes to nearly 490,000 deaths each year.[149] Alcohol use is linked to over 178,000 deaths and incurs approximately $27 billion in health care costs annually.[150]

Given the limited availability of effective treatment options for alcohol and nicotine dependence, GLP-1s could represent a novel therapeutic pathway with broad public health relevance. If these therapies can meaningfully reduce the intensity of substance use behaviors, even modest gains could yield significant public health savings and long-term economic gains. In light of this potential, policy frameworks that support targeted research, clinical validation, and innovation in the behavioral health applications of GLP-1 therapies should be prioritized as part of a broader strategy to reduce the national burden of addiction and improve treatment outcomes.

Economic Benefits

GLP-1s represent not only a significant advancement in therapeutic medicine but also a strategic opportunity to promote economic growth, reduce long-term health care expenditures, and strengthen societal resilience.[151] Initially developed for management of type 2 diabetes, GLP-1 therapies have since demonstrated clinical efficacy across a broad spectrum of conditions, as outlined in the preceding sections. This expanding therapeutic footprint positions GLP-1s as key public health tools—capable of improving population health outcomes while delivering substantial economic returns through reduced disease burden, enhanced productivity, and lower system-wide health care costs.

Today, an estimated 129 million Americans are living with at least one major chronic disease, with approximately 42 percent managing two or more chronic conditions and 12 percent coping with five or more.[152] Chronic diseases now account for 5 of the 10 leading causes of death in the United States and are responsible for nearly 90 percent of the nation’s $4.1 trillion in annual health care expenditures.[153] Estimates suggest that poor health reduces U.S. GDP by more than 10 percent due to lost workdays, disability, early mortality, and the burden of informal caregiving.[154]

Given this landscape, innovations such as GLP-1s offer significant potential not only to alleviate individual disease burden but also to enhance economic productivity and growth. Studies show that by reducing the prevalence and severity of obesity-related and metabolic diseases, GLP-1 treatments could increase U.S. GDP by an estimated 0.4 percent in the next few years.[155] The impact on healthcare systems is similarly compelling. GLP-1 therapies have been associated with reduced hospitalization rates, shorter hospital stays, and fewer complications, particularly among high-risk populations.[156] In one U.S. study involving patients with type 2 diabetes and

cardiovascular disease, those who received GLP-1 therapies experienced a 20 percent reduction in hospital admissions compared with individuals on non-GLP-1 treatments.[157] In the United Kingdom, a modeling study projects that integrating GLP-1 therapies as part of a broader, proactive approach to diabetes management could prevent approximately 171,000 hospitalizations and generate more than $2 billion in direct cost savings by 2040.[158]

Beyond direct health care savings, GLP-1 therapies offer the potential to strengthen the broader labor market. Over the past three decades, poor health has contributed to a 2 to 3 percentage-point decline in U.S. labor force participation, constraining productivity and slowing economic growth.[159] Healthier populations are more likely to remain in the workforce, contribute to innovation, and support long-term economic growth. By reducing the prevalence of obesity and chronic disease, GLP-1 therapies could help reverse this trend, boosting labor force participation.

Meanwhile, the rapid growth of the GLP-1 industry itself presents substantial economic opportunities. The global market for weight-loss drugs is projected to reach $105 billion by 2030.[160] In the United States, rising demand for GLP-1 therapies could increase real consumer spending by up to 0.7 percent and support the creation of an estimated 250,000 to 500,000 new jobs, particularly in pharmaceutical manufacturing and supply chains.[161] Major pharmaceutical companies are already responding with large-scale investments. Novo Nordisk, for example, is investing $4.1 billion to expand its manufacturing facility in Clayton, North Carolina.[162] Eli Lilly has also announced new manufacturing sites in Indiana, Wisconsin, and North Carolina.[163] These projects are expected to create more than 5,000 direct jobs, with broader economic ripple effects across construction, engineering, equipment supply, and local communities.[164]

Studies show that by reducing the prevalence and severity of obesity-related and metabolic diseases, GLP-1 treatments could increase U.S. GDP by an estimated 0.4 percent in the next few years.

Given that obesity-related illness is estimated to reduce per capita economic output by approximately 3 percent, broader uptake of effective treatments such as GLP-1s could yield lasting and transformative economic effects.[165] Continued investment in GLP-1 innovation and expanded access to these therapies are therefore both health and economic policy priorities. As health care innovation accelerates, it is increasingly evident that improving population health can act as a powerful driver of economic growth, national resilience, and societal well-being over the next decade and beyond.

CHALLENGES, RISKS, AND CONSIDERATIONS

The emergence of GLP-1s represents a significant breakthrough in the treatment of obesity and related chronic conditions—offering the potential to improve health outcomes, reduce long-term health care expenditures, and boost workforce productivity. However, to fully realize these benefits at scale, several key challenges require attention. Among the most pressing are issues related to long-term adherence, access, and the need to sustain incentives for continued innovation. As these therapies gain broader adoption, the policy focus should be on fostering access while also preserving the innovation ecosystem that enables these advances.

Long-Term GLP-1 Adherence

Ensuring long-term adherence to GLP-1 therapies presents complex challenges at both the individual and societal levels. For many patients, the clinical benefits of GLP-1s—particularly sustained weight loss and metabolic improvements—are closely tied to continued use.[166] Once treatment is discontinued, individuals often experience weight regain and the return of obesity-related health conditions, underscoring the need to view obesity as a chronic condition that may require long-term treatment.[167] Adherence is also influenced by treatment tolerability.[168] While GLP-1s are generally well tolerated, side effects such as gastrointestinal symptoms and the inconvenience of regular self-injections may deter adherence for certain patients.[169]

Recognizing the challenges associated with long-term adherence, pharmaceutical companies are innovating through the development of more-convenient delivery methods. One notable example is Eli Lilly's development of Orforglipron, a once-daily oral GLP-1.[170] Unlike traditional injectable formulations, Orforglipron offers a needle-free alternative, which may significantly enhance patient comfort, convenience, and compliance. In Phase 3 clinical trials, Orforglipron has demonstrated promising results, achieving an average weight reduction of 7.9 percent over 40 weeks, along with meaningful decreases in average blood glucose levels among adults who are obese or overweight.[171]

At a broader level, the rise of GLP-1s has sparked a cultural conversation—both promising and potentially problematic. On one hand, these therapies are helping to destigmatize obesity by emphasizing its biological underpinnings and offering an effective, evidence-based medical intervention.[172] On the other hand, their growing use for cosmetic or lifestyle purposes, particularly among public figures and celebrities, risks reframing obesity drugs as luxury wellness products rather than critical clinical tools for managing chronic disease.[173] This blurring of clinical necessity and aesthetic demand may undermine public understanding of the serious health risks associated with obesity and detract from the therapeutic value GLP-1s offer to medically at-risk populations.[174] It is therefore critical that public and policy discourse clearly center these medications within the context of metabolic and chronic disease management. Doing so will help ensure appropriate clinical use, insurance coverage, and sustained investment in obesity care innovation.

There are also important considerations around access. As demand for GLP-1 therapies accelerates, disparities in health care access risk becoming further entrenched. There is a growing concern that individuals with lower clinical risk but greater financial means may access these medications more readily, while those with severe obesity and related chronic conditions, particularly low-income or underserved populations, may face barriers to access.[175] Ensuring that GLP-1 therapies reach those with the highest medical need is critical not only for improving health outcomes but also for maximizing the clinical and economic return on innovation. Payers and policymakers should help ensure that these medications are deployed wherever they generate the greatest value.

To realize the full public health and economic potential of GLP-1 therapies, it is important to integrate them into healthcare systems that support appropriate use, clinical oversight, and long-term impact. These medications are not a silver bullet, but rather a powerful tool that should complement, rather than replace, comprehensive obesity management, including lifestyle, behavioral, and nutritional interventions.

GLP-1 Access and Market Dynamics

A pressing concern around GLP-1 therapies is their cost, which remains a barrier to access for many patients. Without insurance coverage, the monthly costs of GLP-1 medications can reach $1,000.[176] Even with insurance, out-of-pocket expenses can still run as high as $300 per month—an amount that remains out of reach for many households.[177] GLP-1 costs are not unexpected for a class of therapies that represent the cutting edge of pharmaceutical innovation. The pricing of GLP-1s reflects the substantial investment required to bring such breakthroughs to market, including the costs of drug discovery, clinical trials, regulatory review, and manufacturing, among others.[178] These investments are protected by intellectual property rights that incentivize innovation and help ensure that the life sciences sector can continue to deliver high-impact therapies.

As demand for GLP-1 therapies continues to grow—particularly for obesity, which affects more than 40 percent of American adults—ensuring broad and appropriate access will be key. Estimates suggest that tens of millions of Americans could benefit from GLP-1 therapy. Fortunately, market dynamics are likely to help ease cost pressures over time. As follow-on GLP-1 products—such as new oral formulations and generics—enter the pipeline, increased competition should help drive down prices, as has occurred in many other drug classes.[179]

A compelling example of this competitive market dynamic is the launch of Gilead's Sovaldi, the first curative treatment for hepatitis C, in 2013. The drug was initially priced at $84,000 (list price for a 12-week course of treatment) with an estimated net price of $45,000 after rebates and concessions. But competition in the hepatitis C market quickly followed, with AbbVie's expanding hepatitis C franchise driving net prices in the class much lower in subsequent years. By 2018, Medicaid best prices had dropped to approximately $24,000. By 2022, Gilead's Epclusa, a successor to Sovaldi, offered a list price of $24,000, while the entire market will fully transition to generics in the coming years.[180]

The development of next-generation AOMs—over 70 in current clinical trials—promises to further expand treatment options and accelerate innovations.[181] Public and private payers are already beginning to adapt. Several state Medicaid programs now cover GLP-1s for qualifying patients, and proposals have been introduced in Congress to extend Medicare coverage for AOMs.[182] While these proposals carry significant fiscal implications, policy discussions should weigh potential long-term economic benefits—including reduced health care costs, improved labor productivity, and positive spillovers in sectors such as infrastructure and transportation, as discussed throughout this report.

POLICY RECOMMENDATIONS

It is time to rethink how we approach obesity—not only as a medical condition, but also as a pressing economic concern. Public and private investment in obesity research and treatment should be recognized as a forward-looking strategy with the potential to deliver significant health and economic benefits. Recent breakthroughs—particularly the development of GLP-1 medications—are reshaping what's possible in obesity care. These therapies have already shown good results in reducing weight and improving metabolic health, with the potential to ease long-term strain on healthcare systems. With continued innovation, the impact of investing in this space could be profound.

Policymakers should strengthen support for basic research. The origin of the GLP-1 drug class—traced to the unique biology of the Gila monster—underscores how foundational science can lead to transformative medical breakthroughs.[183] This example illustrates the importance of investing in a wide range of scientific inquiry, even in areas without immediate commercial application. Given this, recent cuts to U.S. basic research funding risk weakening the very foundation on which future health innovations depend. To ensure continued progress, **Congress should maintain robust support not only for fundamental research but also for the development of next-generation GLP-1s—such as longer-acting formulations and alternative dosage forms—to improve access and extend their benefits to more patients.**

The promise of GLP-1s has already begun to shift the national policy conversation around obesity. As their use expands beyond diabetes to include cardiovascular disease and obesity treatment, questions around cost and coverage have become more central for policymakers. Multiple proposals—most notably H.R. 4818, the Treat and Reduce Obesity Act of 2023—seek to authorize Medicare Part D coverage for AOMs, reflecting growing momentum to confront obesity as a systemic health challenge.[184] Yet, progress has been tempered by fiscal concerns. Currently, Medicare Part D does not cover GLP-1 drugs for obesity, even though many beneficiaries already receive GLP-1s for other approved conditions such as diabetes and cardiovascular disease. CBO estimates that expanding coverage to include obesity treatment starting in January 2026 would increase federal spending by about $35 billion from 2026 to 2034. A 2024 CBO report notes:

> Total direct federal costs of covering AOMs would increase from $1.6 billion in 2026 to $7.1 billion in 2034. Relative to the direct costs of the medications, total savings from beneficiaries' improved health would be small—less than $50 million in 2026 and rising to $1.0 billion in 2034. Weight loss is associated with reductions in health-related spending per user that are less than the estimated federal cost per user of covering AOMs throughout the 2026–2034 period.[185]

But the report also calls for more research, particularly studies that would improve CBO's ability to analyze obesity treatment policies and the use of AOMs.[186]

Importantly, CBO's estimates do not incorporate dynamic scoring, which accounts for broader macroeconomic effects such as increased workforce productivity, reduced health care utilization, and the impact of lower obesity rates across other sectors of the economy. As a result, current estimates may understate the long-term fiscal and economic benefits of addressing obesity at scale. **To fully capture the value of biomedical innovation—such as GLP-1 therapies—CBO should adopt dynamic scoring in its assessments.** Factoring in these broader effects, as outlined in this report, would provide policymakers with a more complete picture of the return on investment in preventive health strategies such as GLP-1 therapies. If the United States succeeds in reducing obesity, the downstream benefits—from lower health care costs and higher labor productivity to positive spillovers across industries—could be substantial. That broader cost-benefit profile, not just federal spending, should guide policy decisions. **In that context, incorporating dynamic scoring into CBO modeling would more accurately reflect the potential long-term economic case for Medicare and Medicaid coverage of GLP-1 therapies as part of a broader national obesity strategy.**

Obesity policy should also shift from emphasizing individual willpower to providing systemic support that addresses the broader drivers of poor health.[187] Public health strategies could focus on

improving food environments, urban planning, and underlying socioeconomic conditions, such as incentivizing healthier food options in underserved areas and investing in school- and community-based programs that promote nutrition and physical activity.[188]

CONCLUSION

Obesity remains one of the most pressing health and economic challenges facing the United States. With more than 40 percent of American adults living with obesity, the consequences extend far beyond rising health care costs.[189] Obesity now influences labor force participation, national productivity, disability rates, and even military readiness. As these burdens continue to grow, it is increasingly clear that failing to address the obesity epidemic will undermine U.S. economic growth, strain federal and state budgets, and exacerbate health disparities.

Innovative treatments such as GLP-1s offer a promising path forward. If adopted widely and equitably, these therapies could improve labor productivity and reduce long-term health care expenditures. A healthier workforce is, fundamentally, a more resilient and productive one. Supporting the development and accessibility of GLP-1 therapies holds the potential not only to improve health but also to strengthen the foundations of the U.S. economy.

Meeting the obesity challenge requires more than clinical advances. It demands a strategic, coordinated response. Policymakers should prioritize sustained investment in research, expand access to effective therapies such as GLP-1s, and ensure equitable adoption. Supporting innovation and integrating it into healthcare systems—particularly for high-need populations—will help strengthen the long-term health and productivity of the nation.

Acknowledgments

The authors would like to thank Robert D. Atkinson and Stephen Ezell for helpful feedback on this report. Any errors or omissions are the authors' sole responsibility.

About the Authors

Sandra Barbosu, Ph.D., is associate director of ITIF's Center for Life Sciences Innovation. Her research focuses on the economics of health innovation, with a particular interest in the role of emerging technologies. She is also adjunct professor at New York University's Tandon School of Engineering. She holds a Ph.D. in Strategic Management from the Rotman School of Management at the University of Toronto, an M.Sc. in Precision Cancer Medicine from the University of Oxford, and a B.A. in Economics and Mathematics from the University of Rochester.

Natalie Khoo, B.Sc. (Hons), was a life sciences policy fellow at ITIF's Center for Life Sciences Innovation. Her research explores how biopharmaceutical innovation and health policy can be leveraged to address pressing global health challenges. She is currently completing her B.Sc. (Hons) in Global Health and Social Medicine at King's College London and spent a year abroad at Cornell University as part of a transatlantic academic exchange.

About ITIF

The Information Technology and Innovation Foundation (ITIF) is an independent 501(c)(3) nonprofit, nonpartisan research and educational institute that has been recognized repeatedly as the world's leading think tank for science and technology policy. Its mission is to formulate, evaluate, and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress. For more information, visit itif.org/about.

ENDNOTES

1. Steven H. Woolf and Heidi Schoomaker, "Life expectancy and mortality rates in the United States," *Jama* (Nov 2019), 1996–2017. DOI:10.1001/jama.2019.16932; Rafael Meza el al., "Trends in US adult smoking prevalence 2011 to 2022," JAMA Health Forum, no. 12, e234213-e234213. DOI: 10.1001/jamahealthforum.2023.4213; Richard A. Miech et al., "Monitoring the Future National Survey Results on Drug Use, 1975-2023: Overview and Detailed Results for Secondary School Students," Institute for Social Research (January 2024), https://eric.ed.gov/?id=ED646964.
2. National Institute of Diabetes and Digestive and Kidney Disease, Overweight and Obesity Statistics, accessed February 27, 2025, https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity; "About Obesity," Centers for Disease Control and Prevention, 2024, https://www.cdc.gov/obesity/php/about/index.html.
3. Ibid; "About Obesity," Centers for Disease Control and Prevention, 2024; Zachary J. Ward et al., "Association of body mass index with health care expenditures in the United States by age and sex," PLoS One, vol. 16, no. 3 (2021): e0247307, https://doi.org/10.1371/journal.pone.0247307.
4. "Childhood Obesity Facts," Centers for Disease Control and Prevention, April 2, 2024, https://www.cdc.gov/obesity/childhood-obesity-facts/childhood-obesity-facts.html.

5. "Adult BMI Categories," Centers for Disease Control and Prevention, March 19, 2024, https://www.cdc.gov/bmi/adult-calculator/bmi-categories.html.
6. Tim Lobstein et al., "World Obesity Atlas 2023," World Obesity Federation (March 2023), accessed February 28, 2025, https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2023.
7. Rohana N. Haththotuwa et al., "Worldwide epidemic of obesity," *Obesity and Obstetrics* (2020), 3–8. DOI: https://doi.org/10.1016/B978-0-12-817921-5.00001-1.
8. Samuel Klein et al., " Why Does Obesity Cause Diabetes?," *Cell metabolism* (January 2022), 11-20. DOI: https://doi.org/10.1016/j.cmet.2021.12.012.
9. Shirin Djalalinia et al., "Health Impacts of Obesity," *Pakistan journal of medical sciences*, *31*(1):239. DOI: 10.12669/pjms.311.7033.
10. Ibid.
11. Julien S. Baker et al., "Obesity: treatments, conceptualizations, and future directions for a growing problem," *Biology*, *11*(2):160. DOI: https://doi.org/10.3390/biology11020160.
12. Sylvia Hristakeva et al., "The No-Hunger Games: How GLP-1 Medication Adoption is Changing Consumer Food Demand," Cornell SC Johnson College of Business Research Paper. DOI: https://doi.org/10.2139/ssrn.5073929; Timo D. Müller et al., "Anti-obesity drug discovery: advances and challenges," *Nature Reviews Drug Discovery* (March 2022), 201-233. DOI: https://doi.org/10.1038/s41573-021-00337-8.
13. John P. H. Wilding et al., "Once-Weekly Semaglutide in Adults with Overweight or Obesity," *New England Journal of Medicine*, Vol. 384, No. 11 (2021): 989–1002, https://www.nejm.org/doi/full/10.1056/NEJMoa2032183.
14. Ibid; National Institute of Diabetes and Digestive and Kidney Disease, "Overweight and Obesity Statistics."
15. United Nations Population Divisions, World Population Prospects: 2024 Revision, accessed March 10, 2025, https://data.worldbank.org/indicator/SP.POP.TOTL?end=2023&locations=DK-ES-IT&start=1960&view=chart.
16. Nowell H. Phelps et al., "Worldwide trends in underweight and obesity from 1990 to 2022: a pooled analysis of 3663 population-representative studies with 222 million children, adolescents, and adults," *The Lancet* (February 2024), 1027–1050. DOI: https://doi.org/10.1016/S0140-6736(23)02750-2.
17. Molly Warren et al., "The State of Obesity: Better Policies for Healthier America 2024" (Trust for America's Health, September 2024), https://www.tfah.org/wp-content/uploads/2024/09/SOO-2024-FINAL-R-Sept-12.pdf.
18. Kevin D. Hall and Scott Kahan, "Maintenance of lost weight and long-term management of obesity," *Medical Clinics*, vol. 102, no. 1 (2018): 183-197, https://pubmed.ncbi.nlm.nih.gov/29156185/.
19. Giovanna Muscogiuri et al., "Obesity: a gender-view," *Journal of endocrinological investigation* (February 2024), 299–306. DOI: https://doi.org/10.1007/s40618-023-02196-z.
20. Nitin Kapoor et al., "Gender Disparities in People Living with Obesity - An Unchartered Territory," *Journal of mid-life health* (July 2021), 103–107. DOI: 10.4103/jmh.jmh_48_21.
21. Jessica Hallam et al., "Gender-related Differences in Food Craving and Obesity," *Yale Journal of Biology and Medicine* (June 2016), 161–173. https://pmc.ncbi.nlm.nih.gov/articles/PMC4918881/#ref-list1.
22. "Childhood Obesity Facts," Centers for Disease Control and Prevention, 2024, https://www.cdc.gov/obesity/childhood-obesity-facts/childhood-obesity-facts.html.
23. "Draft recommendations for the prevention and management of obesity over the life course, including potential targets," World Health Organization, accessed March 11, 2025,

https://cdn.who.int/media/docs/default-source/obesity/who-discussion-paper-on-obesity---final190821.pdf.

24. Patrick G. McPhee, Selena Singh, and Katherine M. Morrison, "Childhood Obesity and Cardiovascular Disease Risk: Working Toward Solutions," *Canadian Journal of Cardiology*, vol. 36, no. 9 (2020): 1352–1361, https://doi.org/10.1016/j.cjca.2020.06.020.
25. Eric A. Finkelstein et al., "Lifetime Direct Medical Costs of Childhood Obesity," *Pediatrics* (February 2014), 854–862, https://doi.org/10.1542/peds.2014-0063.
26. Danielle E. Levitt et al., "An analysis of the medical costs of obesity for fifth graders in California and Texas," *International Journal of Exercise Science* (January 2016), 26–33, https://doi.org/10.70252/SCIH7507.
27. "About Obesity," Centers for Disease Control and Prevention, 2024, https://www.cdc.gov/obesity/php/about/index.html.
28. Organization for Economic Co-operation and Development, "The Heavy Burden of Obesity: The Economics of Prevention," *OECD Health Policy Studies* (October 2019), https://doi.org/10.1787/67450d67-en.
29. Adam G. Tsai et al., "Direct medical costs of overweight and obesity in the USA: a quantitative systematic review," *Obesity reviews* (January 2011), 50–61. DOI: https://doi.org/10.1111/j.1467-789X.2009.00708.x
30. "Adult BMI Categories," Centers for Disease Control and Prevention, March 19, 2024, https://www.cdc.gov/bmi/adult-calculator/bmi-categories.html.
31. John Cawley et al., "Direct medical costs of obesity in the United States and the most populous states," *Journal of managed care & specialty pharmacy* (March 2021), 354–366. DOI: https://doi.org/10.18553/jmcp.2021.20410
32. Imani Telesford et al., "How have costs associated with obesity changed over time?" (Peterson Center on Healthcare-KFF, March 2023) https://www.healthsystemtracker.org/chart-collection/how-have-costs-associated-with-obesity-changed-over-time/.
33. Ibid.
34. John Cawley, "An economy of scales: A selective review of obesity's economic causes, consequences, and solutions," *Journal of health economics* (September 2015), 244–268. DOI: http://dx.doi.org/10.1016/j.jhealeco.2015.03.001.
35. Joint Economic Committee Congress of the United States (JEC), THE 2024 JOINT ECONOMIC REPORT, (June 2024), https://www.jec.senate.gov/public/vendor/_accounts/JEC-R/2024RepublicanResponse.pdf.
36. Ibid; Cawley et al., "Direct medical costs of obesity in the United States and the most populous states."
37. United States Census Bureau, Annual Estimates of the Resident Population for the United States, Region, States and Puerto Rico, accessed April 3, 2025, https://www2.census.gov/programs-surveys/popest/tables/2010-2019/state/totals/nst-est2019-01.xlsx.
38. Ibid; Joint Economic Committee Congress of the United States (JEC), THE 2024 JOINT ECONOMIC REPORT.
39. Joint Economic Committee Congress of the United States (JEC), "THE 2023 JOINT ECONOMIC REPORT, (July 2023), https://www.jec.senate.gov/public/_cache/files/c7df7ee3-2562-44f9-bcc0-fb038ff9967c/the-2023-joint-economic-report.pdf.
40. Ibid; Cawley et al., "Direct medical costs of obesity in the United States and the most populous states."

41. Joint Economic Committee Congress of the United States (JEC), THE 2025 JOINT ECONOMIC REPORT, (March 2025), https://www.jec.senate.gov/public/_cache/files/962ebb89-1460-4c7f-b014-9a6307f4bd5e/the-2025-joint-economic-report-119th-congress-.pdf.
42. Kenneth E. Thorpe and Peter J. Joski, "Estimated Reduction in Health Care Spending Associated With Weight Loss in Adults," JAMA Network Open (December 2024), 2449200-2449200, https://doi.org/10.1001/jamanetworkopen.2024.49200.
43. Office of Health Policy., "Medicare Coverage of Anti-Obesity Medications," issue brief, November 26, 2024, https://aspe.hhs.gov/sites/default/files/documents/127bd5b3347b34be31ac5c6b5ed30e6a/medicare-coverage-anti-obesity-meds.pdf.
44. Ibid; Cawley et al., "Direct medical costs of obesity in the United States and the most populous states."
45. Sangeeta Bansal and Yanhong Jin, "Heterogeneous Effects of Obesity on Life Expectancy: A Global Perspective," Annual Review of Resource Economics (June 2023), 433–554. https://doi.org/10.1146/annurev-resource-022823-033521.
46. Joint Economic Committee Congress of the United States (JEC), THE 2024 JOINT ECONOMIC REPORT: REPUBLICAN RESPONSE, (June 2024), https://www.jec.senate.gov/public/vendor/_accounts/JEC-R/2024RepublicanResponse.pdf.
47. Ibid.
48. John Cawley et al., "Job absenteeism costs of obesity in the United States: National and state-level estimates," *Journal of occupational and environmental medicine* (July 2021), 565–573, https://doi.org/10.1097/JOM.0000000000002198.
49. Ian Kudel et al., "Impact of obesity on work productivity in different US occupations: Analysis of the National Health and Wellness Survey 2014 to 2015," *Journal of occupational and environmental medicine*, (January 2018), 6–11, https://doi.org/10.1097/JOM.0000000000001144.
50. Ibid;"Assessing the Economic Impact of Obesity and Overweight on Employers: Identifying Paths Toward Work Force Health and Well-Being," GlobalData.
51. Ibid; Joint Economic Committee Congress of the United States (JEC), THE 2024 JOINT ECONOMIC REPORT.
52. Christine M. Fleming, "A Weighty Problem," *Milliman*, March 2, 2016, https://www.milliman.com/en/insight/a-weighty-issue-obesity-and-the-implications-for-workers-compensation.
53. Truls Østbye et al., "Obesity and workers' compensation: results from the Duke Health and Safety Surveillance System," *Archives of internal medicine* 167, (April 2007), 766–773, https://doi.org/10.1001/archinte.167.8.766.
54. Ibid; "Assessing the Economic Impact of Obesity and Overweight on Employers: Identifying Paths Toward Work Force Health and Well-Being," GlobalData, accessed April 14, 2025, https://www.globaldata.com/health-economics/US/Employers/Overweight-Obesity-Impact-on-Employers.pdf.
55. Sebnem Kalemli-Ozcan et al., "Mortality decline, human capital investment, and economic growth," *Journal of Development Economics* (June 2000), 1–23. DOI: https://doi.org/10.1016/S0304-3878(00)00073-0.
56. "Close to half of U.S. population projected to have obesity by 2030," Harvard T.H Chan School of Public Health, accessed April 6, 2025, https://hsph.harvard.edu/news/half-of-us-to-have-obesity-by-2030.
57. Ibid; Joint Economic Committee Congress of the United States (JEC), THE 2025 JOINT ECONOMIC REPORT.

58. John Cawley, "The impact of obesity on wages," *Journal of Human resources* (March 2004), 45–474, https://doi.org/10.2307/3559022.
59. Ibid.
60. "The Economics of Thinness," *The Economist*, accessed April 6, 2025, https://www.economist.com/christmas-specials/2022/12/20/the-economics-of-thinness.
61. Alice P. Julier, "The political economy of obesity: The fat pay all," in *Food and Culture*, edited by Carole Counihan, Penny Van Esterik, and Alice P. Julier (New York: Routledge, 2017), 560–576.
62. Susannah Westbury et al., "Obesity stigma: causes, consequences, and potential solutions," Current obesity reports (March 2023), 10–23. DOI: https://doi.org/10.1007/s13679-023-00495-3.
63. Sharon Grant et al., "Body Weight Discrimination Against Women in Customer-Facing Roles: A Systematic Literature Review," *The Emerald Handbook of Appearance in the Workplace* (November 2023), 75–100, https://doi.org/10.1108/978-1-80071-174-720230005.
64. Ibid; Harvard T.H Chan School of Public Health, "Close to half of U.S. population projected to have obesity by 2030."
65. Timothy M. Dall et al., "Assessing the economic impact of obesity and overweight on employers: identifying opportunities to improve work force health and well-being," Springer Nature Nutrition & Diabetes (December 2024), 1–8, https://doi.org/10.1038/s41387-024-00352-9.
66. Andrew Dannenberg, Deron C. Burton, and Richard J. Jackson, "Economic and environmental costs of obesity: the impact on airlines," *American journal of preventive medicine,* Vol. 27, No. 3 (2004): 264.
67. Marnie Hunter, "Pay-as-you-weigh airfares the 'next step'," CNN, April 3, 2013, https://edition.cnn.com/2013/04/02/travel/samoa-air-fare-by-weight/index.html.
68. Mia Taylor, "Finnair sparks controversy by weighing its passengers," BBC, February 21, 2014, https://www.bbc.co.uk/travel/article/20240221-finnair-airlines-weighing-passengers-controversy.
69. "Body Measurements," National Center for Health Statistics, CDC, accessed April 20, 2025, https://www.cdc.gov/nchs/fastats/body-measurements.htm.
70. Ibid.
71. John P. H. Wilding et al., "Once-Weekly Semaglutide in Adults with Overweight or Obesity," *New England Journal of Medicine*, Vol. 384, No. 11 (2021): 989–1002, https://www.nejm.org/doi/full/10.1056/NEJMoa2032183.
72. "Boeing 737-300," Fliteline, https://www.fliteline.com/aircraft-guide/passenger-aircraft-models/737-300.
73. "Economic Values Related to Aircraft Performance Factors," FAA, accessed April 19, 2025, https://www.faa.gov/sites/faa.gov/files/regulations_policies/policy_guidance/benefit_cost/econ-value-section-6-perf-factors.pdf.
74. "Daily jet fuel spot prices (five-day rolling average)," accessed April 1, 2025, https://www.airlines.org/dataset/argus-us-jet-fuel-index/.
75. Aaron Spray, "When America Flies: FAA Air Traffic by the Numbers," Simple Flying, March 17, 2024, https://simpleflying.com/faa-air-traffic-by-the-numbers.
76. "Aviation Factsheet Resources," Future Cleantech Architects, https://fcarchitects.org/aviation-factsheet-sources/; "Decarbonising Air Transport, Acting Now For The Future," International Transport Forum, https://www.itf-oecd.org/sites/default/files/docs/decarbonising-air-transport-future.pdf.

77. Sylvia Hristakeva, Jura Liaukonyte, and Leo Feler, "The No-Hunger Games: How GLP-1 Medication Adoption is Changing Consumer Food Purchases," Cornell SC Johnson College of Business Research Paper (2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5073929.
78. Ibid.
79. Ibid; John Blundell et al., "Effects of once-weekly semaglutide on appetite, energy intake, control of eating, food preference and body weight in subjects with obesity," *Diabetes, Obesity and Metabolism*, Vol. 19, No. 9 (2017): 1242–1251.
80. Bertrand Amaraggi et al., "Ultra-processed food staples dominate mainstream US supermarkets. Americans more than Europeans forced to choose between health and cost," *medRxiv* (2024): 2024-02; Larissa Galastri Baraldi et al., "Consumption of ultra-processed foods and associated sociodemographic factors in the USA between 2007 and 2012: evidence from a nationally representative cross-sectional study," *BMJ open* 8.3 (2018): e020574; Elly Mertens, Chiara Colizzi, and José Peñalvo, "Ultra-processed food consumption in adults across Europe," *Eur J Nutr*, Vol. 61 (2022): 1521–1539.
81. "Average per capita consumption of sugar as of 2016, by country," Statista, https://www.statista.com/statistics/535219/global-sugar-per-capita-consumption-by-country/; "U.S. Health Care from a Global Perspective, 2022: Accelerating spending, worsening outcomes," The Commonwealth Fund, January 2023, https://www.commonwealthfund.org/publications/issue-briefs/2023/jan/us-health-care-global-perspective2022; "OECD Social Indicators", OECD Report, 2024, https://www.oecd.org/en/publications/society-at-a-glance-2024_918d8db3-en/full-report/life-expectancy_37a61588.html.
82. Matsuda Allemani et al., "Global surveillance of trends in cancer survival: analysis of individual records for 37,513,025 patients diagnosed with one of 18 cancers during 2000-2014 from 322 population-based registries in 71 countries (CONCORD-3)," *Physiol Behav*, Vol. 176, No. 3 (2019): 139-48; Sandra Barbosu, "Behind the Numbers: What's Really Driving America's Poor Health Outcomes," ITIF Innovation Files Blog, December 19, 2024, https://itif.org/publications/2024/12/19/behind-the-numbers-whats-really-driving-americas-poor-health-outcomes/.
83. Abhishek D. Parmar and Farah A. Husain, "Bariatric Tourism: Bidirectional and in the United States," *The SAGES Manual of Bariatric Surgery* (April 2018): 595–604. DOI: https://doi.org/10.1007/978-3-319-71282-6_43.
84. Jiying Ling et al., "Economic burden of childhood overweight and obesity: A systematic review and meta-analysis," *Obesity Reviews* (February 2023), 1–13. DOI: https://doi.org/10.1111/obr.13535.
85. "New ambulances rolled out for obese patients," *BBC News,* accessed April 28, 2025, https://www.bbc.co.uk/news/uk-england-39859428.
86. Katie Zezima, "Increasing Obesity Requires New Ambulance Equipment," *The New York Times*, April 8, 2008, https://www.nytimes.com/2008/04/08/health/08ambu.html.
87. Ibid.
88. Nicole Agaronnik et al., "Accommodating Patients with Obesity and Mobility Difficulties: Observations from Physicians," *Disability and health journal* (January 2021), 1–15. DOI: https://doi.org/10.1016/j.dhjo.2020.100951.
89. Ahmed Twaij et al., "A Growing Problem: Implications of Obesity on the Provision of Trauma Care," *Obesity surgery* (December 2013), 2113–2120, https://doi.org/10.1007/s11695-013-1093-x.
90. Ibid; "New ambulances rolled out for obese patients," *BBC News.*
91. Ibid; Twaij et al., "A Growing Problem: Implications of Obesity on the Provision of Trauma Care."
92. Ibid.

93. Ibid.
94. Ibid; Agaronnik et al., "Accommodating Patients with Obesity and Mobility Difficulties: Observations from Physicians."
95. Ibid.
96. Ibid.
97. Adit A. Ginde et al., "The challenge of CT and MRI imaging of obese individuals who present to the emergency department: a national survey," *Obesity* (November 2008), 2549–2551. DOI: http://www.nature.com/doifinder/10.1038/oby.2008.410.
98. Ibid.
99. Faidon Magkos et al., "The Environmental Foodprint of Obesity," *Obesity* (January 2020), 73–79. DOI: https://doi.org/10.1002/oby.22657.
100. Danielle C. Fonseca, et al., "Body weight control and energy expenditure," *Clinical Nutrition Experimental* (August 2018), 55–59, https://doi.org/10.1016/j.yclnex.2018.04.001.
101. Ibid; Magkos et al., "The Environmental Foodprint of Obesity."
102. Ibid.
103. Ibid.
104. Courtney Manning, "Costs and Consequences: Obesity's Compounding Impact on the Military Health System" (American Security Project, September 2024), https://www.americansecurityproject.org/costs-and-consequences-of-military-obesity.
105. Rachel S. Cohen, "Air Force recruiting rebounds while Army, Navy still struggle," *AirForce Times*, February 17, 2024, https://www.airforcetimes.com/news/your-air-force/2024/02/17/air-force-recruiting-rebounds-while-army-navy-still-struggle/.
106. Ibid; Manning, "Costs and Consequences: Obesity's Compounding Impact on the Military Health System."
107. "Medical Surveillance Monthly Report (MSMR): Duration of Service after Overweight-related Diagnoses, Active Component, U.S. Armed Forces, 1998-2010," Armed Forces Health Surveillance Center, accessed May 20, 2025, https://www.health.mil/Reference-Center/Reports/2011/01/01/Medical-Surveillance-Monthly-Report-Volume-18-Number-6.
108. Ibid; Manning, "Costs and Consequences: Obesity's Compounding Impact on the Military Health System."
109. Ibid.
110. Ibid.
111. Ibid.
112. "2023 United States GDP," World Bank Data Commons, accessed May 10, 2025, https://datacommons.org/explore#q=us%20gdp%202023.
113. "Assessing the Economic Impact of Obesity and Overweight on Employers: Identifying Paths Toward Work Force Health and Well-Being," GlobalData.
114. Drucker, Daniel J., "The GLP-1 journey: from discovery science to therapeutic impact," *The Journal of Clinical Investigation* Vol. 134, no. 2 (2024); Jens Juul Holst, "The physiology of glucagon-like peptide 1," *Physiological reviews* (2007).
115. Drucker, "The GLP-1 journey: from discovery science to therapeutic impact."
116. Ravindra Malhotra , et al., "Exendin-4, a new peptide from Heloderma suspectum venom, potentiates cholecystokinin-induced amylase release from rat pancreatic acini," *Regulatory peptides* 41.2 (1992): 149–156.

117. Drucker, "The GLP-1 journey: from discovery science to therapeutic impact."
118. Ibid.
119. "Exendin-4: From lizard to laboratory…and beyond," National Institutes of Health NIH National Institute on Aging NIA, July 11, 2012, https://www.nia.nih.gov/news/exendin-4-lizard-laboratory-and-beyond.
120. Drucker, "The GLP-1 journey: from discovery science to therapeutic impact"; Jens Juul Holst and Jesper Gromada, "Role of incretin hormones in the regulation of insulin secretion in diabetic and nondiabetic humans," *American Journal of Physiology-Endocrinology And Metabolism* 287.2 (2004): E199–E206.
121. Drucker, "The GLP-1 journey: from discovery science to therapeutic impact"; Daniel J. Drucker and Michael A. Nauck, "The incretin system: glucagon-like peptide-1 receptor agonists and dipeptidyl peptidase-4 inhibitors in type 2 diabetes," *The Lancet* 368.9548 (2006): 1696–1705.
122. Jens Juul Holst, and Jesper Gromada, "Role of incretin hormones in the regulation of insulin secretion in diabetic and nondiabetic humans," *American Journal of Physiology-Endocrinology And Metabolism* 287.2 (2004): E199–E206.
123. Drucker, "The GLP-1 journey: from discovery science to therapeutic impact."
124. John R. Rodgers et al., "Anti-obesity drugs: past, present and future," *Disease models & mechanisms* (September 2012), 621–626. DOI: 10.1242/dmm.009621.
125. Ibid.
126. "How Fen-Phen, A Diet 'Miracle,' Rose and Fell," *The New York Times*, accessed April 10, 2025, https://www.nytimes.com/1997/09/23/science/how-fen-phen-a-diet-miracle-rose-and-fell.html; Ibid; Müller et al., "Anti-obesity drug discovery: advances and challenges."
127. "Future Outlook for the AOM Market," L.E.K Consulting, accessed April 10, 2025, https://www.lek.com/sites/default/files/insights/pdf-attachments/future-outlook-AOM-v2.pdf.
128. Emanuel M. Candeias et al., "Gut-brain connection: The neuroprotective effects of the anti-diabetic drug liraglutide," *World Journal of Diabetes* (June 2015), 807-827, https://doi.org/10.4239/wjd.v6.i6.807.
129. "The Ozempic Effect: Everything You Need to Know About Medical Weight Loss," Columbia Surgery, accessed April 10, 2025, https://columbiasurgery.org/news/ozempic-effect-everything-you-need-know-about-medical-weight-loss.
130. "Why the anti-obesity drug market could grow to $100 billion by 2030," Goldman Sachs, accessed April 10, 2025, https://www.goldmansachs.com/insights/articles/anti-obesity-drug-market.
131. "Top of Mind: Weighing the GLP-1 Market," Goldman Sachs, accessed April 13, 2025, https://www.goldmansachs.com/pdfs/insights/pages/gs-research/weighing-the-glp1-market/report.pdf.
132. Ibid.
133. John O. Olukorode et al., "Recent Advances and Therapeutic Benefits of Glucagon-Like Peptide-1 (GLP-1) Agonists in the Management of Type 2 Diabetes and Associated Metabolic Disorders," *Cureus Springer Nature* (October 2024), 1–12, https://doi.org/10.7759/cureus.72080.
134. Xavier Pi-Sunyer et al., "A Randomized, Controlled Trial of 3.0 mg of Liraglutide in Weight Management," *New England Journal of Medicine* (July 2015), 11–22. DOI: 10.1056/NEJMoa1411892; Serge Jabbour et al., "DURATION-8 Randomized Controlled Trial 104-Week Results - Once-Weekly Exenatide (ExQW) plus Once-Daily Dapagliflozin (DAPA) vs. ExQW or DAPA Alone," *Diabetes 67* (July 2018), 67. DOI: https://doi.org/10.2337/db18-104-LB; John P.H. Wilding et al., "Once-Weekly Semaglutide in Adults with Overweight or Obesity," *New England Journal of Medicine*, (March 2021), 989–1002. DOI: 10.1056/NEJMoa2032183; Yupeng Liu et al., "The Weight-loss Effect of GLP-1RAs Glucagon-Like Peptide-1 Receptor Agonists in Non-diabetic

Individuals with Overweight or Obesity: A Systematic Review with Meta-Analysis and Trial Sequential Analysis of Randomized Controlled Trials," *The American Journal of Clinical Nutrition* (September 2023), 614–626. DOI: https://doi.org/10.1016/j.ajcnut.2023.04.017; Mojca Jensterle et al., "Efficacy of GLP-1 RA approved for weight management in patients with or without diabetes: a narrative review, "*Advances in therapy* (June 2022), 2452–2467. DOI: https://doi.org/10.1007/s12325-022-02153-x; Mojca Jensterle et al., "Efficacy of GLP-1 RA approved for weight management in patients with or without diabetes: a narrative review," *Advances in therapy* (June 2022), 2452–2467. DOI: https://doi.org/10.1007/s12325-022-02153-x.

135. Michael A. Lincoff et al., "Semaglutide and cardiovascular outcomes in obesity without diabetes," *New England Journal of Medicine* (December 2023), 2221–2232, https://doi.org/10.1056/NEJMoa2307563.
136. Ibid.
137. Cameron Santoro, "ACC Advocates Early Medication Use for Obesity to Boost Cardiovascular Health," *The American Journal of Managed Care*, June 20, 2025, https://www.ajmc.com/view/acc-advocates-early-medication-use-for-obesity-to-boost-cardiovascular-health.
138. Ibid; Olukorode et al., "Recent Advances and Therapeutic Benefits of Glucagon-Like Peptide-1 (GLP-1) Agonists in the Management of Type 2 Diabetes and Associated Metabolic Disorders."
139. Timo D. Müller et al., "Glucagon-like-peptide 1 (GLP-1)," *Molecular metabolism* (December 2019), 72-130, https://doi.org/10.1016/j.molmet.2019.09.010.
140. Adams B. Nager and Robert D. Atkinson, "A Trillion-Dollar Opportunity: How Brain Research Can Drive Health and Prosperity" (ITIF, July 2016), https://www2.itif.org/2016-trillion-dollar-opportunity.pdf.
141. Liqin Qi et al., "Subcutaneous administration of liraglutide ameliorates learning and memory impairment by modulating tau hyperphosphorylation via the glycogen synthase kinase-3β pathway in an amyloid β protein induced alzheimer disease mouse model," *European Journal of Pharmacology* (July 2016), 23-32, https://doi.org/10.1016/j.ejphar.2016.04.052.
142. Liu Weizhen et al., "Neuroprotective effects of lixisenatide and liraglutide in the 1-methyl-4-phenyl-1, 2, 3, 6-tetrahydropyridine mouse model of Parkinson's disease," *Neuroscience* (September 2015), 42-50, https://doi.org/10.1016/j.neuroscience.2015.06.054.
143. Xiaoyan Yan et al., "Neuroprotective Mechanisms of Glucagon-Like Peptide-1-Based Therapies in Ischemic Stroke: An Update Based on Preclinical Research," *Frontiers* (March 2022), 1–20. DOI: https://doi.org/10.3389/fneur.2022.844697.
144. Christian S. Hendershot et al., "Once-Weekly Semaglutide in Adults With Alcohol Use Disorder: A Randomized Clinical Trial," *JAMA psychiatry* (February 2025), 395–405, https://doi.org/10.1001/jamapsychiatry.2024.4789.
145. Ibid.
146. Sebastian Badulescu et al., "Glucagon-like peptide 1 agonist and effects on reward behaviour: A systematic review," *Physiology & Behavior* (June 2024), 1–11, https://doi.org/10.1016/j.physbeh.2024.114622.
147. Emmanuelle Baillet et al., "Making alcohol and tobacco preventable deaths truly preventable! Addiction as a modifiable risk factor for alcohol and tobacco preventable mortality," *Archives of Public Health* (September 2024), 167–169, https://doi.org/10.1186/s13690-024-01399-x.
148. National Institute on Drug Abuse, "Drugs, Brains, and Behavior: The Science of Addiction (Introduction)," accessed April 29, 2025, https://nida.nih.gov/publications/drugs-brains-behavior-science-addiction/introduction.
149. John Elflein, "Costs due to abuse of tobacco, alcohol, illicit drugs, and prescription opioids in the United States as of 2020*," Statista website, cost of abuse of tobacco in the United States as of

2020 (in billion U.S. dollars), accessed April 29, 2025, https://www.statista.com/statistics/367863/tobacco-alcohol-and-illicit-drugs-abuse-costs-in-the-us/; "State of Tobacco Control: Tobacco Facts," American Lung Association, accessed April 29, 2025, https://www.lung.org/research/sotc/facts.

150. Ibid; Elflein, "Costs due to abuse of tobacco, alcohol, illicit drugs, and prescription opioids in the United States as of 2020*"; "Alcohol-Related Emergencies and Deaths in the United States," National Institute on Alcohol Abuse and Alcoholism, accessed April 29, 2025, https://www.niaaa.nih.gov/alcohols-effects-health/alcohol-topics-z/alcohol-facts-and-statistics/alcohol-related-emergencies-and-deaths-united-states.
151. "Unlocking the full value of GLP-1s for people, health systems and society," Novo Nordisk, accessed April 25, 2025, https://www.novonordisk.com/content/dam/nncorp/global/en/media/pdfs/novo-nordisk-unlocking-the-power-of-glp-1.pdf.
152. Peter Boersma et al., "Prevalence of Multiple Chronic Conditions Among US Adults, 2018," *Preventing chronic disease* (September 2020), 106. DOI: http://doi.org/10.5888/pcd17.200130; Christine Buttorff et al., "Multiple Chronic Conditions in the United States" (RAND Corporation, May 2017), https://www.rand.org/pubs/tools/TL221.html.
153. "Health and Economic Costs of Chronic Conditions," Centers for Disease Control and Prevention, 2024, https://www.cdc.gov/chronic-disease/data-research/facts-stats/index.html.
154. "Obesity drugs are among health breakthroughs forecast to boost GDP," Goldman Sachs, accessed April 20, 2025, https://www.goldmansachs.com/insights/articles/obesity-drugs-are-among-breakthroughs-forecast-GDP.
155. Ibid.
156. Seth Z. Aschem et al., "Association of Perioperative Glucagon-like Peptide-1 Receptor Agonist Use and Postoperative Outcomes," *Annals of Surgery* (April 2025), 600–607, https://doi.org/10.1097/SLA.0000000000006614; Naveed Sattar et al., "Cardiovascular, mortality, and kidney outcomes with GLP-1 receptor agonists in patients with type 2 diabetes: a systematic review and meta-analysis of randomised trials," *The Lancet Diabetes & Endocrinology* (October 2021), 653–662, https://doi.org/10.1016/S2213-8587(21)00203-5.
157. Marc Evans et al., "Healthcare costs and hospitalizations in US patients with type 2 diabetes and cardiovascular disease: a retrospective database study (OFFSET)," *Diabetes, Obesity and Metabolism* (July 2022), 1300–1309, https://doi.org/10.1111/dom.14703.
158. Philip Mcewan et al., "1040-P: The Value of the Guideline-Recommended Management of Type 2 Diabetes—A Novel Population-Level System Dynamics Approach," *Diabetes* (June 2024), https://diabetesjournals.org/diabetes/article/73/Supplement_1/1040-P/155293/1040-P-The-Value-of-the-Guideline-Recommended.
159. Ibid; "Obesity drugs are among health breakthroughs forecast to boost GDP," Goldman Sachs.
160. "Scaling Up the Impact of Obesity Drugs," Morgan Stanley, accessed April 22, 2025, https://www.morganstanley.com/ideas/obesity-drugs-market-expanded-opportunity.
161. Grace Zwemmer, "Weight-loss drugs will generate economic gains" (Oxford Economics, November 2024), https://www.oxfordeconomics.com/wp-content/uploads/2024/12/Weight-loss-drugs-will-generate-economic-gains-for-the-US.pdf.
162. Oliver Barnes, "Novo Nordisk invests $4bn to expand weight loss drug production in US," *Financial Times*, June 24, 2024, https://www.ft.com/content/4ace1c9f-819c-49e3-bd7f-eba03c0f2242.
163. Eli Lilly and Company, "Lilly announces $3 billion expansion of its recently acquired manufacturing facility in Wisconsin," news release, December 5, 2024, https://investor.lilly.com/node/51661/pdf; Eli Lilly and Company, "Lilly plans to more than double U.S. manufacturing investment since 2020 exceeding $50 billion," news release, February 26, 2025, https://investor.lilly.com/node/52106/pdf.

164. Ibid; Zwemmer, "Weight-loss drugs will generate economic gains"; Liz E. Whyte, "Eli Lilly Plans to Spend $27 Billion on New U.S. Plants," *The Wall Street Journal*, February 26, 2025, https://www.wsj.com/health/pharma/eli-lilly-new-jobs-us-plants-investment-7f4ebf3c; "The Economic Impact of the U.S. Biopharmaceutical Industry: 2022 National and State Estimates," The Pharmaceutical Research and Manufacturers of America (PhRMA), https://cdn.aglty.io/phrma/policy-issues/research-ecosystem/economy/The-Econ-Impact-of-US-Biopharma-Industry-2024-Report.pdf.

165. Ibid; "Obesity drugs are among health breakthroughs forecast to boost GDP," Goldman Sachs.

166. Hamlet Gasoyan et al., "Early- and later-stage persistence with antiobesity medications: A retrospective cohort study," *Obesity* (March 2024), 486–493. DOI: https://doi.org/10.1002/oby.23952.

167. Rebecca Caro et al., "Is there sustained weight loss after discontinuation of GLP-1 agonist for obesity treatment?" *Evidence-Based Practice* (May 2023), 7–8, https://doi.org/10.1097/EBP.0000000000001786.

168. Wafa Latif et al., "Compare and Contrast the Glucagon-Like Peptide-1 Receptor Agonists (GLP1RAs)," *StatPearls* (February 2024), https://www.ncbi.nlm.nih.gov/books/NBK572151/#article-135573.s4.

169. Lisa Catanese, "GLP-1 diabetes and weight-loss drug side effects: "Ozempic face" and more," *Harvard Health Publishing,* February 5, 2025, https://www.health.harvard.edu/staying-healthy/glp-1-diabetes-and-weight-loss-drug-side-effects-ozempic-face-and-more.

170. Eli Lilly and Company, "Lilly's oral GLP-1, orforglipron, demonstrated statistically significant efficacy results and a safety profile consistent with injectable GLP-1 medicines in successful Phase 3 trial," news release, April 17, 2025, https://investor.lilly.com/news-releases/news-release-details/lillys-oral-glp-1-orforglipron-demonstrated-statistically.

171. Ibid.; Rajive Patel, "Everything You Need to Know About Eli Lilly's New Oral GLP-1 Orforglipron," *nowpatient,* April 22, 2025, https://nowpatient.com/blog/everything-you-need-to-know-about-eli-lillys-new-oral-glp-1-orforglipron.

172. Natalie Missakian, "Novo Nordisk casts Queen Latifah in TV-themed awareness campaign for obesity," *Fierce Pharma,* November 1, 2021, https://www.fiercepharma.com/marketing/queen-latifah-tackles-obesity-tv-inspired-awareness-campaign-for-novo-nordisk.

173. Robert H. Shmerling, "What happens when a drug goes viral?" *Harvard Health Publishing,* February 21, 2023, https://www.health.harvard.edu/blog/what-happens-when-a-drug-goes-viral-202302212892.

174. Maggie A. Unruh and Charee M. Thompson, "Competing Cultural Discourses of GLP-1 Agonists: An Application of Relational Dialectics Theory," *Qualitative Health Research* (September 2024), 1–13. DOI: https://doi.org/10.1177/10497323251326041.

175. Stephanie W. Waldrop et al., "Inequalities in the provision of GLP-1 receptor agonists for the treatment of obesity," *Nature Medicine* (January 2024), 22–25. DOI: 10.1038/s41591-023-02669-x; Joint Economic Committee Congress of the United States (JEC), THE 2025 JOINT ECONOMIC REPORT.

176. Benedic N. Ippolito and Joseph F. Levy, "Estimating the Cost of New Treatments for Diabetes and Obesity" (AEI, September 2023), https://www.aei.org/research-products/report/estimating-the-cost-of-new-treatments-for-diabetes-and-obesity/.

177. Ibid.

178. Dan Bell., "Unpacking the High Cost of GLP-1 Drugs," *Pharmaceutical Commerce,* September 3, 2024, https://www.pharmaceuticalcommerce.com/view/unpacking-high-cost-glp-1-drugs.

179. Ibid; "Top of Mind: Weighing the GLP-1 Market," Goldman Sachs.

180. Stephen J. Ezell, Leah E. Kann, and Sandra Barbosu, "The Inflation Reduction Act is Negotiating the United States Out of Drug Innovation" (ITIF, February 2025), https://www2.itif.org/2025-ira-small-molecule-penalty.pdf.
181. Ibid; Joint Economic Committee Congress of the United States (JEC), THE 2024 JOINT ECONOMIC REPORT.
182. Treat and Reduce Obesity Act of 2023, H.R.4818, 118th Cong. (2023).
183. Daniel J. Drucker, "The GLP-1 journey: from discovery science to therapeutic impact," *The Journal of Clinical Investigation* (January 2024), 134. DOI: https://doi.org/10.1172/JCI175634.
184. "H.R. 4818 – Treat and Reduce Obesity Act of 2023," Congress, https://www.congress.gov/bill/118th-congress/house-bill/4818.
185. "How would authorizing Medicare to cover anti-obesity medications affect the federal budget?" Congressional Budget Office (CBO), October 2024, https://www.cbo.gov/system/files/2024-10/60441-medicare-coverage-obesity.pdf.
186. "A Call for New Research in the Area of Obesity," Congressional Budget Office (CBO), October 5, 2023, https://www.cbo.gov/publication/59590.
187. "Obesity Strategies: What Can Be Done," Centers for Disease Control and Prevention, October 29, 2024, https://www.cdc.gov/obesity/php/about/obesity-strategies-what-can-be-done.html.
188. Zhaowei She et al., "Is promoting public transit an effective intervention for obesity?: A longitudinal study of the relation between public transit usage and obesity," *Transportation Research Part A: Policy and Practice* (January 2019), 162–169. DOI: https://doi.org/10.1016/j.tra.2018.10.027.
189. Ibid; National Institute of Diabetes and Digestive and Kidney Disease, Overweight and Obesity Statistics, accessed February 27, 2025, https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity.