

Capping the Price of GLP-1s: Quantitative Analysis and Recommendations for Weight Loss Drug Policies in the United States

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Executive Summary

Glucagon-like Peptide-1 receptor agonists, or GLP-1s, offer a potential solution for the rising prevalence of diabetes and obesity around the world. However, the enormous demand for the medications and lack of market competition has resulted in prohibitively expensive GLP-1 prescriptions and thus unequal access to these drugs. The association between socioeconomic status and GLP-1 access is directly and, through analysis of other correlated factors, indirectly discussed below. Due to the necessity of GLP-1 access given certain conditions, a price capping model similar to the previously instituted federal price capping of insulin is recommended. Still, it is important to recognize that while price-capping may lower out-of-pocket costs, it does not address the structural drivers of high drug prices like limited market competition, high drug list prices, and lack of preventative measures. To address these issues, improvements to the American healthcare system from both domestic and international perspectives were analyzed as well.

Background

Introduction

Throughout the 20th century, being overweight was ascribed to a lack of willpower. However, as the number of overweight people grew exponentially, medical communities began to consider obesity as a health condition rather than the result of poor behavioral choices. Today, the World Health Organization defines overweight and obesity as abnormal or excessive fat accumulation that presents a risk to health.[1] Individuals diagnosed as overweight or obese are at greater risk for developing heart disease, type 2 diabetes, and certain types of cancer.[2] While prevalence varies drastically by country, in the United States, 1 in 5 children and 2 in 5 adults have obesity.[3]

In the past few decades, there has been a growing industry of dietary supplements, exercise regimes, and recommended diets; still, clinicians had little to offer overweight or obese patients until recently. Medical advice primarily framed weight management as a matter of eating less and exercising more. A breakthrough came in 2017, when Novo Nordisk's Ozempic received FDA approval for treating Type 2 diabetes.[4] Researchers discovered that the Ozempic drug also resulted in significant weight reduction, which attracted people who were not diabetic but nonetheless wanted to lose weight. In 2021, the FDA approved Novo Nordisk's Wegovy, which

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[1] World Health Organization. "Obesity." World Health Organization. Accessed December 24, 2025. https://www.who.int/health-topics/obesity#tab=tab_1.
[2] Centers for Disease Control and Prevention. "About Obesity." CDC — Obesity. Last modified January 23, 2024. https://www.cdc.gov/obesity/php/about/index.html.
[3] Centers for Disease Control and Prevention. "About Obesity." CDC — Obesity. Last modified January 23, 2024. https://www.cdc.gov/obesity/php/about/index.html.
[4] Novo Nordisk. "Novo Nordisk Receives FDA Approval of OZEMPIC® (Semaglutide) Injection for the Treatment of Adults with Type 2 Diabetes." PR Newswire, December 5, 2017. https://www.prnewswire.com/news-releases/novo-nordisk-receives-fda-approval-of-ozempic-semaglutide-injection-for-the-treatment-of-adults-with-type-2-diabetes-300567052.html.

contained a higher dose of the same compound found in Ozempic, for the treatment of obesity.[5] Since then, other obesity medications have been granted FDA approval, most notably Zepbound in 2023.[6]

The active ingredients in Ozempic, Wegovy, and Zepbound mimic the function of a gut hormone called glucagon-like peptide-1 (GLP-1). As these GLP-1 drugs have surged in popularity, cost has become a substantial issue. In the United States, more than half of GLP-1 users say that it is difficult to afford these medications.[7] Furthermore, 14% of GLP-1 users have stopped treatment due to the price of drugs alone.[8]

While there is some legislation at the state and federal levels to address these access problems, GLP-1s remain unavailable for a significant population. The purpose of this research is to assess the current landscape of weight loss drugs and recommend potential policies to improve their accessibility and affordability. In this brief, we analyze the feasibility of a federal price cap, as well as other recommendations relating to state and federal healthcare systems, to contribute novel approaches to weight loss drug policy.

GLP-1 Treatment of Diabetes and Obesity

I. What is the healthcare burden faced by patients with diabetes?

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[5] Anekwe, Chika, MD, MPH. "A New Treatment for Obesity." Harvard Health Blog, September 10, 2021. https://www.health.harvard.edu/blog/a-new-treatment-for-obesity-202109102589.
[6] U.S. Food and Drug Administration. "FDA Approves New Medication for Chronic Weight Management." FDA News & Events — Press Announcements, November 8, 2023. https://www.fda.gov/news-events/press-announcements/fda-approves-new-medication-chronic-weight-management.
[7] Kaiser Family Foundation. "Poll: 1 in 8 Adults Say They Are Currently Taking a GLP-1 Drug for Weight Loss, Diabetes or Another Condition, Even as Half Say the Drugs Are Difficult to Afford." KFF, November 14, 2025. https://www.kff.org/public-opinion/poll-1-in-8-adults-say-they-are-currently-taking-a-glp-1-drug-for-weight-loss-diabetes-or-another-condition-even-as-half-say-the-drugs-are-difficult-to-afford/.
[8] Kaiser Family Foundation. "Poll: 1 in 8 Adults Say They Are Currently Taking a GLP-1 Drug for Weight Loss, Diabetes or Another Condition, Even as Half Say the Drugs Are Difficult to Afford." KFF, November 14, 2025. https://www.kff.org/public-opinion/poll-1-in-8-adults-say-they-are-currently-taking-a-glp-1-drug-for-weight-loss-diabetes-or-another-condition-even-as-half-say-the-drugs-are-difficult-to-afford/.

In order to explore the relationship with GLP-1s within a greater context of healthcare in society, the first thing that must be established is how this drug fits into a larger landscape with other factors surrounding the condition of Type 2 Diabetes which presents patients with the largest need for GLP-1 drugs to see results and be on a pathway for better health in the future. This is because people who have Type 2 Diabetes are at higher risk for health complications such as heart and blood vessel diseases, nerve damage, vision problems, skin conditions, and injury recovery impairment.[9] Therefore, they incur more costs as individuals and increase the overall spending in the U.S. on healthcare due to their needs and struggles with the condition. This can be viewed on a large scale to see what costs within the U.S. healthcare system can be attributed either directly or indirectly to Type 2 Diabetes. By viewing it through this lens, data from 2022 reveals that the U.S. spent $412.9 billion in direct and indirect costs due to Type 2 Diabetes within society.[10] Direct costs attributed to diabetes account for over $306 billion. This number includes things such as supplies, therapies, treatments, medications, hospital visits and hospital stays, all that shows directly how much people are spending within the healthcare system in order to manage their health and condition. Another $106.3 billion is classified as indirect costs the U.S. spends each due to people with Type 2 Diabetes. These indirect costs are calculated to include numbers such as the loss of potential earnings related to factors such as people having to take off of work in the short term, reductions in productivity, people leaving the workforce for long periods of time, as well as the possible future earnings of those who end up dying as a result of diabetes and related complications. The tables below break this down further and show the

[9] "Overview of Type 2 Diabetes." Mayoclinic.Org. Mayo Clinic, February 27, 2025. https://www.mayoclinic.org/diseases-conditions/type-2-diabetes/symptoms-causes/syc-20351193.
[10] Emily D. Parker, Janice Lin, Troy Mahoney, Nwanneamaka Ume, Grace Yang, Robert A. Gabbay, Nuha A. ElSayed, Raveendhara R. Bannuru; Economic Costs of Diabetes in the U.S. in 2022. Diabetes Care 2 January 2024; 47 (1): 26–43. https://doi.org/10.2337/dci23-0085

costs associated with various aspects related to Type 2 Diabetes. Overall, this serves as a baseline for how Type 2 Diabetes affects the current U.S. healthcare system, and that there is an urge to try to reduce these evergrowing numbers.

Table 4—Health care expenditures attributable to diabetes in the U.S., by age-group and type of service—2022 estimates

	Age (years)		
Cost component	<65, *N* = 13.6 million	≥65, *N* = 11.9 million	Total, *N* = 25.5 million§
Institutional care			
Hospital inpatient days	28,520 (30)	67,662 (70)	96,182
Nursing/residential facility days	3,217 (34)	6,363 (66)	9,581
Hospice care days	5 (9)	52 (91)	57
Subtotal	31,743 (30)	74,077 (70)	105,820
Outpatient care			
Office visits	8,023 (24)	25,622 (76)	33,646
ER visits	4,650 (39)	7,171 (61)	11,821
Ambulance services	59 (29)	148 (71)	208
Hospital outpatient visits	5,787 (48)	6,326 (52)	12,114
Home health	2,184 (39)	3,407 (61)	5,591
Podiatry	113 (31)	250 (69)	363
Subtotal	20,818 (33)	42,925 (67)	63,742
Outpatient medications and supplies			
Insulin	12,484 (56)	9,905 (44)	22,389
Diabetes supplies*	2,392 (57)	1,840 (43)	4,232
Noninsulin glucose-lowering medications†	12,637 (51)	12,073 (49)	24,709
Other prescription medications	20,564 (24)	63,919 (76)	84,483
Other equipment and supplies‡	826 (69)	366 (31)	1,192
Subtotal	48,903 (36)	88,102 (64)	137,005
Total	101,464 (33)	205,104 (67)	306,568
Average cost per person with diabetes (actual USD)	7,482	17,180	12,022

Table 7—Indirect burden of diabetes in the U.S.—2022 estimates (in billions, USD)

Cost component	Productivity loss	Total cost attributable to diabetes	Proportion of indirect costs (%)*
Workdays absent	17.3 million days	5.4	5.1
Reduced performance at work	112.7 million days	35.8	33.7
Reduced productivity days for those not in labor force	15.5 million days	4.4	4.1
Reduced labor force participation due to disability	107.2 million days	28.3	26.6
Mortality	339,000 deaths	32.4	30.5
Total		106.3	100

Based on this, the focus can shift to looking into more of the burden faced by individuals struggling with Type 2 Diabetes and are the prime patients in need of GLP-1s. One aspect to this is that people with Type 2 Diabetes are simply at a higher probability of spending more money on healthcare and everything that comes along with treating their condition and maintaining their

health. Namely, it is estimated that the average person with Type 2 Diabetes will spend $85,200 on medical costs during their lifetime.[11] With this in mind, this number can be used to compare various costs of treatments and their outcomes to see if current or future costs are worth it and can positively affect society and patients. It is estimated that a person with Type 2 Diabetes could spend $3,300 to $4,600 out of pocket to cover annual medical costs, but that GLP-1s place this number further on the larger side as people might have to deal with the burden of higher costs for these drugs.[12] However, the question is then raised on whether the effectiveness of GLP-1s makes the extra cost worth it given that they will be treated faster and therefore will likely have less time spent incurring high medical costs. For example, research shows that when a person with Type 2 Diabetes switches to take GLP-1 medications, the long term costs saved ranged from $10,239 to $19,391 in terms of the healthcare system.[13] With this in consideration, this lends to the fact that even at their current price, there is still a benefit seen within the healthcare system and spending at large due to the benefits associated with these drugs and the effective treatment of Type 2 Diabetes. All in all, this opens up a discussion on whether these drugs should be lowered in price or given broader access in order to lend this benefits to more people who can now receive effective treatments in the form of GLP-1s and save the healthcare system money as they are not overly exposed to a condition that forces them to spend more on medical costs.

II. What is the healthcare burden faced by patients with obesity?

[11] Zhuo, Xiaohui, Ping Zhang, and Thomas J. Hoerger. “Lifetime Direct Medical Costs of Treating Type 2 Diabetes and Diabetic Complications.” American Journal of Preventive Medicine 45, no. 3 (2013): 253–61. https://doi.org/10.1016/j.amepre.2013.04.017.

[12] Nguyen, Amanda. "The True Cost of Diabetes: How Much Do Patients Pay Each Year?" Goodrx.Com. Good Rx, November 13, 2023. https://www.goodrx.com/conditions/diabetes/true-cost-of-diabetes?srsltid=AfmBOoqVHQEFys255j1CNSaPz7sjg-pwgTMPAOmSqZoyfks91zL27QIr.

[13] Yang, Chen-Yi et al. “Cost-effectiveness of GLP-1 receptor agonists versus insulin for the treatment of type 2 diabetes: a real-world study and systematic review.” Cardiovascular diabetology vol. 20,1 21. January 19, 2021, https://doi.org/10.1186/s12933-020-01211-4

Given the necessity of ameliorating the forced trade-offs between economic prosperity and optimization of health treatments in the status quo, it is imperative to discuss, in extensive detail, the overall augmentation in the possible costs of healthcare that result from the condition of obesity, either in the situation of Type-I or Type-II diabetic individuals or individuals who have developed obesity through eating habits or other metabolic functional conditions. In this expository overview, we will provide an assessment of the possible economic burden of frequently investing in glucagon-like peptide 1 (GLP-1) mediations, and we also discuss macroeconomic implications of the aggregate cost incurred by GLP-1 production and sales, together with the possible plausible alternatives for cost-effective treatments that may assuage conditions for affected individuals.

Numerous seminal investigations have been conducted regarding the possible economic implications of GLP-1 treatments, and other obesity medications, on the livelihoods of individuals. A comprehensive investigation by Cawley *et al*[14] on a representative dataset of the noninstitutionalized U.S. population, pooled over a 16-year timeframe, established that the relative increase in the costs of healthcare due to the necessity of standard obesity treatments, which were dominated by the most available form of treatment in the status quo, amounted to a near-doubling effect within incurred medical expenses, amounting to over $2,500 per year. Moreover, relative rates of increase were proportionate to the degree of obesity, with Class-3 obesity – defined in predominant literature studies by a body-mass index of 40 or higher[15] –

[14] Cawley J, Biener A, Meyerhoefer C, Ding Y, Zvenyach T, Smolarz BG, Ramasamy A. Direct medical costs of obesity in the United States and the most populous states. J Manag Care Spec Pharm. 2021 Mar;27(3):354-366. doi: 10.18553/jmcp.2021.20410. Epub 2021 Jan 20. PMID: 33470881; PMCID: PMC10394178. https://pmc.ncbi.nlm.nih.gov/articles/PMC10394178/

[15] Kitahara, Cari M., Alan J. Flint, Amy Berrington de Gonzalez, Leslie Bernstein, Michelle Brotzman, Robert J. MacInnis, Steven C. Moore et al. "Association between class III obesity (BMI of 40–59 kg/m2) and mortality: a pooled analysis of 20 prospective studies." PLoS medicine 11, no. 7 (2014): e1001673. https://journals.plos.org/plosmedicine/article/file?id=10.1371/journal.pmed.1001673&type=printable

invoking a mean possible increase of 233% in annual incurred costs due to prescription drugs and treatments. A functionally similar study by Andeyeva *et al.*[16], with longer time-dependence albeit a smaller set of individuals, determined that individuals with body-mass index (BMI) exceeding the threshold for Class-3 obesity required a nearly five-fold increase in possible expenditures, Furthermore, to highlight disparities faced by individuals across the United States outlined in the investigation by Cawley *et al*., a meta-analysis performed by Biener *et al*. (2018)[17] established that obesity expenditures, as a proportion of overall income, could vary by over 10% in the median expenditures across states, establishing a precedent for the possibility of variability due to multifactorial influences of local region, demographics, and intensity of disorders faced by individuals necessitating such treatments. Although treatments received by most subjects studied are not necessarily specific to GLP-1 treatments (although many of the representative sample spaces investigated require participating individuals who would likely be receiving such medications)[18], such studies establish a fundamental precedent for the necessity of relief across all possible incurred healthcare burdens that result from treatments to obesity.

Moreover, beyond studies on broad implications of healthcare costs, recent studies on the impact of GLP-1's have offered mixed perspectives on the possibility of such treatments to relieve significant healthcare burdens for the majority of individuals, while perhaps simultaneously increasing costs faced by certain affected demographics. An extrapolative

[16] Andreyeva, Tatiana, Roland Sturm, and Jeanne S. Ringel. "Moderate and severe obesity have large differences in health care costs." Obesity research 12, no. 12 (2004): 1936-1943.
[17] Biener, Adam, John Cawley, and Chad Meyerhoefer. "The impact of obesity on medical care costs and labor market outcomes in the US." Clinical chemistry 64, no. 1 (2018): 108-117.
[18] Cf. Biener *et al*. and Andreyeva *et al*. Studies were performed predominantly on groups of individuals, segmented by values of BMI in a piecewise fashion determined by commonly accepted thresholds for severity of obesity.

analysis by Hwang *et al*. (2025)[19] established the projected possibility that, over a ten-year period, full adoption of GLP-1 treatments within coverage plans could allow for a time-averaged aggregate of $18 billion annually in healthcare costs. Note, moreover, that since the number of affected individuals in the U.S. requiring such forms of treatment is approximately on the order of 20 million individuals[20], up to a possible deviation of ±2 million individuals due to measurement errors and possibilities of differing thresholds for severity, it follows that the possible, yearly-averaged savings among individuals may be extrapolated to be over $900 annually for individuals requiring the most intense forms of treatment. Nonetheless, pricing possibilities still exhibit the possibility of substantial increases in healthcare costs to offset reduced patient expenditures – average healthcare costs faced by insured patients rose over $7,000 upon the first year of intake, irrespective of any possibilities of access to such treatments[21]. Notably, possible alternatives to GLP-1's, including tirzepatide and semaglutide, require 30% and 80% reductions, respectively, to attain the necessary threshold – namely, $100,000 per quality-adjusted life year (QALY) – to develop commercial viability[22].

This impact, while certainly not sufficient to assuage all possible concerns regarding the ability to afford such treatments (especially given functional differences between individuals[23] establish substantially differing treatment costs, which reduce the plausibility of overall

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[19]Hwang, Jennifer H., Neda Laiteerapong, Elbert S. Huang, Dariush Mozaffarian, A. Mark Fendrick, and David D. Kim. "Fiscal Impact of Expanded Medicare Coverage for GLP-1 Receptor Agonists to Treat Obesity." In JAMA Health Forum, vol. 6, no. 4, pp. e250905-e250905. American Medical Association, 2025. https://jamanetwork.com/journals/jama-health-forum/fullarticle/2833038

[20] "Adult Obesity Facts." 2025. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention. Accessed October 7. https://www.cdc.gov/obesity/adult-obesity-facts/index.html.

[21] Pearson, Steven D., Christopher M. Whaley, and Sarah K. Emond. "Affordable access to GLP-1 obesity medications: strategies to guide market action and policy solutions in the US." Journal of Comparative Effectiveness Research 14, no. 9 (2025): e250083.

[22] Niewijk, Grace. 2025. "Are GLP-1 Drugs Worth Their Current Cost?" UChicago Medicine. UChicago Medicine. Accessed October 7. https://becarispublishing.com/doi/pdf/10.57264/cer-2025-0083 https://www.uchicagomedicine.org/forefront/research-and-discoveries-articles/glp-1-drug-pricing-analysis.

[23] Refer to the aforementioned source, Cawley *et al*.

mean-based methods in providing accurate estimates of expenses for citizens who are most intensely affected) offers the significant possibility of increased uptake in such treatments due to a reduced estimated economic burden. Additionally, in the specific situation where one considers the possibility of a nonlinear, quadratic distribution of possible economic costs faced by individuals across BMI, which corroborates the results of Cawley *et al*.[24], we may estimate individual-specific cost mitigation by noting that the distribution itself must take some quadratic form in the body-mass index B:

$$f(B) \propto \alpha(B-\beta)^2 + \delta$$

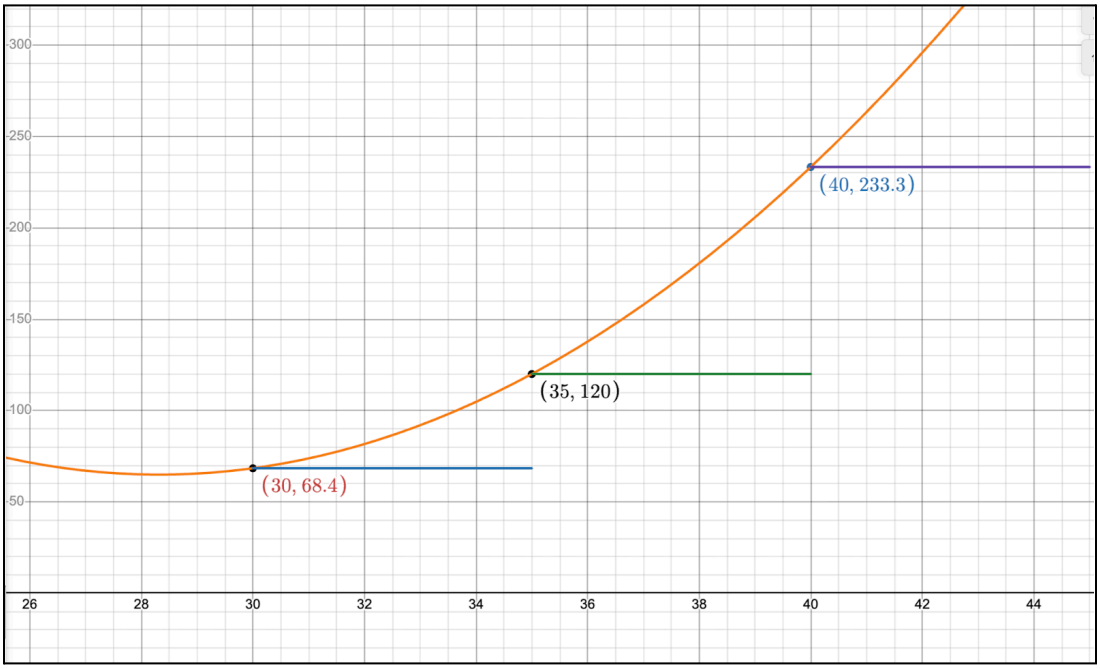


Figure 1: Quadratic interpolation, utilizing a linear regression model, of possible excess incurred costs,as a percentage of existing healthcare costs, for three distinct BMI values provided by Cayley *et al*; while the analysis performed solely allows for a discretization of values that must be constant on the disjoint intervals BMI $\in$ (30, 35), (35, 40), (40, x) (for some $x > 40$), we estimate a continuous range of possibile BMI values using the interpolation,

[24] Ibid.

which yields $R^2 = 0.999$ over a choice of quadratic interpolant yet a distinctly *lower* correlation coefficient over a cubic or spline interpolant, indicating the plausibility of a quadratic model.

Upon determination of the relevant parameters due to the three points given in the model by Cawley, which is sufficient to determine the model uniquely, we may effectively estimate the aggregate costs by time-integration of the function, which yields

$$\frac{1}{B_{\max} - B_{\min}} \int_{B_{\min}}^{B_{\max}} f(B) = \frac{1}{B_{\max} - B_{\min}} \int_{B_{\min}}^{B_{\max}} \alpha(B - \beta)^2 + \delta \approx \frac{7817}{60}.$$

Moreover, this calculation provides an effective normalization factor for our calculation; namely, the observation that the overall aggregate of $18 billion may be renormalized by the average value of $f(B)$ to effectively provide an estimate of the reduction in aggregate costs. In particular, since the estimated average $900 reduction within our model, averaged over all possible individuals in consideration, covers an effective 48.4% of the possible overall excess expenses faced (which average to $1,861, per the comprehensive study performed by Ward *et al*[25], which has been independently verified by the CDC), it follows that the 48.4% reduction in coverage acts *upon* an average excess percentage given by time-integrated average value of *f(B)* above – which evaluates to 120.3%. Thus, the expected *excess* percentage increases in costs faced by individuals after the implementation of such treatments may be renormalized as a 58% increase in costs, which significantly reduces the overall burden faced by individuals who require such treatments – notably, the escalating scalability of such medications might increase their future affordability, allowing for this expected reduction to include a time-dependent factor that

[25] Ward ZJ, Bleich S, Long MW, Gortmaker SL. Association of body mass index with health care expenditures in the United States by age and sex. PLoS One. 2021;16(3):e0247307. doi: 10.1371/journal.pone.0247307. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247307

mitigates costs over time. Notably, however, the model established by Ward *et al*. neglects possibilities of substantial inflation or economic volatility while simultaneously restricting classifications of obesity to tripartite segmented groups (as opposed to more nuanced models that offer more representative data on larger discretizations of BMI). Hence, additional extrapolative studies are necessary to evaluate possible impacts with greater accuracy and long-term fiscal plausibility.

Finally, regarding additional fundamental limitations in the possibilities of modeling the impacts of GLP-1 treatments, we highlight fundamental challenges in assessing impacts on demographics that have historically faced reduced access to such treatments due to lower socioeconomic mobility, especially since representatives of such groups are of less likelihood to be selected for studies that model effectiveness and economic impacts due to the existing limited access towards such treatments. Hence, a necessity for studies that explicitly focus on the expansion of surveyed populations to individuals who have typically *not* been able to afford such treatments is an absolute imperative.

The Science and Manufacturing Behind GLP-1s

I. How do GLP-1s work and why are they important?

Obesity is a grave public health crisis that has been becoming increasingly problematic over the past decades.[26] According to a report by the Commonwealth Fund, "obesity is a grave public health threat, more serious even than the opioid epidemic." Higher rates of obesity have been found to cause "type 2 diabetes, hyperlipidemia, high blood pressure, cardiovascular disease, and cancer."[27] Not only is obesity responsible for severe medical afflictions, but it is also

[26] "Rising Obesity in the United States Is a Public Health Crisis." April 24, 2018. https://doi.org/10.26099/fth3-sd41.
[27] Ibid.

substantially prevalent—particularly among Americans.[28] The National Health and Nutrition Examination Survey 2017–March 2020 conducted by the CDC found that the obesity rate among children and adolescents aged 2–19 years was 19.7%, and the prevalence of untreated or restored dental cavities was 46.0%.[29] Among adults, the obesity rate jumped to 41.9%. Furthermore, over 45.1% of adults have hypertension.[30]

GLP-1 stands for glycogen-like peptide-1. These medications have been found to help regulate blood sugar levels of people with type 2 diabetes, but they've also been found to have strong anti-obesity effects, such as reducing appetite and slowing digestion. Below is an overview of how these drugs work. Insulin is the hormone that moves glucose (sugar) from the bloodstream into muscle, liver, and fat cells. When insulin levels rise, blood sugar falls; when insulin is low, blood sugar rises. Other natural hormones such as GIP and GLP-1 stimulate the pancreas to release more insulin. Building on this pathway, Novo Nordisk developed semaglutide, sold as Ozempic and, at a higher dose, Wegovy. These medicines are GLP-1 receptor agonists, meaning they mimic the effects of the body's own GLP-1. This results in four effects:

1. Increased insulin production
2. Reduced production of glucagon (hormone that increases blood sugar by breaking down liver fat)
3. Reduced appetite (agonization of GLP-1 receptors in the hypothalamus and brain stem)

[28] Stierman, Bryan, et al. "National Health and Nutrition Examination Survey 2017–March 2020 Prepandemic Data Files -- Development of Files and Prevalence Estimates for Selected Health Outcomes." June 14, 2021. https://doi.org/10.15620/cdc:106273.
[29] Ibid.
[30] Ibid.

4. Slower gastric emptying

These four effects combine to reduce excessively high blood sugar levels. As a result, the American Diabetes Association recommends that "treatment with GLP-1 RAs that have demonstrated benefit is considered a fundamental element of risk reduction and the pharmacological strategy to improve cardiovascular and kidney outcomes in people with type 2 diabetes."[31] GLP-1 RA's such as Ozempic and Wegovy are recommended parts of treatment plans for patients with type 2 diabetes, high risk of cardiovascular disease, liver disease, heart failure, and more.[32] However, these drugs' hypoglycemic properties have also made them incredibly popular weight-loss drugs.[33] According to a Health Tracking Poll conducted by the KFF, 38% of people who have taken GLP-1 RAs have taken them primarily to lose weight.[34]

Semaglutide functions exclusively as a GLP-1 receptor agonist, while tirzepatide activates both GLP-1 and GIP receptors.[35] Semaglutide is approved as Ozempic (type 2 diabetes) and Wegovy (chronic weight management); tirzepatide is approved as Mounjaro (type 2 diabetes) and Zepbound (weight management).[36] GLP-1/GIP drugs can cause gastrointestinal adverse effects like nausea, vomiting, dizziness, and dehydration.[37] Another consequence of rapid

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[31] American Diabetes Association Professional Practice Committee. "10. Cardiovascular Disease and Risk Management: Standards of Care in Diabetes—2025." Diabetes Care 48, no. Supplement_1 (December 2024): S207–38. https://doi.org/10.2337/dc25-S010.
[32] American Diabetes Association Professional Practice Committee. "9. Pharmacologic Approaches to Glycemic Treatment: Standards of Care in Diabetes—2025." Diabetes Care 48, no. Supplement_1 (December 2024): S181–206. https://doi.org/10.2337/dc25-S009.
[33] "How Many Adults with Private Health Insurance Could Use GLP-1 Drugs." Peterson-KFF Health System Tracker, n.d. Accessed September 28, 2025. https://www.healthsystemtracker.org/brief/how-many-adults-with-private-health-insurance-could-use-glp-1-drugs/.
[34] Alex Montero, et al. "KFF Health Tracking Poll May 2024: The Public's Use and Views of GLP-1 Drugs." KFF, May 10, 2024. https://www.kff.org/health-costs/kff-health-tracking-poll-may-2024-the-publics-use-and-views-of-glp-1-drugs/.
[35] Joe Young, "Tirzepatide and Semaglutide: What's the Difference?" *Numan*, accessed September 28, 2025, https://www.numan.com/weight-loss/medication/tirzepatide-and-semaglutide-difference
[36] WebMD, "Mounjaro vs. Ozempic vs. Wegovy vs. Zepbound: What's the Difference?" WebMD, accessed September 28, 2025, https://www.webmd.com/obesity/mounjaro-ozempic-wegovy-zepbound-difference
[37] Lisa Catanese, "GLP-1 Diabetes and Weight-Loss Drug Side Effects: 'Ozempic Face' and More," *Harvard Health Publishing*, February 5, 2024,

weight loss is "Ozempic face," a term commonly used to describe facial changes caused by the accelerated loss of fat.[38] Long-term effects on cardiovascular, renal, and other systems are promising but still being studied.

II. How are GLP-1s manufactured?

GLP-1 receptor agonists (GLP-1 RAs) are synthetic peptides designed to mimic the natural hormone GLP-1. Their manufacturing primarily involves highly specialized peptide synthesis and purification processes.[39] The core step is solid-phase peptide synthesis, where the peptide chain is built by putting together one amino acid at a time on an insoluble resin.[40] The amino acids are chemically attached to the resin where the completed sequence is cleaved from the resin using strong acids.[41] The next step involves the purification to remove the unwanted byproducts of the manufactured synthetic production process.[42] The crude peptide contains impurities like truncated or misassembled chains. High-performance liquid chromatography and other chromatographic techniques (Ion Exchange Chromatography, Hydrophobic Interaction Chromatography, Reverse Phase Chromatography) are used to purify the peptide to pharmaceutical-grade purity.[43]

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https://www.health.harvard.edu/staying-healthy/glp-1-diabetes-and-weight-loss-drug-side-effects-ozempic-face-and-more

[38] Ibid.

[39] The Altascientist, "MANAGING the COMPLEXITIES of GLUCAGON-like PEPTIDE-1 RECEPTOR AGONIST DRUG DEVELOPMENT," accessed October 6, 2025, https://www.altasciences.com/sites/default/files/2024-11/The-Altascientist-issue-42-GLP-1-Drug-Development.pdf.

[40] James Golden, "The GLP-1 Boom: Challenges, Trends, and CapEx Strategies for Manufacturers," CRB, May 15, 2025, https://www.crbgroup.com/insights/glp-1-manufacturing.

[41] Sampatkumarr Govind Donthula and MarketsandMarkets, "The Technologies Propelling GLP-1 Analogues," Drugdeliveryleader.com, 2025, https://www.drugdeliveryleader.com/doc/the-technologies-propelling-glp-analogues-0001.

[42] Fangfang Xu et al., "Modified Human Glucagon-like Peptide-1 (GLP-1) Produced in E. Coli Has a Long-Acting Therapeutic Effect in Type 2 Diabetic Mice," ed. Michael Bader, *PLOS ONE* 12, no. 7 (July 27, 2017): e0181939, https://doi.org/10.1371/journal.pone.0181939.

[43] "GE Healthcare Imagination at Work Ion Exchange Chromatography & Chromatofocusing Principles and Methods Agination at Work," n.d., https://www.med.unc.edu/pharm/sondeklab/wp-content/uploads/sites/868/2018/10/Ion-exchange.pdf.

To enhance drug stability and duration, peptides will undergo chemical modifications like lipidation (which is where fatty acid chains are added to the substance) or PEGylation (adding polyethylene glycol chains) which effectively improve half-life and reduce enzymatic degradation.[44] Specifically, lipidation is done because it allows reversible binding to albumin in the bloodstream, which prolongs the peptide's half-life and enables less frequent dosing; lipidation can be seen in semaglutide and liraglutide typically.[45]

Some GLP-1s use a hybrid manufacturing approach combining recombinant DNA technology with chemical synthesis. To achieve this, it requires genetically engineered microorganisms (like E. coli or yeast) to produce peptide precursors, which are then chemically modified and purified.[46] The reason for using this hybrid manufacturing approach is because GLP-1s can be express manufactured at much lower costs on a larger scale than what chemical synthesis alone can achieve. This is done by having scientists construct a synthetic gene encoding the GLP-1 peptide, sometimes with modifications to improve stability or resistance to enzymatic breakdown.[47] The gene is inserted into a host organism's DNA to be cultured in bioreactors. The host cells synthesize the GLP-1 peptide as they grow which is followed by the peptide being extracted from the host cells, and cleaved into the correct sequence and being purified by the standard process.[48] In addition to the low manufacturing costs, these more

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[44] Bestchrom, "GLP-1 Drugs and Purification Process - Bestchrom," Bestchrom.com, 2024, https://www.bestchrom.com/glp-1-drugs-and-purification-process/.
[45] Srividya Kailasam, "Exploring the Principle of Ion Exchange Chromatography and Its Applications," Analysis & Separations from Technology Networks, January 14, 2022, https://www.technologynetworks.com/analysis/articles/exploring-the-principle-of-ion-exchange-chromatography-and-its-applications-357491.
[46] M. Brandsma et al., "A Proficient Approach to the Production of Therapeutic Glucagon-like Peptide-1 (GLP-1) in Transgenic Plants," *The Open Biotechnology Journal* 3, no. 1 (July 16, 2009): 57–66, https://doi.org/10.2174/1874070700903010057.
[47] D.J.M. Tolan et al., "Optimization of CT Colonography Technique: A Practical Guide," *Clinical Radiology* 62, no. 9 (September 2007): 819–27, https://doi.org/10.1016/j.crad.2007.03.007.
[48] "US20220127324A1 - Method for Continuous Production of Recombinant Glp-1 Peptide by Bacteria - Google Patents," Google.com, February 24, 2020, https://patents.google.com/patent/US20220127324A1/en.

advanced processes create GLP-1s that are more stable for therapeutic uses and scalable for industrial needs.

GLP-1 drug manufacturing costs are influenced by a combination of factors that affect market pricing. Even though the base production cost for the active pharmaceutical ingredient is low, the total process cost is shaped by several key elements. The first is the raw material and solvent costs: solid-phase peptide synthesis and recombinant DNA approaches require large volumes of high-purity solvents and specialized chemicals.[49] Fluctuating prices and tight supply chains for these materials can spike production costs, especially when tariffs or shortages affect specialty chemicals.[50] When it comes to facility requirements since peptide synthesis is hazardous and requires containment, ventilation, fire suppression, and solvent storage protocols that largely increase operating costs.[51] Corrosion-resistant equipment for solvents like trifluoracetic acid is 5x more expensive than standard reactors.[52] Longer peptides and complex analogous risk higher yield losses at each synthesis/modification step.[53] Incomplete reactions can cause longer batch times, costing more to sustain operations since per-unit costs are increased.

Multiple chromatography steps are necessary to remove impurities and isolate the drug substance, demanding expensive columns, skilled staff, and time-intensive procedures that influence both batch size and cost. For injectables, delivery pens often cost more than the drug itself. Fill-finish, quality testing, and packaging further add to production cost, particularly for

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[49] Jeff Levin-Scherz, "The Cost of Manufacturing GLP-1 Anti-Obesity Drugs Is Low," Substack.com (Employer Coverage , April 10, 2024), https://employercoverage.substack.com/p/the-cost-of-manufacturing-glp-1-anti.
[50] Melissa J. Barber et al., "Estimated Sustainable Cost-Based Prices for Diabetes Medicines," *JAMA Network Open* 7, no. 3 (March 27, 2024): e243474, https://doi.org/10.1001/jamanetworkopen.2024.3474.
[51] "Unpacking the High Cost of GLP-1 Drugs // Marken," Marken, September 11, 2024, https://www.marken.com/learning-center/unpacking-the-high-cost-of-GLP-1-drugs/.
[52] "Pharmacy in Focus: Navigating the GLP-1 Conundrum," accessed October 6, 2025, https://www.evernorth.com/sites/default/files/2025-03/2025-pharmacy-in-focus-report.pdf.
[53] Dan Bell, "Unpacking the High Cost of GLP-1 Drugs," PharmaCommerce, September 3, 2024, https://www.pharmaceuticalcommerce.com/view/unpacking-high-cost-glp-1-drugs.

single-use, patient-friendly devices.[54] Manufacturing at a pharmaceutical GMP standard incurs further costs for testing, validation, traceability, and documentation, all strictly required for approval and market access.[55] Maintaining ultra-cold chains, precision routing, and risk management for fragile peptide products increases distribution cost globally. As demand rises for longer-acting or more potent peptides, synthesis cycles become longer and more complex, increasing the opportunity for error and wastage.[56]

III. What alternatives exist for weight loss treatment?

With the increasing cost of GLP-1 RAs (glucagon-like peptide 1 receptor agonists,) doctors, patients, and insurance companies are looking for alternative medications on the market to meet the demand for anti-obesity medications (AOMs.)[57] As the cost of these medications, in particular semaglutide, have reached an all time high, researchers have begun to investigate more cost-effective approaches to weight loss.[58] Included in these analyses are the relationship between GLP-1 RAs, lifestyle changes, and cheaper market alternatives. The FDA recommends, for instance, that AOM's be a supplement to broader lifestyle changes such as diet and exercise in

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[54] Steven Pearson, Christopher Whaley, and Sarah Emond, "Affordable Access to GLP-1 Obesity Medications: Strategies to Guide Market Action and Policy Solutions," 2025, https://icer.org/wp-content/uploads/2025/04/Affordable-Access-to-GLP-1-Obesity-Medications-_-ICER-White-Paper-_-04.09.2025.pdf.

[55] https://www.biospace.com/patience-asanga, "High Costs of GLP-1 Drugs Fuel Debate," BioSpace, January 30, 2024, https://www.biospace.com/high-costs-of-glp-1-drugs-fuel-debate.

[56] PricewaterhouseCoopers, "What Is the Future of GLP-1 Trends: PwC," PwC, 2024, https://www.pwc.com/us/en/services/consulting/business-model-reinvention/glp-1-trends-and-impact-on-business-models.html.

[57] "Leading Obesity Expert Organizations Release Statement to Patients on Compounded GLP-1 Alternatives," Obesity Medicine Association, accessed October 6, 2025, https://obesitymedicine.org/blog/leading-obesity-expert-organizations-release-statement-to-patients-on-glp-1-compounded-alternatives/.

[58] David D Kim, Jennifer H Hwang, and A Mark Fendrick, "Balancing Innovation and Affordability in Anti-Obesity Medications: The Role of an Alternative Weight-Maintenance Program," Health Affairs Scholar 2, no. 6 (June 2024): qxae055, https://doi.org/10.1093/haschl/qxae055.

order to lose weight, retain optimal body compositions, and improve overall health.[59] [60] However, the cost of GLP-1s remains high, even in spite of the FDA's removal of semaglutides from the drug shortage list.[61] Understanding the market for AOMs can shed light on the remarkably high cost of these drugs, and informs both government and insurance policy alike on the state of the market.

The primary alternatives for GLP-1 RAs available on the market are phentermine, topiramate, Qsymia, Orlistat, Contrave, liraglutide, and Plenity. A brief explanation of the behavior of each follows. Phentermine is a drug that helps people lose weight by reducing feelings of hunger, which in turn leads to calorie deficits.[62] Phentermine is an NDRA, meaning it releases a chemical called norepinephrine in the brain. By targeting a specific site of the hypothalamus, phentermine reduces feelings of hunger, which reduces overall food uptake.[63] Topiramate is a drug that has observed weight loss effects, although it's historically been used to treat seizures and epilepsy.[64] Although this drug's exact effect on weight loss is not well described, one theory suggests that it works by "disrupting efficient energy utilization."[65] When combined with phentermine to form Qsymia, the dosage of each may be reduced, mitigating overall side effects. Qsymia is the brand name drug that combines phentermine with topiramate.

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[59] "Managing Weight with Wegovy® | Wegovy® (Semaglutide) Injection 2.4 Mg," accessed October 6, 2025, https://www.wegovy.com/about-wegovy/managing-weight-with-wegovy.html.
[60] Wegovy (package insert). Plainsboro, NJ: Novo Nordisk, USA;2021.
[61] Center for Drug Evaluation and Research, "FDA Clarifies Policies for Compounders as National GLP-1 Supply Begins to Stabilize," FDA, FDA, September 19, 2025, https://www.fda.gov/drugs/drug-safety-and-availability/fda-clarifies-policies-compounders-national-glp-1-supply-begins-stabilize.
[62] "Phentermine Weight-Loss Medicine: Know the Side Effects," Mayo Clinic, accessed October 6, 2025, https://www.mayoclinic.org/healthy-lifestyle/weight-loss/expert-answers/phentermine/faq-20057940.
[63] P. J. Wellman, "Norepinephrine and the Control of Food Intake," Nutrition (Burbank, Los Angeles County, Calif.) 16, no. 10 (October 2000): 837–42, https://doi.org/10.1016/s0899-9007(00)00415-9.
[64] Irza Wajid et al., "Topiramate (Topamax): Evolving Role in Weight Reduction Management: A Narrative Review," Life 13, no. 9 (August 2023): 1845, https://doi.org/10.3390/life13091845.
[65] Ibid.

Qysmia had a tumultuous[66] approval process before arriving on the market in 2012, but has since become a viable alternative to expensive GLP-1 RA's currently available. By combining phentermine and topiramate at a relatively low cost, Qysmia is a viable alternative to semaglutide and tirzepatide, although it is substantially weaker, and it is not known to be an effective treatment for type 2 diabetes. Contrave is a weight loss medication that, analogous to Qysmia, combines two medications to reduce appetite and lower overall caloric intake. Contrave combines bupropion and naltrexone. Bupropion is an antidepressant thought to help treat substance abuse disorders. Naltrexone is an opioid antagonist that's also used to treat certain substance use disorders.[67] Although the exact behavior of Contrave is not yet known, its remarkable affordability and oral pathway make it an attractive GLP-1 alternative. Orlistat is a pill that promotes weight loss by blocking certain digestive enzymes that break down triglycerides in food.[68] By reducing calorie absorption, Orlistat reduces overall calorie intake while allowing patients to keep food consumption the same. Like Contrave and Qysmia, Orlistat is taken orally.

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[66] NCHR Author, Letter to Dr. Woodcock, FDA Director for the Center for Drug Evaluation and Research, on the Approval of Qnexa, a Weight-Loss Drug - National Center for Health Research, April 18, 2012, https://www.center4research.org/letter-fda-director-center-drug-evaluation-qnexa-weight-loss-drug/, https://www.center4research.org/letter-fda-director-center-drug-evaluation-qnexa-weight-loss-drug/.

[67] "How It Works," CONTRAVE® (Naltrexone HCl/Bupropion HCl), n.d., accessed October 6, 2025, https://contrave.com/how-contrave-works/.

[68] Center for Drug Evaluation and Research, "Orlistat (Marketed as Alli and Xenical) Information," FDA, FDA, November 3, 2018, https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/orlistat-marketed-alli-and-xenical-information.

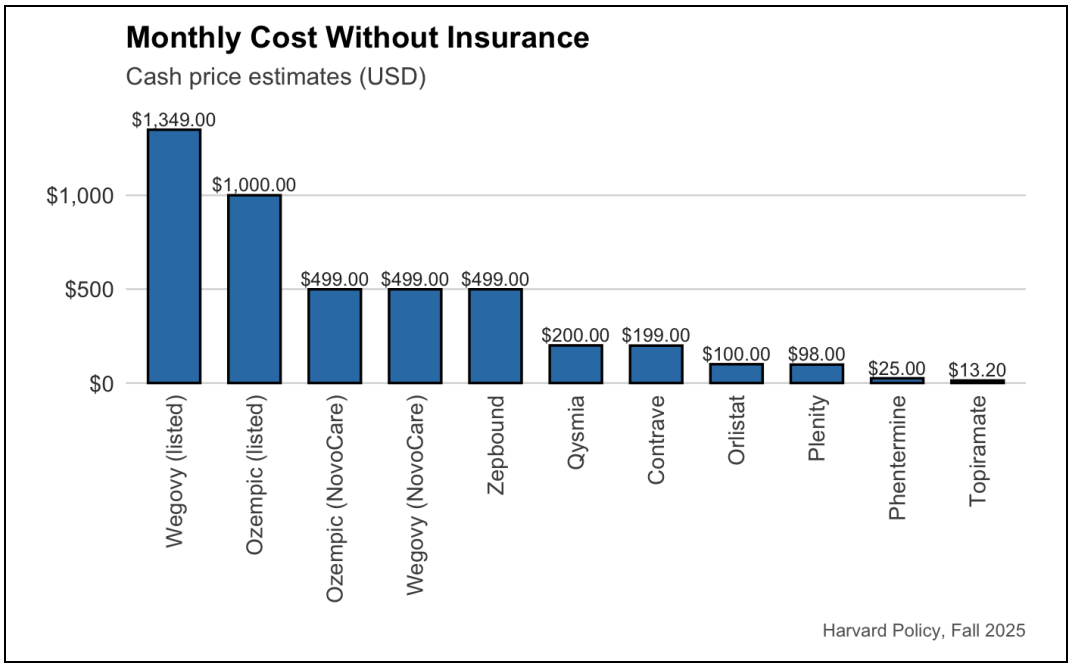


Figure 2

Above is a chart that shows the monthly cost of various weight loss drugs currently available on the market. Notably yet unsurprisingly, semaglutides and tirzepatides are by far the most expensive. However, both Novo Nordisk and Eli Lilly offer programs for patients to acquire drugs without going through pharmacies. Using these programs can allow out-of-pocket patients to pay less than half the retail price of these drugs. Although programs such as NovoCare can fray their steep costs, their cost still remains well above others on the market.

Depending on the insurance plan of any given patient, which varies across both state and private insurers, patients may have the entire cost of certain drugs covered by their insurance. For instance, medicaid generally covers semaglutides for type 2 diabetes, but may or may not cover them for weight loss in obese patients.[69]

[69] Office of the Commissioner, "FDA Approves First Treatment to Reduce Risk of Serious Heart Problems Specifically in Adults with Obesity or Overweight," FDA, FDA, August 9, 2024, https://www.fda.gov/news-events/press-announcements/fda-approves-first-treatment-reduce-risk-serious-heart-problems-specifically-adults-obesity-or.

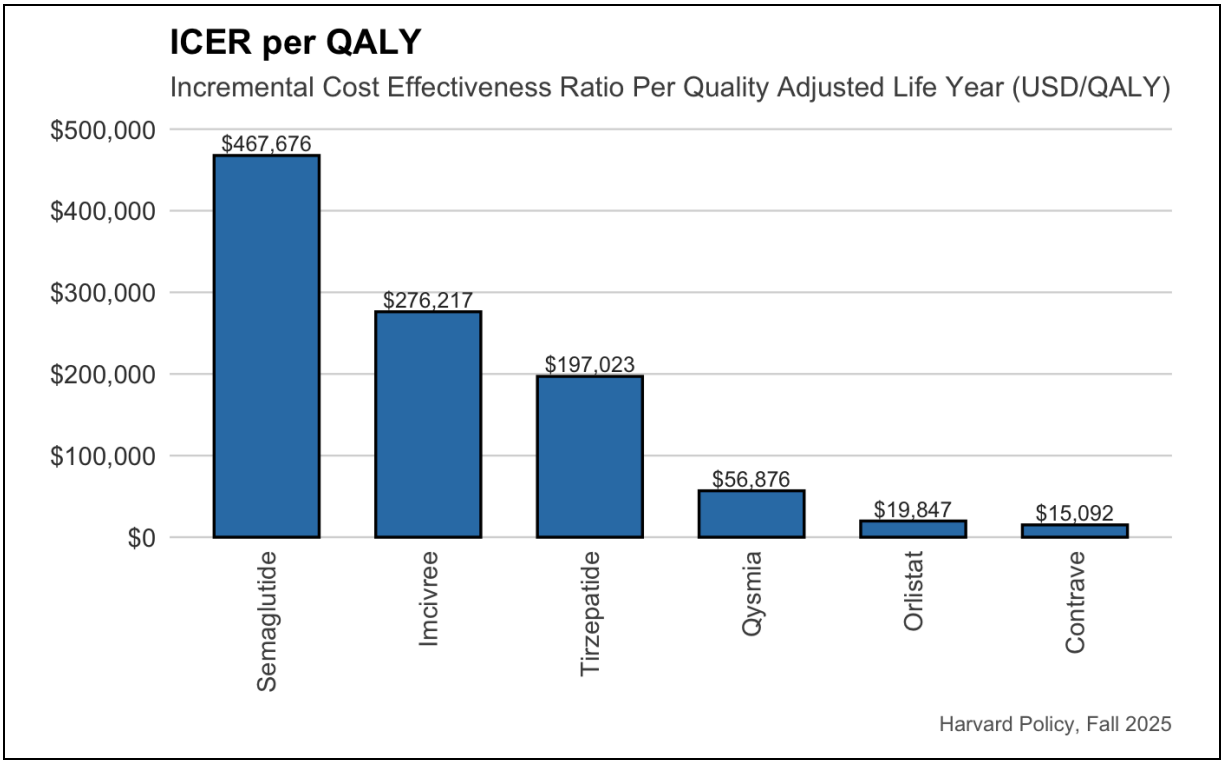


Figure 3

As seen in the chart above, the incremental cost effectiveness ratio per quality adjusted life year of GLP-1 RA's is substantially larger than that of their peers on the market. This comes as no surprise. One study from the University of Chicago found that the price of semaglutides would need to come down 80% for them to become cost effective, and tirzepatides to come down by 30%.[70] Unfortunately, although competing brands such as Qysmia and Contrave are at face value far more cost effective than their peers, they struggle to compete in actuality because they aren't very effective.[71] Drugs that can be injected and are known to have limited interactions with other medications such as semaglutides and tirzepatides, for this reason, are unlikely to receive stiff competition from drugs currently available on the market.

[70] David D Kim, Jennifer H Hwang, and A Mark Fendrick, "Balancing Innovation and Affordability in Anti-Obesity Medications: The Role of an Alternative Weight-Maintenance Program," Health Affairs Scholar 2, no. 6 (June 2024): qxae055, https://doi.org/10.1093/haschl/qxae055.
[71] "Contrave, a Bupropion and Naltrexone Combination Therapy for the Potential Treatment of Obesity.," Current Opinion in Investigational Drugs 10, no. 10 (October 2009): 1117–25.

Ethics Statement

The applications of GLP-1s, specifically in the context of weight loss drug policy, are highly controversial. Many individuals assert that these medications are "unnatural" and offer a quick fix to weight loss beyond lifestyle changes alone. Other critics cite that GLP-1s perpetuate weight stigmatization, and that the current pricing system reserves these medications for a subset of the general population that is wealthy enough to afford them. In this section, we tackle ethical questions to understand the need to improve access to weight loss drugs.

I. Do GLP-1s subvert natural solutions to weight loss?

There are many ways in which external factors have influence over people's weight, especially dividing between socioeconomic lines. Food insecurity, for example, increases the likelihood of obesity.[72] This may seem contradictory, yet there are a multitude of reasons for this. For one, those in lower socioeconomic classes and are facing food insecurity are more likely to spend less on food, eat less fruits and vegetables, and eat more processed, unhealthy foods as those are more affordable than whole foods.[73] This economic barrier to healthy foods plays a large role in the disproportionate amount of low income people who have obesity in the US.[74] Additionally, parents within low income families may choose not to have their children participate in organized sports as many cite the financial burden of buying equipment, clothes, and classes as a reason for not enrolling their children within these programs.[75] Parents and adults

[72] Liping Pan et al., "Food Insecurity Is Associated with Obesity among US Adults in 12 States," *Journal of the Academy of Nutrition and Dietetics* 112, no. 9 (2012): 1403–9, https://doi.org/10.1016/j.jand.2012.06.011.
[73] Adam Drewnowski and SE Specter, "Poverty and Obesity: The Role of Energy Density and Energy Costs," *The American Journal of Clinical Nutrition* 79, no. 1 (2004): 6–16, https://doi.org/10.1093/ajcn/79.1.6.
[74] Min Zhou, "The Shifting Income-Obesity Relationship: Conditioning Effects from Economic Development and Globalization," *SSM - Population Health* 15 (September 2021): 100849, https://doi.org/10.1016/j.ssmph.2021.100849.
[75] Jean Adams, "Addressing Socioeconomic Inequalities in Obesity: Democratising Access to Resources for Achieving and Maintaining a Healthy Weight," *PLoS Medicine* 17, no. 7 (2020): e1003243, https://doi.org/10.1371/journal.pmed.1003243.

in low income families are also less likely to be active as well.[76] For example, lower income neighborhoods are more likely to experience violence and crime, thus creating an environment where people would rather stay home than go outside to exercise.[77] Additionally, those same neighborhoods are less likely to have reliable transportation, which limits people's ability to go to the gym and other recreational activities as well.[78] This is certainly not bettered by the lack of childcare that these people may have access to.[79] In many ways, the more natural ways of treating obesity are simply not possible for many lower income families.

II. How do GLP-1s impact stigmas and discrimination?

Weight stigma, characterized by the idea that those who suffer from obesity are gluttonous, unintelligent, and lazy, among other characteristics, lead the way to the concept that people who are overweight have a character flaw and therefore choose to be overweight,[80] ignoring the multitude of factors that impact a person's weight.[81] To worsen this, stigmatization of overweight and obesity may also be perpetuated by physicians themselves. In a study involving 130 general practitioners in London, researchers found that most physicians attributed obesity treatment to ultimately be the responsibility of the patient.[82] And unfortunately, while health risks are found to be increased with excess weight, there is also the existence of the same

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[76] Lal B. Rawal et al., "Physical Activity among Adults with Low Socioeconomic Status Living in Industrialized Countries: A Meta-Ethnographic Approach to Understanding Socioecological Complexities," *Journal of Environmental and Public Health* 2020 (April 2020): 4283027, https://doi.org/10.1155/2020/4283027.
[77] Rawal et al., "Physical Activity among Adults with Low Socioeconomic Status Living in Industrialized Countries."
[78] Rawal et al., "Physical Activity among Adults with Low Socioeconomic Status Living in Industrialized Countries."
[79] Rawal et al., "Physical Activity among Adults with Low Socioeconomic Status Living in Industrialized Countries."
[80] Sarah Nutter et al., "Changing the Global Obesity Narrative to Recognize and Reduce Weight Stigma: A Position Statement from the World Obesity Federation," *Obesity Reviews* 25, no. 1 (2024): e13642, https://doi.org/10.1111/obr.13642.
[81] "Overweight and Obesity - Causes and Risk Factors | NHLBI, NIH," March 24, 2022, https://www.nhlbi.nih.gov/health/overweight-and-obesity/causes.
[82] Laura Epstein and Jane Ogden, "A Qualitative Study of GPs' Views of Treating Obesity," *The British Journal of General Practice* 55, no. 519 (2005): 750–54.

issues with those who are smaller and have lower BMIs but still have excess fat (metabolically unhealthy non-obese).[83] This is evidence that the stigma against those who are overweight are being unjustly stigmatized by their physical symptoms. And since being overweight is seen by many as a choice, there is the possibility of those who are overweight being stigmatized twice: once for their weight and also for their chosen method of weight loss, one that some may deem as a continuation of a pattern of laziness.[84]

However, there are a variety of stigmas that are associated with obesity and their related medication, complicating the issue further. For example, increased use of medication may also increase empathy surrounding these conditions, further reducing blame as it may lead people to understand obesity and overweight as serious medical conditions and not as a moral short-coming.[85]And if all those who need and can afford GLP-1 medications use them, the weight loss as a result may help their personal experience with different judgments around being overweight and obese.[86] Simultaneously, especially considering the high cost of GLP-1 drugs in the US, this effect may disproportionately affect only those who are rich enough to afford them and leave behind those who are in lower socio-economic classes.[87] Because of this, it is critical for obesity treating policy to be as accessible and inclusive of everybody,[88] as obesity stigma can

[83] Nitin Kapoor, "Thin Fat Obesity: The Tropical Phenotype of Obesity," in *Endotext*, ed. Kenneth R. Feingold et al. (MDText.com, Inc., 2000), http://www.ncbi.nlm.nih.gov/books/NBK568563/.
[84] Maggie A. Unruh and Charee M. Thompson, "Competing Cultural Discourses of GLP-1 Agonists: An Application of Relational Dialectics Theory," *Qualitative Health Research*, SAGE Publications Inc, April 28, 2025, 10497323251326041, https://doi.org/10.1177/10497323251326041.
[85] Berit L. Heitmann, "The Impact of Novel Medications for Obesity on Weight Stigma and Societal Attitudes: A Narrative Review," *Current Obesity Reports* 14, no. 1 (2025): 18, https://doi.org/10.1007/s13679-025-00611-5.
[86] Heitmann, "The Impact of Novel Medications for Obesity on Weight Stigma and Societal Attitudes."
[87] Heitmann, "The Impact of Novel Medications for Obesity on Weight Stigma and Societal Attitudes."
[88] James René Jolin et al., "Policy Interventions to Enhance Medical Care for People With Obesity in the United States—Challenges, Opportunities, and Future Directions," *The Milbank Quarterly* 102, no. 2 (2024): 336–50, https://doi.org/10.1111/1468-0009.12693.

increase other physical ailments as well. For example, obesity stigma may increase depression,[89] make it more difficult to lose weight,[90] worsen quality of healthcare,[91] and increase mortality.[92] This may result in an increased concentration of these problems affecting those who cannot afford to use GLP-1 drugs as treatment.

III. Should GLP-1s be reserved for other diseases over obesity?

One main concern is in regards to access to these medications. With the drugs' prices being as high as they are and with coverage for the medication varying so widely from state to state, the only people who can reliably use these drugs are those wealthy enough to afford them.[93] This has the risk of worsening existing health disparities between economic brackets by creating an environment where lower socioeconomic classes do not have access to these medications.[94] Additionally, there is concern for the fact that Medicare does not currently cover the use of GLP-1 drugs for the sole purpose of weight loss[95], even though obesity is considered a disease[96] that impacts over 40 percent of adult Americans.[97] There is now a push for GLP-1 prescriptions

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[89] Emile Pereira-Miranda et al., "Overweight and Obesity Associated with Higher Depression Prevalence in Adults: A Systematic Review and Meta-Analysis," *Journal of the American College of Nutrition* 36, no. 3 (2017): 223–33, https://doi.org/10.1080/07315724.2016.1261053.
[90] Lenny R. Vartanian and Joshua M. Smyth, "Primum Non Nocere: Obesity Stigma and Public Health," *Journal of Bioethical Inquiry* 10, no. 1 (2013): 49–57, https://doi.org/10.1007/s11673-012-9412-9.
[91] S. M. Phelan et al., "Impact of Weight Bias and Stigma on Quality of Care and Outcomes for Patients with Obesity," *Obesity Reviews* 16, no. 4 (2015): 319–26, https://doi.org/10.1111/obr.12266.
[92] Angelina R. Sutin et al., "Weight Discrimination and Risk of Mortality," *Psychological Science* 26, no. 11 (2015): 1803–11, https://doi.org/10.1177/0956797615601103.
[93] Carla Cantor, "The Rise of Ozempic for Weight Loss Sparks Ethical Concerns," Columbia University Department of Psychiatry, October 15, 2024, https://www.columbiapsychiatry.org/news/rise-ozempic-sparks-ethical-concerns.
[94] Cantor, "The Rise of Ozempic for Weight Loss Sparks Ethical Concerns."
[95] The ACG News Team, "Anti-Obesity Drugs Will Not Be Covered by Medicare and Medicaid in 2026," *American College of Gastroenterology*, April 17, 2025, https://gi.org/2025/04/17/anti-obesity-drugs-will-not-be-covered-by-medicare-and-medicaid-in-2026/.
[96] "Obesity and Overweight," accessed October 13, 2025, https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight.
[97] "Overweight & Obesity Statistics - NIDDK," National Institute of Diabetes and Digestive and Kidney Diseases, accessed October 13, 2025, https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity.

to be covered regardless of cause for that reason.[98] However, there is a simultaneous push by some for Ozempic to be reserved for those who suffer from "Type II diabetes, hyperglycemia, [other serious conditions], and moderate to severe obesity" (Rich 2024) while the supply for Ozempic remains low. Moderate obesity is defined as a BMI of 35 - 39.[99] This would exclude those who have low-risk obesity although they are already at increased risk of hypertension, stroke, cardiovascular disease, Type II diabetes, among many other comorbidities.[100]

IV. What are the safety concerns regarding GLP-1s?

Because there is such a high demand with low supply and high costs, many patients and doctors are inclined to try unapproved versions of GLP-1 drugs.[101] There are various adverse side effects associated with these drugs. For example, improper storage during shipping can cause patients to receive their GLP-1 drugs warm though they must be kept cold to retain their efficacy.[102] Additionally, there are fraudulent compound drugs that mark incorrect information on their labels.[103] Furthermore, there are dosing concerns with compound drugs. For example, retatrutide and cagrilintide are both components that cannot legally be used in compound GLP-1 drugs but have still been found in them.[104] Salt forms of GLP-1 also should not be used in these drugs as they are not the same active ingredient as those approved by the FDA, but are still being

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[98] "Key Lessons for Ethical and Affordable Access to GLP-1 Drugs," Penn LDI, October 17, 2024, https://ldi.upenn.edu/our-work/research-updates/key-lessons-for-ethical-and-affordable-access-to-glp-1-drugs-like-ozempic-and-wegovy/.
[99] "Health Risks of Obesity: MedlinePlus Medical Encyclopedia," accessed October 13, 2025, https://medlineplus.gov/ency/patientinstructions/000348.htm.
[100] "All About Obesity," American Association of Clinical Endocrinology, accessed October 13, 2025, https://www.aace.com/disease-and-conditions/nutrition-and-obesity/all-about-obesity.
[101] Center for Drug Evaluation and Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss," *FDA*, FDA, September 25, 2025, https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/fdas-concerns-unapproved-glp-1-drugs-used-weight-loss.
[102] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."
[103] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."
[104] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."

reported as being in use.[105] Due to these and other dosing issues, some patients have had to seek medical attention for side effects such as "nausea, vomiting, diarrhea, abdominal pain and constipation." [106] In fact, there have been over 1,100 reports of adverse reactions to compound semaglutide and tirzepatide as of June 2025.[107] There have also been reports of counterfeit Ozempic and illegal online marketing of GLP-1 drugs (including selling unapproved drugs and misleading marketing).[108] Overall, the rise in popularity for these drugs has increased the use of compound drugs, and vigilance is advised for healthcare advisors and patients as they navigate these compound prescriptions. Unfortunately, compounded versions of these drugs are usually cheaper and more accessible,[109] targeting those who are in lower socioeconomic classes.

Government Outlook on GLP-1s for Obesity Treatment

Government bodies as collectives do not publish subjective opinions about GLP-1 drug ethics. However, the FDA has identified obesity as a chronic disease.[110] And when Zepbound was approved by the FDA in 2023, John Sharretts, M.D., director of the Division of Diabetes, Lipid Disorders, and Obesity at the Center for Drug Evaluation and Research expressed how it is crucial to address the increasing need for treatment of those who are overweight and obese, as these are complex and serious issues affecting Americans that is only increasing.[111] The NIH shares that while GLP-1 drugs can effectively help people lose weight, it should primarily be used by those who have diabetes and other comorbidities associated with obesity, and that people

[105] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."
[106] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."
[107] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."
[108] Research, "FDA's Concerns with Unapproved GLP-1 Drugs Used for Weight Loss."
[109] *The Cheapest Online GLP-1 Programs That Won't Break the Bank*, July 28, 2025, https://www.vaccinealliance.org/semaglutide/cheapest/.
[110] *Obesity and Overweight: Developing Drugs and Biological Products for Weight Reduction*, 2025.
[111] Office of the Commissioner, "FDA Approves New Medication for Chronic Weight Management," FDA, FDA, August 9, 2024, https://www.fda.gov/news-events/press-announcements/fda-approves-new-medication-chronic-weight-management.

should first try addressing their lifestyle.[112] They also express how weight loss drugs should be used in conjunction with lifestyle treatments and do not serve as a replacement for one.[113] Additionally, they advise against using GLP-1 drugs for aesthetic purposes alone.[114] The CDC analyzed the prevalence of adolescents that were prescribed GLP-1 drugs from 2018 and 2023.[115] They found an approximately 300 percent increase in the proportion of GLP-1 drug prescriptions for weight loss for teenagers that are obese.[116] This occurred one year after the FDA had approved certain GLP-1 drugs to be used for weight loss in adolescents.[117]

Essential Role of GLP-1s in Weight Loss Treatment

Ultimately, the use of only focusing on a patient's diet and exercise to treat obesity and overweight highlights how obesity is often treated as a disease in which the treatment is almost completely reliant on the patient's responsibility. To make natural methods of weight loss a solution accessible to those in lower socioeconomic classes would take a long period of time to dismantle the many different societal and physical barriers that exist in the US today. And as such, this presents another issue as for many patients, increased time without treatment runs the risk of worsening their condition.[118] Because of this, if GLP-1 drugs were made more affordable,

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[112] "Prescription Medications to Treat Overweight & Obesity - NIDDK," National Institute of Diabetes and Digestive and Kidney Diseases, accessed October 13, 2025, https://www.niddk.nih.gov/health-information/weight-management/prescription-medications-treat-overweight-obesity.

[113] National Institute of Diabetes and Digestive and Kidney Diseases, "Prescription Medications to Treat Overweight & Obesity - NIDDK."

[114] National Institute of Diabetes and Digestive and Kidney Diseases, "Prescription Medications to Treat Overweight & Obesity - NIDDK."

[115] Lyudmyla Kompaniyets et al., *Prescriptions for Obesity Medications Among Adolescents Aged 12–17 Years with Obesity — United States, 2018–2023*, 74, no. 20 (2025).

[116] Kompaniyets et al., *Prescriptions for Obesity Medications Among Adolescents Aged 12–17 Years with Obesity — United States, 2018–2023*.

[117] Kompaniyets et al., *Prescriptions for Obesity Medications Among Adolescents Aged 12–17 Years with Obesity — United States, 2018–2023*.

[118] Tom Norris et al., "Duration of Obesity Exposure between Ages 10 and 40 Years and Its Relationship with Cardiometabolic Disease Risk Factors: A Cohort Study," *PLoS Medicine* 17, no. 12 (2020): e1003387, https://doi.org/10.1371/journal.pmed.1003387.

this would be a quicker solution in comparison to all of the political bureaucracy that would need to occur to decrease food deserts, allow for more affordable high nutrient foods, decreasing crime in neighborhoods, etc.

Health Disparities of Weight Loss Drug Policy

Outcomes for medical treatment vary drastically by demographic markers like socioeconomic status, race, and place of residence. In this section, we examine the disparities associated with GLP-1s to analyze the populations most at-risk for developing obesity and who would benefit most from future weight loss drug policy implementation.

Socioeconomic Disparities

Despite the United States being a highly developed country, certain areas within the U.S. still encounter limited access to nutritious food options, medical care, and exercise facilities. In addition to the factors playing into obesity rates in the U.S., more than a quarter of individuals making less than $25,000 a year (below the poverty line) are uninsured in the United States. This same cohort of uninsured individuals also generates approximately 9 billion dollars in diabetes health care costs on an annual basis.[119]

Even more drastic is the $173 billion annual cost of obesity alone within the United States, with additional risk for developing alternative diseases that could lead to various other underlying issues, including heart disease and Type 2 Diabetes (T2DM).[120] In fact, U.S. insurers very rarely cover weight management medications, despite the fact there are high obesity rates and high demand for these drugs within the U.S.[121] GLP-1 drugs in the United States in particular can cost upwards of $1,000 a month without insurance coverage, meaning that

[119] James A. Levine, "Poverty and Obesity in the U.S.," *Diabetes* 60, no. 11 (October 17, 2011): 2667–68, https://doi.org/10.2337/db11-1118.
[120] CDC, "About Obesity," CDC, January 23, 2024, https://www.cdc.gov/obesity/php/about/index.html.
[121] Miles Meline, "Key Lessons for Ethical and Affordable Access to GLP-1 Drugs," Penn LDI, October 17, 2024, https://ldi.upenn.edu/our-work/research-updates/key-lessons-for-ethical-and-affordable-access-to-glp-1-drugs-like-ozempic-and-wegovy/.

populations who would particularly benefit from GLP-1 and semaglutide usage (i.e. low-income and obese individuals), often do not have access.

Despite extremely high consumer costs (relative to the average U.S. household income), public awareness and usage of these drugs has increased significantly. According to two health tracking polls, 82% of U.S. adults have heard "at least a little" about GLP-1 drugs. In looking at GLP-1 knowledge based on age alone, four in ten adults over age 50 say they have heard a substantial amount about GLP-1 drugs versus one in three adults ages 32-49 and one in six young adults ages 18-29. [122] Given this high publicity, it does not seem that a lack of knowledge about GLP-1s explains low usage rates among individuals with low socioeconomic status. Thus, it appears that the cost alone, rather than whether people are aware about these drugs, seems to affect access.

Racial Disparities

Looking at usage by race, specifically with GLP-1 usage for Type 2 diabetes, Black, Asian, and Hispanic individuals are all associated with much lower GLP-1 agonist usage. In addition, low-income individuals with T2DM, specifically low-income individuals in the racial groups associated with lower GLP-1 agonist usage, were much less likely to use GLP-1 agonists. In contrast, the demographic most highly associated with GLP-1 usage (for T2DM purposes) were white females linked with higher income zip-codes.[123] However, despite high public awareness, obesity rates, and usage, discontinuation of GLP-1 drug usage remains high. 50-75% of individuals who begin using GLP-1 drugs stop taking them (measured for both obesity and

[122] Alex Montero et al., "KFF Health Tracking Poll May 2024: The Public's Use and Views of GLP-1 Drugs | KFF," KFF, May 10, 2024, https://www.kff.org/health-costs/kff-health-tracking-poll-may-2024-the-publics-use-and-views-of-glp-1-drugs/.
[123] Lauren A. Eberly et al., "Racial, Ethnic, and Socioeconomic Inequities in Glucagon-like Peptide-1 Receptor Agonist Use among Patients with Diabetes in the US," *JAMA Health Forum* 2, no. 12 (December 17, 2021): e214182, https://doi.org/10.1001/jamahealthforum.2021.4182.

T2DM). Patients with obesity have a much higher discontinuation rate overall in comparison to T2DM discontinuations, measured at 50.3% versus 35.8% through a 12-month assessment.[124]

Additionally, even though Black adolescents were 27 percent more likely to have severe obesity than their white counterparts, white adolescents were 39% more likely to get obesity medication prescriptions.[125] Some explanations for this may be the shortage of GLP-1 production, unaffordability of the drugs for black families, and some insurance restrictions.[126] While no organization is promoting or undermining the use of these drugs, they are all expressing how obesity and overweight treatment is critical, how it should be used carefully and responsibly, and that there are accessibility issues when it comes to getting GLP-1 prescriptions even at the adolescent level.

Regional Disparities

I. Food Deserts

Food deserts are generally defined as areas with limited access to healthy, nutritious food. This can include (but not limited to) decreased accessibility to grocery stores or insufficient income to obtain fresh produce.[127] The term was first utilized in Scotland, and specifically characterized large neighborhoods covering a significant amount of land (defined by square miles or city blocks) and the distance to the nearest grocery store. In the United States, food deserts are most common in urban and rural low-income communities. With limited access to produce,

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[124] Duy Do et al., "GLP-1 Receptor Agonist Discontinuation among Patients with Obesity And/or Type 2 Diabetes," *JAMA Network Open* 7, no. 5 (May 24, 2024): e2413172, https://doi.org/10.1001/jamanetworkopen.2024.13172.

[125] Kompaniyets et al., *Prescriptions for Obesity Medications Among Adolescents Aged 12–17 Years with Obesity — United States, 2018–2023*.

[126] Kompaniyets et al., *Prescriptions for Obesity Medications Among Adolescents Aged 12–17 Years with Obesity — United States, 2018–2023*.

[127] ALLISON E KARPYN et al., "The Changing Landscape of Food Deserts," *UNSCN Nutrition* 44 (2019): 46–53, https://pmc.ncbi.nlm.nih.gov/articles/PMC7299236/.

whole grains, and healthy proteins, these communities are much more susceptible to developing diabetes, cardiovascular diseases, and ultimately obesity.[128] Individuals living closer to a grocery store (which are usually placed in higher-income communities), are more likely to consume fruits and vegetables. However, for individuals living in low-income communities and/or rural areas, this access remains a barrier to a nutritionally adequate lifestyle, contributing to an ongoing cycle of related health issues.

II. Food Swamps

Although food deserts have been observed as a factor contributing to disease development within the United States, food swamps are more strongly attributed to the obesity epidemic. A food swamp is a region or neighborhood where fast food options overwhelm and outnumber healthy food alternatives. Similar to food deserts, food swamps are most prevalent in low-income, non-white communities. Fast-food restaurants are often located closer to these particular communities, in both urban and rural areas, and the frequent consumption of these unhealthy food options is associated with a poor diet. In fact, these fast food restaurants are more likely to be located in areas with high populations of ethnic minorities.[129]

III. Health Concerns of Food Deserts and Food Swamps

Socioeconomically, individuals living in both food deserts and swamps tend to have a much higher sensitivity to change in food price, which contributes to the lack of healthy options in these environments. Price elasticities are significantly higher for families in low-income communities, so when the prices of fruits and vegetables increase, purchases from low income

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[128]National Research Council (US), *The Public Health Effects of Food Deserts: Workshop Summary.*, *Www.ncbi.nlm.nih.gov*(National Academies Press (US), 2009), https://www.ncbi.nlm.nih.gov/books/NBK208016/.
[129]Kristen Cooksey-Stowers, Marlene Schwartz, and Kelly Brownell, "Food Swamps Predict Obesity Rates Better than Food Deserts in the United States," *International Journal of Environmental Research and Public Health* 14, no. 11 (November 14, 2017): 1366, https://doi.org/10.3390/ijerph14111366.

families drop even more than the already low levels.[130] In terms of geographic distribution, food deserts are scattered throughout the United States, but are the least prevalent among states in Northeast (Vermont, New York, and Rhode Island are the bottom 3 states in terms of food desert density). Mississippi ranks first, with 30% of state residents classified as living within a food desert, with New Mexico (29%), and Arkansas (26%) following. Among urban areas within the United States, cities such as Memphis (32%), San Antonio (26%), and Riverside (26%) have the highest percentages of residents living in food deserts. In all of these states and metropolitan areas, these residents are typically classified as socioeconomically disadvantaged and low-income, living in majority non-white and high poverty communities.[131] Food swamps are also located in similar metropolitan areas and are geographically most prevalent in the U.S. South and Southeast. These same regions also experience higher levels of obesity-related cancer, and ultimately mortality.[132]

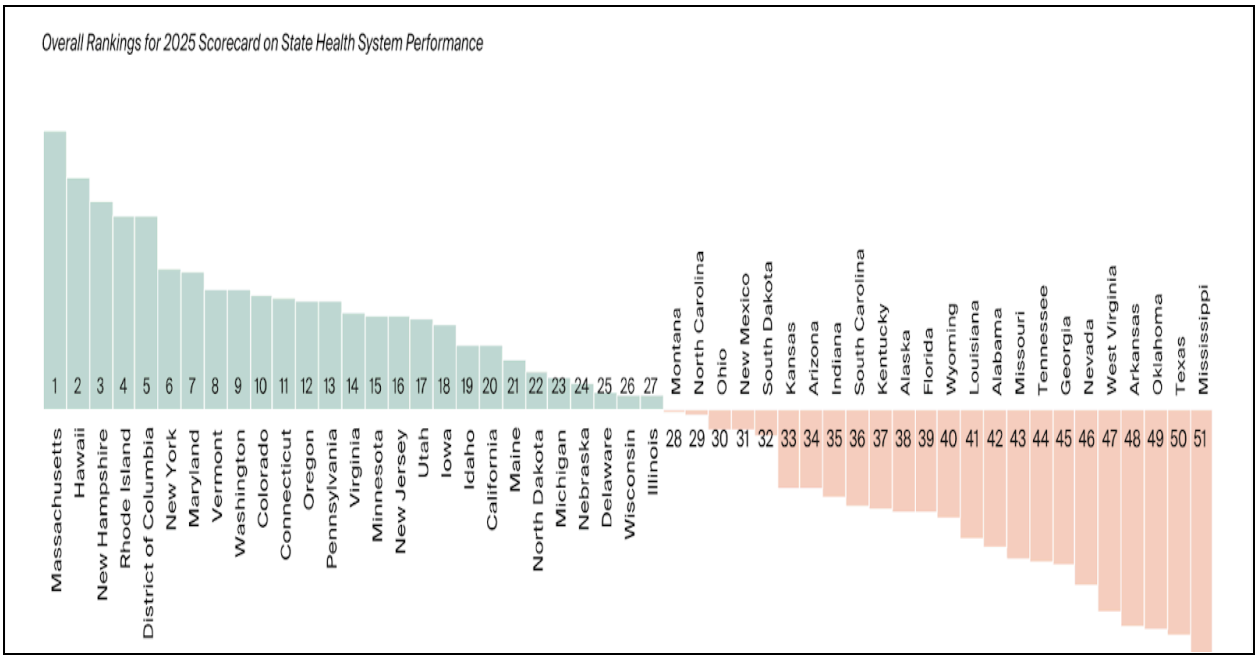
As mentioned, regions classified as food deserts and food swamps are associated with greater health and disease concern, specifically increased risk of chronic disease and diet-related health issues, such as obesity.[133] In addition to the increased risk of obesity, obesity-related cancer, cardiovascular disease, and diabetes, these communities are also linked with higher mortality rates and ultimately, a lower average life expectancy in comparison to other areas of the United States. *The Journal of Urban Health* found the average life expectancy is more than 2

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[130]National Research Council (US, "Determining the Extent of Food Deserts," Nih.gov (National Academies Press (US), 2009), https://www.ncbi.nlm.nih.gov/books/NBK208011/.
[131]"USDA ERS - State-Level Estimates of Low Income and Low Access Populations," www.ers.usda.gov, January 6, 2025, https://www.ers.usda.gov/data-products/food-access-research-atlas/state-level-estimates-of-low-income-and-low-access-populations.
[132]Malcolm Seth Bevel et al., "Association of Food Deserts and Food Swamps with Obesity-Related Cancer Mortality in the US," *JAMA Oncology* 9, no. 7 (May 4, 2023), https://doi.org/10.1001/jamaoncol.2023.0634.
[133]National Research Council (US), "The Public Health Effects of Food Deserts: Workshop Summary," Nih.gov (National Academies Press (US), 2009), https://www.ncbi.nlm.nih.gov/books/NBK208018/.

years lower for the 47 million Americans living in food deserts.[134] Similarly, high mortality rates and lower average life expectancies are associated with food swamps, as more frequent consumption of ultra-processed food is linked to 62% risk of all-cause mortality.[135] Both food deserts and swamps have significant reduction impacts on life expectancy and increase mortality rates among already at-risk populations.

In communities where nutritious food accessibility, alongside disease, is a main concern, healthcare accessibility also plays a key role. According to the Commonwealth Fund's overall health system performance rankings within the United States, the lowest-ranked states include Mississippi, Texas, Oklahoma and Arkansas, while the highest ranked states include Massachusetts, Rhode Island, New Hampshire, and Hawaii.



[134]Jason S Massey et al., "The Association between Census Tract Healthy Food Accessibility and Life Expectancy in the United States," *Journal of Urban Health* 100, no. 3 (June 1, 2023): 572–76, https://doi.org/10.1007/s11524-023-00742-x.

[135]Anaïs Rico-Campà et al., "Association between Consumption of Ultra-Processed Foods and All Cause Mortality: SUN Prospective Cohort Study," *BMJ* 365, no. 8201 (May 29, 2019): l1949, https://doi.org/10.1136/bmj.l1949.

Figure 4: 2025 Scorecard on State Health System Performance: Fragile Progress, Continuing Disparities (Commonwealth Fund, June 2025)[136]

The states with the lowest healthcare system ranking have the highest percentage of populations residing within food deserts and swamps. Conversely, the highest ranked states have the smallest percentages of their population residing within food deserts and swamps. Even though healthcare systems and accessibility are lower within states and regions with more food deserts and swamps, hospital admissions remain higher among individuals in these communities. Relatedly, senior citizens (ages 65 and older) living in food deserts have a 16.8% likelihood of being admitted to a hospital for malnutrition, according to a study conducted in the state of Florida.[137]

IV. Obesity Treatment in Under-resourced Areas

Although limited data is available on weight loss outcomes in food deserts and swamps, market basket price in these areas is correlated with Body Mass Index (BMI), and ultimately, the ability to lose weight through maintaining a healthy diet.[138] In a similar manner, there is limited direct research about GLP-1 access and usage within food deserts and swamps. However, considering the fact that food deserts and swamps are often composed of low-income and underserved individuals (populations that are unable to afford or access healthy food), GLP-1 medications are not typically affordable for these individuals. Low-income individuals are less likely to have insurance coverage, resulting in high out of pocket costs (reaching over $1000 per

[136] Commonwealth Fund, 2025 Scorecard on State Health System Performance, June 18, 2025, https://www.commonwealthfund.org/publications/scorecard/2025/jun/2025-scorecard-state-health-system-performance.
[137] Joshua Cartwright, "Food Deserts Impact on Hospital Admissions in Malnourished Patients Residing in Florida," MEDICA, 2023, https://medica-musc.researchcommons.org/theses/764/.
[138] Bonnie Ghosh-Dastidar et al., "Distance to Store, Food Prices, and Obesity in Urban Food Deserts," *American Journal of Preventive Medicine* 47, no. 5 (November 2014): 587–95, https://doi.org/10.1016/j.amepre.2014.07.005.

month) for medications that could benefit them due to high diabetes and obesity rates. Although these higher obesity rates are linked to greater income inequality, these GLP-1 drugs are utilized most by wealthier, predominantly white communities with typically lower rates of obesity and diabetes.[139]

Case Study 1: Atlanta, Georgia

Food deserts in Atlanta, Georgia are predominantly composed of low-income, black neighborhoods. Small, non-chain food stores are abundant in the city of Atlanta, and are much more prevalent in these areas.[140] These issues have been recognized by city officials through initiatives aimed at creating new food outlets; however, researchers have debated the merits of policies aimed directly at grocery store development. Some findings suggest that the creation of new supermarkets insignificantly affects dietary choices of residents and some point to income support as a better alternative for individuals in order to afford healthy food.[141] In terms of health data, Atlanta has one of the highest obesity rates of all United States cities and is ranked in the Top 10 in the country based on obesity and overweight population rates. [142] Diving into population-specific data, 44.1% of Georgia adults that are classified as obese or overweight are below the poverty level, higher than the national average.[143] In addition to the high levels of

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[139]Sophia Meador, "Weight-Loss Drugs Providing Hope for Some, but Not for All," *The Nation's Health* 55, no. 5 (July 2025): 1–14, https://www.thenationshealth.org/content/55/5/1.1.
[140]Rob Spahr, "Report Shows Majority-Black, Low-Income Neighborhoods Have Less Access to Fresh Produce | Emory University | Atlanta GA," news.emory.edu, September 19, 2023, https://news.emory.edu/stories/2023/09/hs_fresh_produce_report_19-09-2023/story.html.
[141]Jerry Shannon 7 min read, "From Food Deserts to Supermarket Redlining: Making Sense of Food Access in Atlanta," Atlanta Studies, August 14, 2018, https://atlantastudies.org/2018/08/14/jerry-shannon-from-food-deserts-to-supermarket-redlining-making-sense-of-food-access-in-atlanta/.
[142]Joyce Lupiani, "Georgia City Makes Top 10 List of Most Overweight Cities in U.S.," FOX 5 Atlanta, March 18, 2025, https://www.fox5atlanta.com/news/georgia-city-makes-top-10-list-most-overweight-cities-u-s.
[143]Joyce Lupiani, "Georgia City Makes Top 10 List of Most Overweight Cities in U.S.," FOX 5 Atlanta, March 18, 2025, https://www.fox5atlanta.com/news/georgia-city-makes-top-10-list-most-overweight-cities-u-s.

obesity present within Georgia and the Atlanta Metro Area, the lack of physical activity within Georgia (most prevalent in Atlanta) contributes to nearly $1 billion in healthcare costs for the state. However, these costs are not due to the lack of available fitness facilities or exercise spaces like gyms or public parks, but rather unavoidable, unhealthy lifestyle choices. Nonetheless, funding has been increased towards public exercise programs and facilities.[144] Based on the higher average rates of obesity and inactivity present in the city, these particular populations would benefit from utilizing GLP-1s. However, considering the fact that Atlanta has a significant number of individuals living within food deserts, access and affordability would (and currently is) be a major barrier to these medications that could potentially improve the health of Atlanta residents.

Case Study 2: Memphis, Tennessee

Like the food-insecurity facing the city of Atlanta, Memphis has limited access to grocery stores and adequate fresh produce sources. In Shelby County, the largest county in the Memphis area, about 20% of children are classified as food insecure. In the city, African American individuals are 2.49 times more likely to live without access to a grocery store and the city itself is 62% African American.[145] Despite the issue of inadequate food hubs and the widespread issue of food insecurity, Memphis, similar to the city of Atlanta, has one of the highest percentages of adults with obesity in the nation. At 44.9% of adults with obesity, Memphis has the highest rates of obesity by far in the state of Tennessee. [146] In terms of maintaining health through physical activity, Memphis conversely ranks extremely low, meaning that the city is inadequately meeting

[144]"News List | Atlanta, GA," Atlantaga.gov, 2024, https://www.atlantaga.gov/Home/Components/News/News/15428/1338.
[145]"Ryan Jones, "ML14 Food Deserts Feature," www.memphis.edu, 2024, https://www.memphis.edu/law/about/ml14_rootsoffooddeserts.php.
[146]"Place Rankings - Data Commons," Datacommons.org, 2025, https://datacommons.org/ranking/Percent_Person_Obesity/City/geoId/47157?h=geoId%2F4716420&unit=%25.

fitness standards and populations are not as physically active (on average) as most other United States cities. On the American Fitness Index 2025, the city of Memphis ranked third worst based on metrics including a combination of personal health factors such as sleep, work, diet, health outcomes, and physical activity. [147] As a whole, only 27.4 of state residents are meeting federal physical activity guidelines.[148] Although Memphis residents would similarly benefit from GLP-1 drugs, made evident through the high levels of adult obesity and low levels of physical activity, affordability would be a barrier to access for many Memphis residents who would otherwise benefit. Memphis has a recent poverty rate of 22.6%, and the individuals of this population have the least readily access to nutritious foods, playing a contributing role to both the obesity epidemic and the inability to easily solve it.[149]

[147]"Rankings," ACSM, February 7, 2025, https://acsm.org/about/community-impact-programs/american-fitness-index/rankings/.
[148]""Explore Exercise in Tennessee | AHR," Americashealthrankings.org, 2023, https://www.americashealthrankings.org/explore/measures/exercise/TN.
[149]""VOLUME 13 MEMPHIS POVERTY FACT SHEET 2024 Memphis and Shelby County," September 12, 2024, https://www.memphis.edu/socialwork/research/2024-poverty-fact-sheet-final.pdf.

Analysis of Domestic Healthcare Systems

GLP-1 Drug Market Landscape

GLP-1 medications offer an interesting development to the future of diabetes and weight loss treatments. Their recent spike in usage resulting in the creation of a 200 billion dollar industry is reshaping the medical and health worlds.[150] However, little is known about the future of this market landscape. With big-name players like Novo Nordisk and Eli Lilly being challenged by up-and-comers such as Pfizer and Roche, it is very unclear as to how the obesity market will develop. Furthermore, with an ever-changing legal system and recent rulings by agencies such as the FDA, the scale and expected growth within this market is actively changing day to day.

The weight loss drug industry is relatively new, with the most notable developments occurring in the last two decades. The obesity market emerged in 2005 following the approval of GLP-1 medications by the Federal Drug Administration.[151] Since then, two major players emerged: Novo Nordisk and Eli Lilly. Novo Nordisk has become renowned for its semaglutide GLP-1 medications, Ozempic (approved for type 2 diabetes treatment in 2017) and Wegovy (approved for weight loss in 2021).[152] On the other hand, the company Eli Lilly has become popular for its production of tirzepatide: found in the products Mounjaro (approved for type 2

[150] Pandora Zilstorff, "2 Companies Poised to Capitalize on the Rise of GLP-1 Drugs," Morningstar, Inc., January 21, 2025, https://www.morningstar.com/sustainable-investing/2-companies-poised-capitalize-rise-glp-1-drugs.
[151] Cleveland Clinic Medical Professional, "GLP-1 Agonists," Cleveland Clinic, September 30, 2025, https://my.clevelandclinic.org/health/treatments/13901-glp-1-agonists.
[152] UCHealth, "Wegovy Vs. Ozempic: The Truth About New 'Weight-loss' Drugs," UCHealth Today, March 31, 2025, https://www.uchealth.org/today/wegovy-vs-ozempic-the-truth-about-new-weight-loss-drugs/.

diabetes treatment in 2022) and Zepbound (approved for weightloss treatment in 2023).[153,154] Currently, these two companies are dominant in the industry. This is greatly due to the fact that they were some of the first companies to produce or begin producing GLP-1 medications.

Although the grip that Novo Nordisk and Eli Lilly have is strong, many believe this will slip as the emergence of rival companies challenges the status quo. While a number of companies are scheduled to release new GLP-1 medications in the coming years, two competitors are most notable: Pfizer and Roche. As of October 2025, Pfizer has two potential products which are in Phase 1 Trials and Roche is even further along with four products in the pipeline and two potential products that are in phase two trials[155]. One of the most pressing up and coming medications is Pfizer's Danuglipron. This medication, neither a semaglutide nor tirzepatide product, is creating skepticism in the market both regarding Pfizer's ability to compete as well as in the desired formatting for these medications. Danuglipron must be taken twice a day which strays from the current market standard which only requires action once a day. However, as a result of Pfizer's other medication hitting road blocks in the trials stages, many analysts are worried about Pfizer's ability to compete. Following the announcement by Pfizer that the company would be directing attention more closely to Danuglipron, Pfizer's stock dipped by 5%

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[153] Valley Health, "Understanding GLP-1 Medicines: FDA-Approved Medications Vs. Compounded Formulas," October 4, 2024, https://www.valleyhealthlink.com/news/2024/october/understanding-glp-1-medicines-fda-approved-medic/#:~:text=The%20two%20main%20companies%20making,(approved%20for%20weight%20loss).

[154] Amelia Willson, "Zepbound Vs. Mounjaro: What Is the Difference?," Ro, November 8, 2023, https://ro.co/weight-loss/zepbound-vs-mounjaro/?utm_campaign=21151837110&utm_term=160177311306&utm_content=695734414228&utm_source=google&utm_medium=cpc&gad_source=1&gad_campaignid=21151837110&gbraid=0AAAAAC9S9qDfirtFdJ3O1hsBopyhf9xA2&gclid=CjwKCAjwxrLHBhA2EiwAu9EdM9buI8VkFVJn_o5p9DKkpI1R6DNVgWOtEhDMTGopFsJMr75A8fs3exoCW74QAvD_BwE.

[155] Pandora Zilstorff, "2 Companies Poised to Capitalize on the Rise of GLP-1 Drugs," Morningstar, Inc., January 21, 2025, https://www.morningstar.com/sustainable-investing/2-companies-poised-capitalize-rise-glp-1-drugs.

only slightly rebounding days after. [156] With the market heating up, the pressure is mounting on Pfizer to take steps forward in their efforts to make a stake in the obesity market.

Although Pfizer is facing setbacks, Roche's medication is finding far less difficulty in breaking into this market and nearing the ability to release a medication onto the market. Currently Roche's premier GLP-1 medication in testing is Petrelintide which is a weekly injection amylin analogue type medication. This medication, which is in the final stages of testing, is breaking ground for its expected release at some point in 2028. Interestingly, this medication differs from those such as Ozempic or even Danuglipron in that it comes based in injection form.[157] There is a lot of speculation currently as to which medication format will prove to be most competitive, yet as of right now there are a lot of unknowns. What's most important to note is that companies like Pfizer and Roche are developing medications with the advantage of learning from the mistakes of their predecessors. Having the benefit of numerous studies and greater sets of data, these companies hope that their new medications can challenge the current duopoly and cut a slice of this market for themselves.

Despite the flood in demand and attention over GLP-1 medications, the legal framework regarding the approval of these drugs is relatively standard. In the United States, if a company wants to develop a medication and get it approved for commercial use then it must follow a designated process established by the FDA (See figure below).

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[156] Daniel Gilbert, "Pfizer Picks Its Pill in Race for Ozempic-like Weight-loss Drug," *The Washington Post*, June 26, 2023, https://www.washingtonpost.com/business/2023/06/26/pfizer-weight-loss-pill-ozempic/.
[157] Karen Gilchrist, "Roche Targets Becoming Top 3 Obesity Player as Experimental Drug Enters Late-stage Trial," CNBC, September 25, 2025, https://www.cnbc.com/2025/09/25/roche-plans-to-become-top-3-obesity-player-as-ct-388-enters-trial.html.

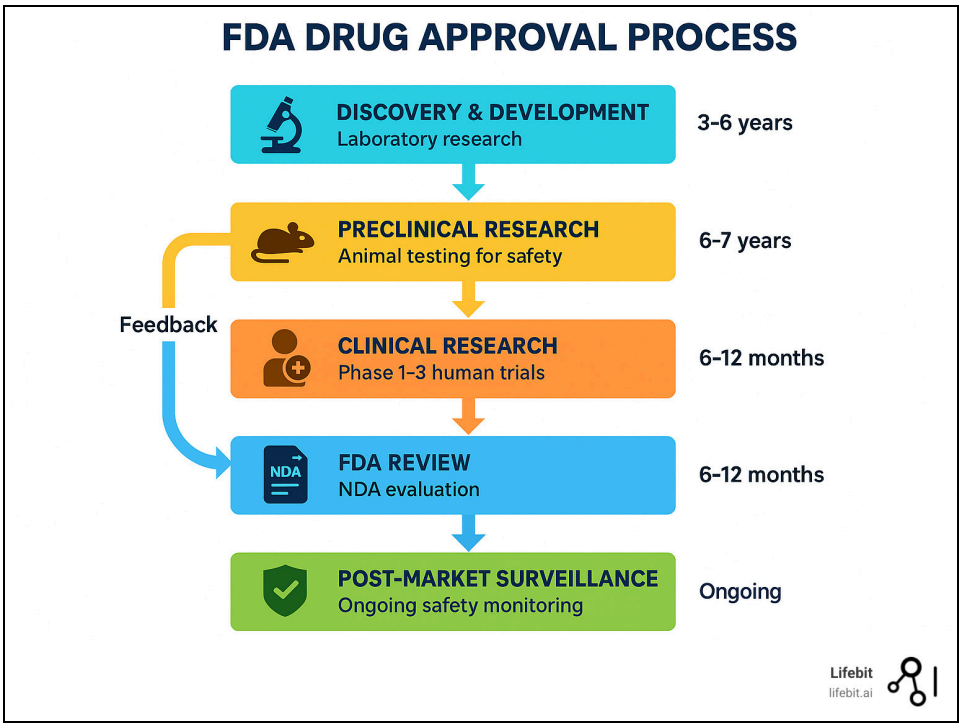


Figure 5: Outline of the FDA Drug Approval Process

Despite this, there is increasing FDA concern over compounded GLP-1 Medications. Compounded medications are those in which a pharmacist or doctor alters the ingredients or composition of a medication to tailor to the needs of an individual patient.[158] The FDA is currently concerned with the access to compounded drugs (which are notably less safe) and may result in the adoption of new regulations. However, as of now the process for approval remains relatively standard in comparison to other medication fields.

Emergence of Compound Pharmacies

In wake of the recent spike in the usage of GLP-1 medications, a pharmaceutical strategy known as compound pharmacies has recently brought great controversy to the market landscape

[158] Center for Drug Evaluation And Research, "FDA's Concerns With Unapproved GLP-1 Drugs Used For Weight Loss," U.S. Food And Drug Administration, September 25, 2025, https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/fdas-concerns-unapproved-glp-1-drugs-used-weight-loss.

of GLP-1 medicines. A compound pharmacy can be defined as any pharmacy which serves medications not commercially available and prepares said medications onsite to meet a client's specific needs.[159] Essentially, these are pharmacies which make alterations to approved medications or synthesize a new "compound" medication in the hopes of satisfying consumer needs. It is incredibly important to note that the majority of compound pharmacy medications are not officially FDA approved.[160] Compounded drugs bypass the time-intensive FDA approval process to answer consumer demand.

Despite their controversiality in light of their usage in the GLP-1 medication arena, compound medications synthesized by compound pharmacies serve many purposes. Often compound pharmacies help patients with issues related to proper dosage, forms of treatment (e.g. pill, liquid, injection), dangerous allergens, and flavor (e.g. children).[161] While all ingredients that compound pharmacies use are supposed to be approved by the FDA, this does not mean that the newly created compound medication will be safe or effective or hold to this rule. In a specific case relating to GLP-1 medications the FDA received reports that some compound pharmacies were using the salt versions of semaglutide (a weight loss medication), such as semaglutide sodium and semaglutide acetate. Neither of these forms of semaglutide are FDA approved. Furthermore, there have also been many reports to the FDA finding that because these compound

[159] Hallie Levine, "Thinking of Using a Compounding Pharmacy? What You Need to Know," Harvard Health, September 26, 2024, https://www.health.harvard.edu/staying-healthy/thinking-of-using-a-compounding-pharmacy-what-you-need-to-know.
[160] "What to Know About Compounded Medications," September 6, 2024, https://www.ncoa.org/article/what-are-compounded-medications/.
[161] Hallie Levine, "Thinking of Using a Compounding Pharmacy? What You Need to Know," Harvard Health, September 26, 2024, https://www.health.harvard.edu/staying-healthy/thinking-of-using-a-compounding-pharmacy-what-you-need-to-know.

medications lack standardization that there have been documented cases of incorrect dosages.[162] Therefore, despite the wide range of uses for this strategy of medication, it is regarded as a relatively unsafe method and is widely agreed upon by medical officials as a last resort option.

I. Legal Challenges of Compound Pharmacies

With the announcement of the end of the shortage on May 22nd, 2025, Novo Nordisk and Eli Lilly have begun severely ramping up their legal action. Notably, they filed lawsuits against 12 defendants specifically targeting pharmacies: something they had not done in the past. One example of these lawsuits was one waged against Axtell's Rite-Value Pharmacy Inc. (a standard pharmacy chain operating out of Whitesboro, Texas) on August 4th, 2025. Novo Nordisk, the company suing Axtell's alleged that the pharmacy had been prescribing and synthesizing a non FDA approved injectable medication containing semaglutide.[163] Despite the critical role compound pharmacies played while there was a shortage in the market, the big name players are unwilling to yield their control. In another lawsuit filed by Eli Lilly against a company called Empower Clinic Services on July 25th, 2025, Eli Lilly alleged that Empower was manufacturing and selling unapproved and untested weight loss medications.[164] Thus, despite the many conveniences that compound pharmacies lend the market, it is evidently increasingly clear that

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[162] Hallie Levine, "Thinking of Using a Compounding Pharmacy? What You Need to Know," Harvard Health, September 26, 2024, https://www.health.harvard.edu/staying-healthy/thinking-of-using-a-compounding-pharmacy-what-you-need-to-know.

[163] "Major Update on GLP-1 Litigation Involving Compounding Pharmacies," Buchanan Ingersoll & Rooney PC, August 5, 2025, https://www.bipc.com/major-update-on-glp-1-litigation-involving-compounding-pharmacies#:~:text=AUG%205%202025-,Major%20Update%20on%20GLP%2D1%20Litigation%20involving%20Compounding%20Pharmacies,Ozempic%C2%AE%2C%20Wegovy%C2%AE).

[164] "Major Update on GLP-1 Litigation Involving Compounding Pharmacies," Buchanan Ingersoll & Rooney PC, August 5, 2025, https://www.bipc.com/major-update-on-glp-1-litigation-involving-compounding-pharmacies#:~:text=AUG%205%202025-,Major%20Update%20on%20GLP%2D1%20Litigation%20involving%20Compounding%20Pharmacies,Ozempic%C2%AE%2C%20Wegovy%C2%AE).

any compound pharmacy that attempts to challenge the structure of the current market landscape, will be met with steep legal difficulties.

II. Additional Competitors in the Compound GLP-1 Market

A critical component to understanding more about the GLP-1 compound medication market is developing a more refined image of the key players in the field. Notably, during the FDA shortage of GLP-1 medications, many different digital health and pharmaceutical companies jumped into the market and began producing compounded medications. Among the many companies involved, two that were instrumental were Noom and Hims & Hers. During the shortage, Noom released a semaglutide compounded medication priced at $149. When pressed as to what Noom's future in the GLP-1 market held, CEO Geoff Cook responded in a 2024 interview "Our position is that more supply, especially at a reasonable price, is needed right now, not less." [165] Noom is a digital health company focused on aspects of weight loss. Therefore, in terms of market use of compounded GLP-1 medications, it appears that the applications would be directed towards weight loss. Furthermore, it is critical to mention that these GLP-1 compounded medications are far cheaper than market standards such as Wegovy or Ozempic: which both roughly cost $1000 before insurance. Comparatively Noom's CEO Geoff Cook asserted that their semaglutide compound medication would cost $149 for the first month and $279 for months following.[166] Although current FDA regulation creates a more prohibitive

[165] Ashley Capoot, "Digital Health Company Noom to Offer Compounded GLP-1 Drug Through New Weight Loss Program," CNBC, September 12, 2024, https://www.cnbc.com/2024/09/12/noom-to-offer-glp-1-drug-through-new-weight-loss-program.html#:~:text=Digital%20health%20company%20Noom%20on%20Thursday%20announced,obesity%20and%20diabetes%20drugs%20Wegovy%20and%20Ozempic.

[166] Ashley Capoot, "Digital Health Company Noom to Offer Compounded GLP-1 Drug Through New Weight Loss Program," CNBC, September 12, 2024, https://www.cnbc.com/2024/09/12/noom-to-offer-glp-1-drug-through-new-weight-loss-program.html#:~:text=Digital%20health%20company%20Noom%20on%20Thursday%20announced,obesity%20and%20diabetes%20drugs%20Wegovy%20and%20Ozempic.

landscape for GLP-1 Compounding Pharmacies, they may just be the solution to the GLP-1 medication market's issues with accessibility and affordability. If the new market price was on average $200 as opposed to $1000, it could be vital for consumers, and especially low income consumers.

Pharmacy Benefit Managers

Pharmacy benefit managers, or PBMs, are third-party companies that work with health insurers, large employers, and other payers to manage their prescription drug benefits. PBMs negotiate drug prices with manufacturers and pharmacies, decide patient access to medications, and control pharmacy network contracts. However, these critical functions are carried out with limited transparency, making it difficult for insurers, policymakers, and patients to see the true costs and fees involved. The three largest PBMs handle the majority of prescription drug claims in the United States, giving them significant influence over drug pricing and patient access.

I. History of PBMs

PBMs were originally created in the 1960s to help third-party payers, such as private insurers, nonprofit organizations, and government programs, manage prescription drug costs and organize pharmacy networks for their enrollees.[167] Their primary role was to help insurance companies contain costs and streamline access to medications. In the 1970s, PBMs began electronically processing drug claims, improving the efficiency of prescription processing, and managing broader prescription tasks. One key responsibility that emerged was the creation and management of formularies, a list of medications covered by insurance and determined the costs

[167] Suzanne G. Bollmeier and Scott Griggs, "The Role of Pharmacy Benefit Managers and Skyrocketing Cost of Medications," *Missouri Medicine* 121, no. 5 (Sept.–Oct. 2024): 403–409, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11482839/

patients pay for their prescriptions.[168] Today, PBMs establish formularies, negotiate pricing and rebates with drug manufacturers, and maintain pharmacy networks that policyholders must use to access benefits.[169]

PBMs generate income through methods like spread pricing and manufacturer rebates, which affect drug pricing dynamics and formulary decisions. Spread pricing involves reimbursing pharmacies at a lower rate but billing health plans a higher amount, keeping the difference as profit. As PBM contracts are often proprietary and opaque, spread pricing continues largely without oversight. Another major source of PBM revenue comes from manufacturer rebates, which are discounts or payments that pharmaceutical manufacturers provide to secure favorable placement for their drugs on PBM formularies.[170] PBMs benefit directly from manufacturer rebates, driving them to steer patients towards higher-priced medications that provide greater rebate payments, which impacts drug selection and overall healthcare costs. However, drug manufacturers contend that the need to provide larger rebates to PBMs forces them to increase the list prices of their drugs, with total rebates to PBMs reaching $334 billion in 2023.[171]

II. Key Players in the Pharmacy Benefit Manager Industry

As of 2025, three major PBMs dominate nearly 80% of the U.S. market: CVS Caremark (owned by CVS Health), Express Scripts (owned by Cigna's Evernorth), and Optum Rx (owned

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[168] T. Joseph Mattingly II, David A. Hyman, and Ge Bai, "Pharmacy Benefit Managers: History, Business Practices, Economics, and Policy," *JAMA Health Forum* 4, no. 11 (2023): e233804, https://doi.org/10.1001/jamahealthforum.2023.3804

[169] Bollmeier and Griggs, "The Role of Pharmacy Benefit Managers and Skyrocketing Cost of Medications."

[170] Ibid.

[171] Kristi Martin, "What Pharmacy Benefit Managers Do, and How They Contribute to Drug Spending" (explainer), *Commonwealth Fund*, March 17, 2025, https://www.commonwealthfund.org/publications/explainer/2025/mar/what-pharmacy-benefit-managers-do-how-they-contribute-drug-spending

by UnitedHealth Group).[172] The "Big 3" along with three other large PBMs, Humana Pharmacy Solutions, Inc. Prime Therapeutics, and MedImpact Healthcare Systems, handle over 90% of all prescriptions dispensed in the United States.[173]

III. PBMs and GLP-1 Coverage

PBMs publicly pledged to maintain coverage for GLP-1 drugs and stated they are working to reduce the cost of weight loss medications by promoting appropriate utilization, implementing clinical support programs for members, and negotiating with drug manufacturers.[174] PBMs such as CVS Caremark, Prime Therapeutics, Optum Rx, Express Scripts, and Cigna have included many GLP-1 weight loss drugs such as Wegovy and Zepbound on their national formularies, but actual coverage by health plans remains uneven and often requires prior authorization and utilization management.[175] Despite PBMs' claims of expanding affordability, available data suggest limited impact. GoodRx's 2025 analysis found that 88% of covered members still face prior authorization or step therapy requirements, and most uninsured patients pay over $400 per month even under discount programs.[176] In response, PBMs indicate that high costs remain the primary barrier to coverage of GLP-1 drugs for obesity.[177]

Despite public claims of expanding affordability, PBMs like CVS Caremark, Optum Rx, and Express Scripts continue using strict utilization management tools such as prior

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[172] Bollmeier and Griggs, "The Role of Pharmacy Benefit Managers and Skyrocketing Cost of Medications."
[173] Federal Trade Commission, *Pharmacy Benefit Managers: The Powerful Middlemen Inflating Drug Costs and Squeezing Main Street Pharmacies: Interim Staff Report* (July 2024), https://www.ftc.gov/system/files/ftc_gov/pdf/pharmacy-benefit-managers-staff-report.pdf
[174] Denise Myshko, "Are PBMs Putting GLP-1 Drugs on Their Formularies?," *Managed Healthcare Executive*, October 11, 2024, https://www.managedhealthcareexecutive.com/view/are-pbms-putting-obesity-drugs-on-formulary-
[175] Ibid.
[176] Amanda Nguyen, PhD, and Lauren Chase, "Live Updates: Tracking Insurance Coverage for GIP and GLP-1 Agonists Like Zepbound & Wegovy," *GoodRx*, updated August 14, 2025, https://www.goodrx.com/healthcare-access/research/tracking-insurance-coverage-weight-loss-meds
[177] Myshko, "Are PBMs Putting GLP-1 Drugs on Their Formularies?"

authorization, step therapy, and formulary exclusions that slow or deny coverage for GLP-1 drugs such as Wegovy and Zepbound.[178] According to Pharmacy Times (March 2025), while PBMs insist they are reducing costs through rebate agreements, 88% of insured patients still face access barriers, and out-of-pocket costs exceed $400 monthly for many uninsured individuals.[179]

The lack of transparency in operations continues to incentivize PBMs to favor high-rebate, high-priced drugs rather than prioritizing affordability for patients. Because PBMs are frequently compensated based on a percentage of a drug's list price or by retaining a portion of manufacturer rebates, their financial incentives align with maintaining higher drug prices rather than lowering patient costs. PBMs often direct patients toward pricier drugs because their compensation is tied to the list price, not the net cost after rebates.[180] Research from USC's Schaeffer Center found that delinking PBM payments from list prices and shifting to a fixed, transparent administrative fee could reduce overall U.S. drug spending by nearly $100 billion annually, revealing how the current rebate model drives systemic cost inflation.[181] Rebates negotiated by PBMs drive manufacturers to raise list prices to offset rebate costs, with each one-dollar increase in rebates linked to about a $1.17 rise in a drug's list price.[182]

IV. Controversy with PBM Practices

[178] Amanda Nguyen, PhD, and Lauren Chase, "Live Updates: Tracking Insurance Coverage for GIP and GLP-1 Agonists Like Zepbound & Wegovy," *GoodRx*, updated August 14, 2025, https://www.goodrx.com/healthcare-access/research/tracking-insurance-coverage-weight-loss-meds

[179] Alexandra Gerlach, "PBMs, Pricing, and Policy: The Fight for Fair Access to GLP-1s," *Pharmacy Times*, March 19 2025, https://www.pharmacytimes.com/view/pbms-pricing-and-policy-the-fight-for-fair-access-to-glp-1s

[180] Schaeffer Center for Health Policy & Economics, *"Delinking PBM Compensation From Drug List Prices Could Unleash Major Savings,"* University of Southern California, July 24, 2025, https://schaeffer.usc.edu/research/pbm-delinking-drug-cost-savings/.

[181] Geoffrey Joyce, "The Cost of Misaligned Incentives in the Pharmaceutical Supply Chain," *Health Affairs Scholar* 3, no. 7 (July 2025): qxaf126, published June 25, 2025, https://doi.org/10.1093/haschl/qxaf126.

[182] Neeraj Sood et al., "The Association Between Drug Rebates and List Prices," white paper, Schaeffer Center for Health Policy & Economics, University of Southern California, February 11 2020, https://schaeffer.usc.edu/research/the-association-between-drug-rebates-and-list-prices/.

While PBMs claim to negotiate discounts for insurers and employers, they are typically compensated based on a percentage of drug costs and rarely disclose the full details of their rebate agreements with manufacturers or their pharmacy reimbursement methods.[183] This lack of transparency has allowed PBMs to profit by keeping the difference between what manufacturers pay for drugs and the higher amounts ultimately charged to patients, pharmacies, and health plans. Although PBMs negotiate drug prices and rebates with manufacturers to reduce overall spending, these savings rarely translate into lower out-of-pocket costs for patients. In fact, from 2020 to 2022, the Federal Trade Commission reported that the "Big 3" marked up 63% of specialty generic drugs by over 100% and 22% by more than 1,000% at their affiliated pharmacies, more than twice the rate of unaffiliated pharmacies, revealing systematic and significant price inflation of medications.[184]

Vertical integration is a core feature of the PBM business model, describing the interconnected relationships among major healthcare corporations that include insurers, pharmacy benefit managers, specialty pharmacies, and provider services. PBMs' consolidation and vertical integration have also created conflicts of interest, with incentives to prefer their own affiliated pharmacies and insurers.[185] This strategy aims to control patients' healthcare needs within the integrated network, often at the expense of competition and transparency. PBM contracts with pharmacies are opaque and one-sided, and PBMs frequently employ utilization controls that can delay or limit patient access to medications, raising concerns about patient

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[183]Dae Y. Lee, "PBMs Under Siege: How the Current Administration's 2025 Executive Order and FTC Enforcement Campaign Are Shaping the Future of Drug Pricing," *Buchanan Ingersoll & Rooney PC (BIPC)*, May 29, 2025, https://www.bipc.com/pbms-under-siege-how-the-current-administration%E2%80%99s-2025-executive-order-and-ftc-enforcement-campaign-are-shaping-the-future-of-drug-pricing

[184] Federal Trade Commission, *Specialty Generic Drugs: A Growing Profit Center for Vertically Integrated Pharmacy Benefit Managers (Second Interim Staff Report)*, January 2025, https://www.ftc.gov/system/files/ftc_gov/pdf/PBM-6b-Second-Interim-Staff-Report.pdf

[185] Bollmeier and Griggs, "The Role of Pharmacy Benefit Managers and Skyrocketing Cost of Medications."

choice and healthcare costs.[186] The FTC's January 2025 Second Interim Staff Report found that vertically integrated PBMs used their ownership of specialty pharmacies to generate disproportionately high profits and limit competition in the market.[187] The report highlighted significant price markups on specialty generic drugs dispensed through PBM-affiliated pharmacies.

On April 15, 2025, President Donald J. Trump signed an executive order titled "Lowering Drug Prices by Once Again Putting Americans First," which aims to reduce prescription drug costs by expanding access to affordable medicines, promoting competition, and increasing transparency, particularly around PBM fees.[188] The order also called for reevaluating the role of middlemen like PBMs in the drug supply chain to lower drug prices and ensure fairness for American patients.[189] In response, PBM lobbying group PCMA shifted blame for high drug prices onto pharmaceutical companies and drug manufacturers while defending their own business practices.[190] Beyond executive action, federal regulators and lawmakers have intensified scrutiny of PBM practices. In 2022, the Ohio Department of Medicaid sued and replaced PBMs with a single in-house PBM, reporting $140 million saved over two years.[191] Additionally,

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[186] Federal Trade Commission, *Pharmacy Benefit Managers: The Powerful Middlemen Inflating Drug Costs and Squeezing Main Street Pharmacies: Interim Staff Report* (July 2024), https://www.ftc.gov/system/files/ftc_gov/pdf/pharmacy-benefit-managers-staff-report.pdf
[187] Federal Trade Commission, *Specialty Generic Drugs (Second Interim Staff Report)*.
[188] "The White House, "Lowering Drug Prices by Once Again Putting Americans First," April 15, 2025, https://www.whitehouse.gov/presidential-actions/2025/04/lowering-drug-prices-by-once-again-putting-americans-first/
[189] The White House, "Fact Sheet: President Donald J. Trump Announces Actions to Lower Prescription Drug Prices," April 15, 2025, https://www.whitehouse.gov/fact-sheets/2025/04/fact-sheet-president-donald-j-trump-announces-actions-to-lower-prescription-drug-prices/
[190] Sophie Gardner and Kelly Hooper, "Can Congress Revive PBM Reform," *Politico Pulse*, September 8, 2025, https://www.politico.com/newsletters/politico-pulse/2025/09/08/can-congress-revive-pbm-reform-00549936
[191] Marty Schladen, "Ohio Medicaid Got Rid of Big Middlemen, Paid Pharmacies More and Saved $140 Million, Report Says," *Ohio Capital Journal*, April 17, 2025, https://ohiocapitaljournal.com/2025/04/17/ohio-medicaid-got-rid-of-big-middlemen-says-it-paid-pharmacies-a-lot-more-and-saved-140m/

administrative costs decreased by $333 million due to simplified management and fewer intermediaries.[192] In April 2025, Arkansas governor Sarah Huckabee Sanders signed a first state ban on PBMs from engaging in anti-competitive practices by simultaneously owning pharmacies.[193] Congress has proposed several bills to address concerns with PBM abusive practices but have not progressed beyond committee consideration. Congress continues to debate the PBM Transparency Act of 2025, a bipartisan proposal that would require PBMs to fully disclose manufacturer rebates, administrative fees, and spread pricing arrangements, as well as prohibit spread pricing in Medicaid contracts.[194] These developments show growing bipartisan support to make PBMs more transparent, fair, and accountable.

V. Synthesis: From Manufacturers to PBMs to Consumers

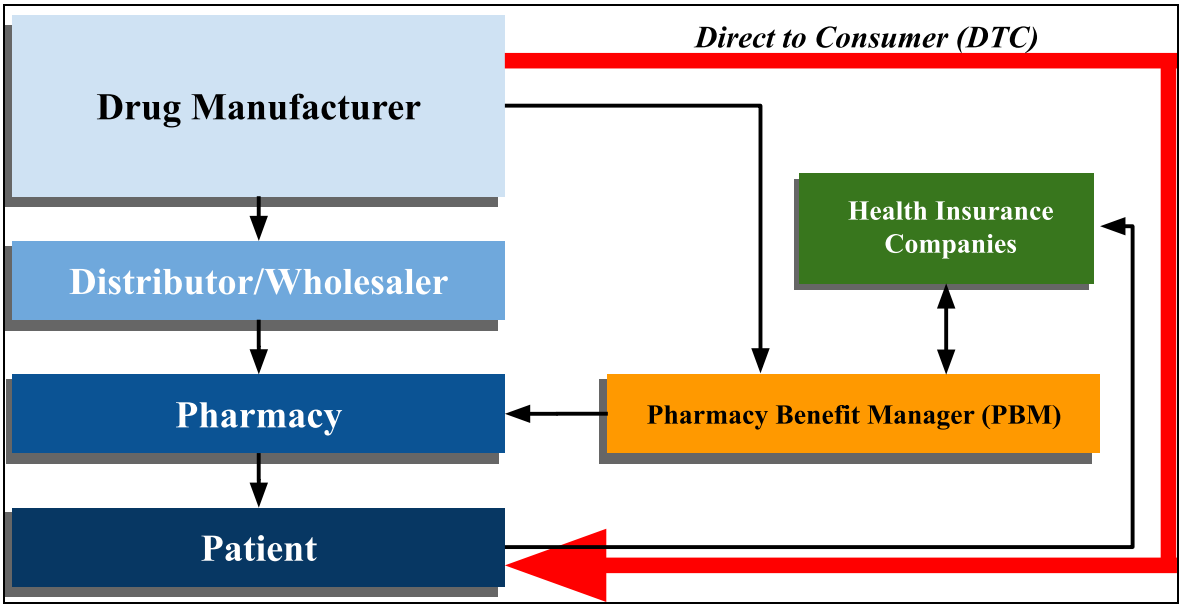


Figure 6: The Prescription Drug Supply Chain[195]

[192] Schladen, "Ohio Medicaid Got Rid of Big Middlemen."
[193]"Sanders Signs Legislation to Ban Anti-Competitive PBM Practices," *Office of the Governor of Arkansas*, April 16, 2025, https://governor.arkansas.gov/news_post/sanders-signs-legislation-to-ban-anti-competitive-pbm-practices/
[194] Gardner and Hooper, "Can Congress Revive PBM Reform."
[195] Kristi Martin, "What Pharmacy Benefit Managers Do, and How They Contribute to Drug Spending" (explainer), *Commonwealth Fund*, March 17, 2025, https://www.commonwealthfund.org/publications/explainer/2025/mar/what-pharmacy-benefit-managers-do-how-they-contribute-drug-spending

PBMs generate income through methods like spread pricing and manufacturer rebates, which affect drug pricing and formulary decisions (what drugs are covered).

1. Spread pricing involves reimbursing pharmacies at a lower rate but billing health plans a higher amount, keeping the difference as profit. PBM contracts are often proprietary and opaque, and as a consequence, spread pricing can continue largely without oversight.
2. Another major source of PBM revenue comes from manufacturer rebates, which are discounts or payments that pharmaceutical manufacturers provide to secure favorable placement for their drugs on PBM formularies.[196] First, pharmaceutical companies set a price for their drugs, also known as the list price. This list price is used to determine how much patients pay when they fill a prescription. Through insurance, a patient pays a percentage of the list price (if the deductible hasn't been met); otherwise, without insurance, the patient will have to pay the full list price. Drug companies offer rebates because preferential placement on formularies means their medications are more likely to be prescribed and used by patients—meaning more profits. When patients fill prescriptions with rebate drugs, manufacturers reimburse PBMs through rebates, lowering the net cost of the drug below the list price. But PBMs pocket some of the rebate, deriving profit.

[196] Suzanne G. Bollmeier and Scott Griggs, "The Role of Pharmacy Benefit Managers and Skyrocketing Cost of Medications," *Missouri Medicine* 121, no. 5 (Sept.–Oct. 2024): 403–409, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11482839/

Rebates have exhaustive controversy. On one hand, they could have the potential to do a lot of good. PBMs share 91% of rebates with commercial insurance companies to reduce overall plan costs, which may allow insurers to charge lower premiums.[197] According to the Government Accountability Office, PBMs pass 99.6% of rebates back to Medicare Part D plan sponsors.[198] In May 2023, executives from the three largest PBMs–CVS Health, Express Scripts, and OptumRx–stated that they pass 95% or more of drug manufacturer rebates at a Senate Committee Hearing, with OptumRx and CVS Health claiming the highest of 98% of negotiated discounts to clients. PBMs benefit directly from manufacturer rebates, so they have an incentive to steer patients towards higher-priced medications that provide greater rebate payments, impacting drug selection and overall healthcare costs. However, drug manufacturers contend that the need to provide larger rebates to PBMs forces them to increase the list prices of their drugs, with total rebates to PBMs reaching $334 billion in 2023.[199]

VI. Synthesis: Rebate and Payment Flow

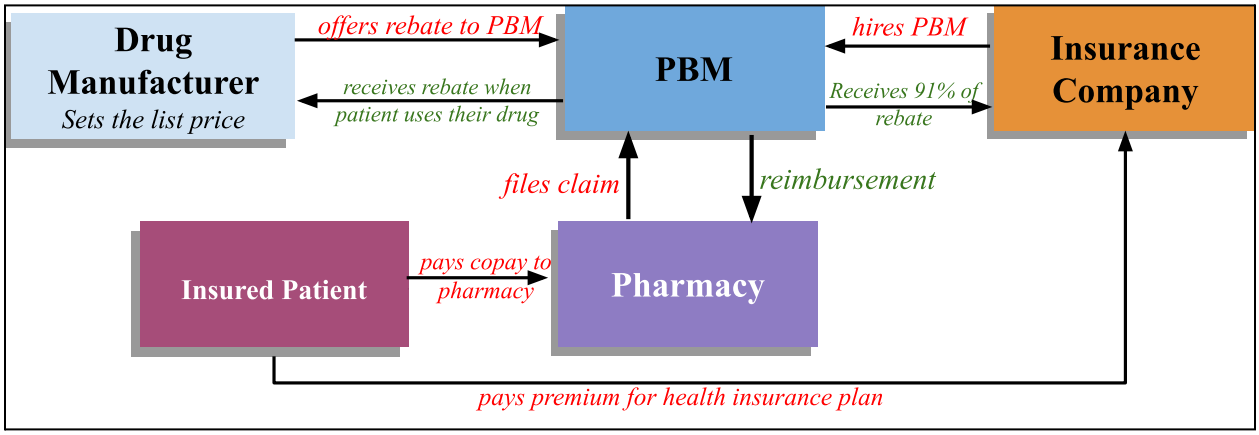


Figure 7: Rebate and Payment Flow

[197] Adam J. Fein, *The 2024 Economic Report on U.S. Pharmacies and Pharmacy Benefit Managers* (Drug Channels Institute, March 2024), https://drugchannelsinstitute.com/files/2024-PharmacyPBM-DCI-Overview.pdf.
[198] Government Accountability Office, *Medicare Part D: Use of Pharmacy Benefit Managers and Efforts to Manage Drug Expenditures and Utilization*, GAO-19-498 (July 15, 2019), https://www.gao.gov/assets/gao-19-498.pdf.
[199] Kristi Martin, "What Pharmacy Benefit Managers Do, and How They Contribute to Drug Spending"

During a September earnings call, Johnson & Johnson Chief Financial Officer Joseph Wolk stated that the industry standard rebate rate was approximately 60%.[200] Therefore, if the list price of a drug is $1,000. The health insurance company hires a PBM to negotiate a lower price of $400. The PBM manages the transaction between the insurer, manufacturer, and pharmacy, determining both reimbursement and the patient's out-of-pocket cost. Of the $400 rebate, the insurance company receives $364, or 91%, while the PBM keeps $36. Rebates do not directly lower the out-of-pocket cost for patients because patients pay the list price, regardless of whether the drug company has given a rebate to the PBM for drugs.

Current State of GLP-1 Coverage

I. Medicaid and Medicare Coverage

Medicaid and Medicare have expanded coverage of GLP-1 medications for conditions beyond diabetes and weight loss, including cardiovascular risk reduction for Wegovy and obstructive sleep apnea for Zepbound.[201] In March 2024, the FDA expanded Wegovy's approval to include reducing the risk of cardiovascular death, heart attack, and stroke in individuals with overweight or obesity and existing cardiovascular disease, creating a pathway for Medicare coverage under this new indication.[202] According to the Centers for Medicare & Medicaid Services, about 17.7 million Medicare enrollees, or 26 percent, have type 2 diabetes and can access GLP-1 medications.[203] An additional 4.6 million with atrial fibrillation and 4.1 million

[200] "Johnson & Johnson (JNJ) Q2 2024 Earnings Call Transcript," *The Motley Fool*, July 17, 2024, https://www.fool.com/earnings/call-transcripts/2024/07/17/johnson-johnson-jnj-q2-2024-earnings-call-transcri/.
[201] Berkeley Lovelace Jr., "The cost of weight loss drugs is finally dropping. How low can prices go?," *NBC News*, May 27, 2025, https://www.nbcnews.com/health/health-news/cost-weight-loss-drugs-wegovy-zepbound-how-low-prices-down-rcna205911
[202] Yuki Noguchi and Carmel Wroth, "Medicare Plans Can Now Cover Wegovy for Patients at Risk of Heart Disease," *NPR*, March 22, 2024, https://www.npr.org/sections/health-shots/2024/03/22/1240170094/wegovy-medicare-part-d-weight-loss-drugs
[203] Centers for Medicare & Medicaid Services, *30 CCW Chronic Conditions Period Prevalence, 2022* (Washington, DC: CMS, August 2024), https://www2.ccwdata.org/web/guest/medicare-charts/medicare-chronic-condition-charts

with heart failure, two conditions exacerbated by obesity, also have access to GLP-1 medications under federal regulations.[204]

However, Medicare Part D, which provides prescription drug coverage, does not cover GLP-1 medications when they are prescribed solely for the treatment of obesity.[205] Furthermore, the Trump Administration affirmed in April 2025 that Medicare and Medicaid would not cover GLP-1 drugs for obesity treatment unless they also have a qualifying condition such as type 2 diabetes or cardiovascular disease.[206] Expanding coverage to include all Medicare beneficiaries who are overweight or obese could make up to 13.7 million people, or about one fourth of all Medicare enrollees, eligible for Part D coverage of GLP-1 medications.[207] Since Medicare has been prohibited from paying for weight-loss treatments, seniors are forced either to pay out of pocket or rely on supplemental insurance.

While Medicare is a uniform federal program administered nationwide, Medicaid is a joint federal–state program that provides health coverage to low-income individuals, and states have the discretion to decide whether to cover obesity drugs under their Medicaid programs.[208] Similar to Medicare, GLP-1 medications are excluded from most Medicaid coverage and states are not required to cover GLP-1 drugs for obesity treatment. As of August 2024, only thirteen states—California, Kansas, Mississippi, Minnesota, Wisconsin, Michigan, North Carolina,

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[204] Ibid.
[205] U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, *Medicare Coverage of Anti-Obesity Medications* (Washington, DC: ASPE, November 26, 2024), https://aspe.hhs.gov/sites/default/files/documents/127bd5b3347b34be31ac5c6b5ed30e6a/medicare-coverage-anti-obesity-meds.pdf
[206] The ACG News Team, "Anti-Obesity Drugs Will Not Be Covered by Medicare and Medicaid in 2026," *American College of Gastroenterology*, April 17, 2025, https://gi.org/2025/04/17/anti-obesity-drugs-will-not-be-covered-by-medicare-and-medicaid-in-2026/
[207] Juliette Cubanski, Tricia Neuman, Nolan Sroczynski, and Anthony Damico, "A New Use for Wegovy Opens the Door to Medicare Coverage for Millions of People with Obesity," *KFF*, April 24, 2024, https://www.kff.org/medicare/a-new-use-for-wegovy-opens-the-door-to-medicare-coverage-for-millions-of-people-with-obesity/
[208] Williams, Rudowitz, and Bell, "Medicaid Coverage of and Spending on GLP-1s."

Virginia, Pennsylvania, Delaware, Massachusetts, New Hampshire, and Rhode Island—offered Medicaid coverage for GLP-1 medications prescribed for obesity treatment.[209]

Coverage for GLP-1 drugs remains limited under Medicare and Medicaid. In 2023, Medicare Part D enrollees paid an average of $60 out-of-pocket per month for anti-obesity medications, though most paid $15 or less.[210] The Congressional Budget Office evaluated the potential impact of allowing Medicare to cover anti-obesity medications and found that net federal spending would increase by about $35 billion from 2026–2034, with annual costs growing from $1.6 billion in 2026 to $7.1 billion in 2034.[211] Average federal spending per GLP-1 user is projected to be about $5,600 in 2026, decreasing to $4,300 by 2034; however, even with anticipated price reductions and health improvements, overall federal spending on GLP-1s for obesity treatment will continue to rise.[212]

II. Commercial Health Insurance: Private and Employer

Simply having a high BMI that classifies an individual as overweight or obese may not be enough to qualify for GLP-1 anti-obesity medications. Private and employer health insurance will often cover them if a patient has an obesity-related medical condition, such as high cholesterol or high blood pressure.[213] According to 2025 data from the International Foundation of Employee Benefit Plans (IFEBP), GLP-1 drugs prescribed for weight loss account for about 10.5% of total annual employer health plan claims as 36% of employers provide GLP-1 coverage

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[209] Ibid.
[210] Elizabeth Williams, Robin Rudowitz, and Clea Bell, "Medicaid Coverage of and Spending on GLP-1s," KFF, November 4, 2024, https://www.kff.org/medicaid/medicaid-coverage-of-and-spending-on-glp-1s/
[211] Congressional Budget Office, *Budgetary and Economic Effects of Expanding Access to Certain Anti-Obesity Treatments* (Washington, D.C.: Congressional Budget Office, October 2024), https://www.cbo.gov/publication/60816
[212] Ibid.
[213] National Association of Insurance Commissioners. "Does Insurance Cover Prescription Weight Loss Injectables?" *NAIC*, July 26, 2024. https://content.naic.org/article/does-insurance-cover-prescription-weight-loss-injectables

for both diabetes and weight loss; however, 55% of employers still cover the drugs for diabetes only.[214]

III. Direct-to-Consumer Platforms and Self-Pay

As insurance coverage for GLP-1 weight-loss medications remains uneven, pharmaceutical companies and retailers have expanded direct-to-consumer (DTC) and self-pay options to make these drugs more accessible. The out-of-pocket cost for GLP-1 medications averages around $1,000 per month, prompting insurers to impose strict prior authorization requirements that limit patient eligibility.[215] Novo Nordisk, the manufacturer of Ozempic and Wegovy, and Eli Lilly, which produces Zepbound, have both introduced discounted cash-pay programs and retail partnerships to reduce out-of-pocket costs for uninsured patients or those whose plans exclude weight-loss drugs.

Pharmaceutical companies offer direct-to-patient programs at approximately $500 per month, but those with employer-sponsored insurance that could cover part of the cost are excluded.[216] Novo Nordisk sells Wegovy and Ozempic directly through its website and through partnerships with major pharmacies, like CVS and Walmart, for $499 per month for a four-week supply.[217] On October 3, 2025, Novo Nordisk announced Ozempic and Wegovy would be available for cash purchase at Costco pharmacies nationwide.[218] Eli Lilly's LillyDirect program similarly offers Zepbound through their telehealth platform at reduced, cash-only prices, with the

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[214] Kathryn Mayer, "How Much of Employers' Annual Claims Do GLP-1 Drugs Account For?," *SHRM*, June 6, 2025, https://www.shrm.org/topics-tools/news/benefits-compensation/GLP-1-drugs-employers-annual-claims-may-2025

[215] Robert Viercinski and Danielle Snively, "Glucagon-Like Peptide-1 Receptor Agonists: A Pharmacy Perspective on Insurance Coverage and Medication Access," *Perspectives in Primary Care* (March 26, 2025), https://info.primarycare.hms.harvard.edu/perspectives/articles/glp-1-pharmacy-perspective

[216] Kessler, "Here's How to Get GLP-1 Drugs Covered."

[217] Kaan Ozcan, Marina Kopf, and Anne Thompson, "Costco to Sell Ozempic, Wegovy at Discount for Uninsured Patients," *NBC News*, October 3, 2025, https://www.nbcnews.com/health/health-news/costco-ozempic-wegovy-discount-insurance-rcna235471

[218] Ibid.

starter dose priced at $349 and higher doses capped at $499 per month.[219] These programs allow patients who aren't covered by insurance to purchase medications directly from manufacturers.

Telehealth services have also played a role in improving access to GLP-1 medications. Endocrinologists increasingly provide consultations and follow-ups online, allowing patients to receive prescriptions and manage side effects remotely.[220] Even Serena Williams serves as a spokesperson for Ro.co, a direct-to-consumer telehealth platform offering GLP-1 medications, using her public profile not only to raise awareness of weight-loss treatments but also to help drive the company's profit.[221]

Despite these price cuts, monthly costs of $500 may still remain prohibitive for many patients. Those with insurance coverage often pay much less, averaging $25 per month, while uninsured individuals must rely entirely on these self-pay programs.

IV. Examination of Most Frequent Payment Methods

Data from IQVIA's National Prescription Audit PayerTrak, which tracks about 92 percent of prescriptions filled at retail pharmacies in the United States, show how semaglutide prescriptions are paid for. In 2023, Medicaid accounted for less than 10 percent of semaglutide prescriptions of Ozempic, Wegovy, and Rybelsus.[222] Medicare Part D covered about 28.5 percent of Ozempic prescriptions and 32.9 percent of Rybelsus prescriptions, but only 1.2 percent of

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[219] Berkeley Lovelace Jr., "Zepbound Price Cut: Eli Lilly Lowers Cost for Weight-Loss Drug," *NBC News*, August 27, 2024, https://www.nbcnews.com/health/health-news/zepbound-price-cut-eli-lilly-lowers-cost-weight-loss-drug-rcna168183

[220] Mollie Barnes, "Cost of Popular Weight Loss Drugs Goes Down for People Without Insurance," *Keck Medicine of USC*, April 28, 2025, last updated June 29, 2025, https://www.keckmedicine.org/blog/cost-of-popular-weight-loss-drugs-goes-down-for-people-without-insurance/

[221] Rachel Curry, "Serena Williams Endorses High-Flying Weight Loss Startup Funded by Her Husband," *Observer*, August 28, 2025, https://observer.com/2025/08/serena-williams-endorse-ro-weight-loss/

[222] Leigh Hopper, "USC Study: Exploding Popularity of Ozempic, Wegovy Among Privately Insured Patients May Worsen Disparities," *USC Alfred E. Mann School of Pharmacy & Pharmaceutical Sciences*, August 2, 2024, https://mann.usc.edu/news/usc-study-exploding-popularity-of-ozempic-wegovy-among-privately-insured-patients-may-worsen-disparities/

Wegovy prescriptions, reflecting Medicare's restriction on covering drugs prescribed solely for weight loss.[223] Cash payments represented about 1 percent or less of all semaglutide prescriptions filled in 2023.[224]

The GoodRx Research team sourced 2025 prescription insurance coverage from Managed Markets Insight and Technology, tracking different types of insurance coverage for GLP-1 and GIP agonists like tirzepatide and semaglutide.

Medication	**No Coverage**	**Restricted Coverage**	**Unrestricted Coverage**
Zepbound for weight loss	50.5%	44.7%	4.8%
Mounjaro for Type 2 diabetes	0.4%	76.5%	23.1%
Wegovy for weight loss	15%	75.1%	9.9%
Ozempic for Type 2 diabetes	2.6%	79.2%	18.2%

Table 1: 2025 Commercial Insurance Coverage for GLP-1 Medications

Patients with unrestricted coverage can use their insurance right away to reduce the cost of their prescription. Their out-of-pocket expenses are usually limited to a standard copay or coinsurance, making this the easiest and most affordable type of insurance coverage. The data shows that a majority of plans restrict coverage for both weight-loss and diabetes formulations. Even when coverage exists, patients must fulfill additional conditions before their insurance will

[223] Ibid.
[224] Ibid.

cover the medication, such as getting prior authorization, completing step therapy, or attempting an alternative treatment first.[225]

November 2025 Changes to GLP-1 Policy

The current administration under President Trump has recently enacted significant changes to federal policy surrounding GLP-1 drugs, particularly those used for obesity and diabetes treatment. In November 2025, President Trump announced agreements with Novo Nordisk and Eli Lilly to significantly lower the price of GLP-1 drugs, including Ozempic, Wegovy, and Zepbound.[226] Additionally, the administration noted Ozempic, Wegovy, and Zepbound will be covered for obesity for certain Medicare and Medicaid patients.[227] Starting sometime in 2026, these drugs will be available for patients at a substantially reduced price (for as low as 350 dollars a month), through TrumpRx.[228] For Medicare patients, these drugs will cost 245 dollars a month, a price that will be available for Medicaid state coverage depending on state coverage policies.[229] As of now, typical out of pocket costs are around $1000 a month.[230] And while oral forms of these medications have not been approved as of yet, manufacturers have agreed to cap the price at 150 dollars a month if the FDA does decide to approve those.[231]

The TrumpRx platform will act as a middleman that links people who pay for their medications out-of-pocket (cash-pay patients) with pharmaceutical companies'

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[225]Nguyen and Chase, "Live Updates: Tracking Insurance Coverage."
[226] Jack Goldberg, "Federal Update: Trump Administration Announces Deal to Bring Most-Favored-Nation Pricing to GLP-1s | AMCP.Org," November 12, 2025, https://www.amcp.org/letters-statements-analysis/federal-update-trump-administration-announces-deal-bring-most-favored-nation-pricing-glp-1s.
[227] Goldberg, "Federal Update."
[228] Goldberg, "Federal Update."
[229] "Nov. 14, 2025: National Advocacy Update," American Medical Association, November 14, 2025, https://www.ama-assn.org/health-care-advocacy/advocacy-update/nov-14-2025-national-advocacy-update.
[230] "Glucagon-Like Peptide-1 Receptor Agonists: A Pharmacy Perspective on Insurance Coverage and Medication Access," accessed December 4, 2025, https://info.primarycare.hms.harvard.edu/perspectives/articles/glp-1-pharmacy-perspective.
[231] American Medical Association, "Nov. 14, 2025."

direct-to-consumer discount programs.[232] Once connected, the drug manufacturers will help those patients get their medications at the special TrumpRx discounted price.[233] Also, the Centers for Medicare and Medicaid Services (CMS) will now, for the first time, cover GLP-1 drugs for obesity in certain high-risk patients.[234] Previously, coverage was mostly restricted to patients with diabetes or significant comorbidities.[235] However now, they will be available to patients with a 50 dollar co-pay.[236] Some details on eligibility remain: Medicare and Medicaid coverage targets patients with high metabolic or cardiovascular risk, but not everyone who is overweight will be included.

However, President Biden had proposed coverage for Zepbound and Wegovy for those who are obese in November 2024.[237] President Trump has decided to not cover the medications for these individuals as of April 2025.[238] While coverage will remain for those who have Type II Diabetes, heart disease, and other comorbidities, patients without these conditions will still be excluded.[239] Additionally, the US Department of Health and Human Services announced in January of 2025 that semaglutide would be one of fifteen drugs to undergo price negotiations for Medicare Part D beneficiaries under the Inflation Reduction Act. These negotiations are set to conclude by the end of 2025, have the prices announced in 2026, and enacted in 2027, ideally

[232] Goldberg, "Federal Update."
[233] Goldberg, "Federal Update."
[234] Goldberg, "Federal Update."
[235] Goldberg, "Federal Update."
[236] Goldberg, "Federal Update."
[237] "Biden-Harris Administration Announces Medicare Advantage and Medicare Part D Prescription Drug Proposals That Aim to Improve Care and Access for Enrollees | CMS," accessed October 6, 2025, https://www.cms.gov/newsroom/press-releases/biden-harris-administration-announces-medicare-advantage-and-medicare-part-d-prescription-drug.
[238] "2025-06008.Pdf," n.d., accessed October 6, 2025, https://public-inspection.federalregister.gov/2025-06008.pdf.
[239] "2025-06008.Pdf."

setting a price ceiling for semaglutide.[240] One possible barrier for this is President Trump's executive order signed in April 2025, directing Secretary RFK Jr. to implement a delay negotiation of small molecule drugs to eleven years after FDA approval, a four year increase from the seven years under current law.[241] This would entail not permitting semaglutide price negotiation until the end of 2028. While the Inflation Reduction Act has not been directly affected as of yet, it is very possible and likely under this current administration.

GLP-1 coverage expansion, particularly for anti-obesity medications, enjoys broad bipartisan support among the public, a stark difference from the opinion of the Secretary of Health and Human Services - Robert F. Kennedy.[242] Recent surveys indicate approximately 70% of Republicans (including 68% of Trump voters) support Medicare and Medicaid coverage for these drugs, as do most Democrats.[243] However, differences remain in how coverage is implemented at state levels. States vary widely in willingness to cover GLP-1s for obesity in Medicaid and state employee plans, influenced primarily by budget constraints and local pressure.

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[240] "HHS Announces 15 Additional Drugs Selected for Medicare Drug Price Negotiations in Continued Effort to Lower Prescription Drug Costs for Seniors | CMS," accessed October 6, 2025, https://www.cms.gov/newsroom/press-releases/hhs-announces-15-additional-drugs-selected-medicare-drug-price-negotiations-continued-effort-lower.

[241] Executive Orders, "Lowering Drug Prices by Once Again Putting Americans First," The White House, April 15, 2025, https://www.whitehouse.gov/presidential-actions/2025/04/lowering-drug-prices-by-once-again-putting-americans-first/.

[242] "DPAC," accessed November 18, 2025, https://www.diabetespac.org/blog/americans-agree-on-need-for-access-to-glp-1s---will-policymakers-follow.

[243] "DPAC."

Analysis of Foreign Healthcare Systems

Obesity and Type-2 Diabetes Prevalence by Country

Figure 8 displays adult obesity rate differences between countries according to World Health Organization (WHO) data in 2022.[244] The adult obesity rate in the U.S. was 42.9%, which is higher than that of any European or Asian high-income country. For reference, the European country with the largest GLP-1 market is Germany, and the WHO reports Germany's 2022 obesity rate to be 24.2%. While countries in western Asia and northern Africa, such as Kuwait and Egypt, reported higher obesity rates (45.3% and 43%, respectively) than the U.S. in 2022, the U.S. has a significantly higher obesity prevalence than fellow high-income countries, such as Japan, which reported a 2022 obesity rate of 4.9%, one of the lowest in the world. The elevated prevalence of obesity in the U.S. can be explained by diet and lifestyle factors, such as consumption of sweetened beverages and processed foods.[245] High income countries with lower obesity prevalence report, on average, healthier lifestyles that can be explained by myriad factors, ranging from cultural beliefs to geography and public health awareness.[246]

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[244] "Obesity Rates by Country," *World Population Review*, accessed October 6, 2025, https://worldpopulationreview.com/country-rankings/obesity-rates-by-country.
[245] Jamy Ard et al., "Tackling the Complexity of Obesity in the US through Adaptation of Public Health Strategies," *Frontiers in Public Health* 13 (April 1, 2025): 1477401, https://doi.org/10.3389/fpubh.2025.1477401
[246] Tara Templin et al., "The Overweight and Obesity Transition from the Wealthy to the Poor in Low- and Middle-Income Countries: A Survey of Household Data from 103 Countries," *PLoS Medicine* 16, no. 11 (2019): e1002968, https://doi.org/10.1371/journal.pmed.1002968.

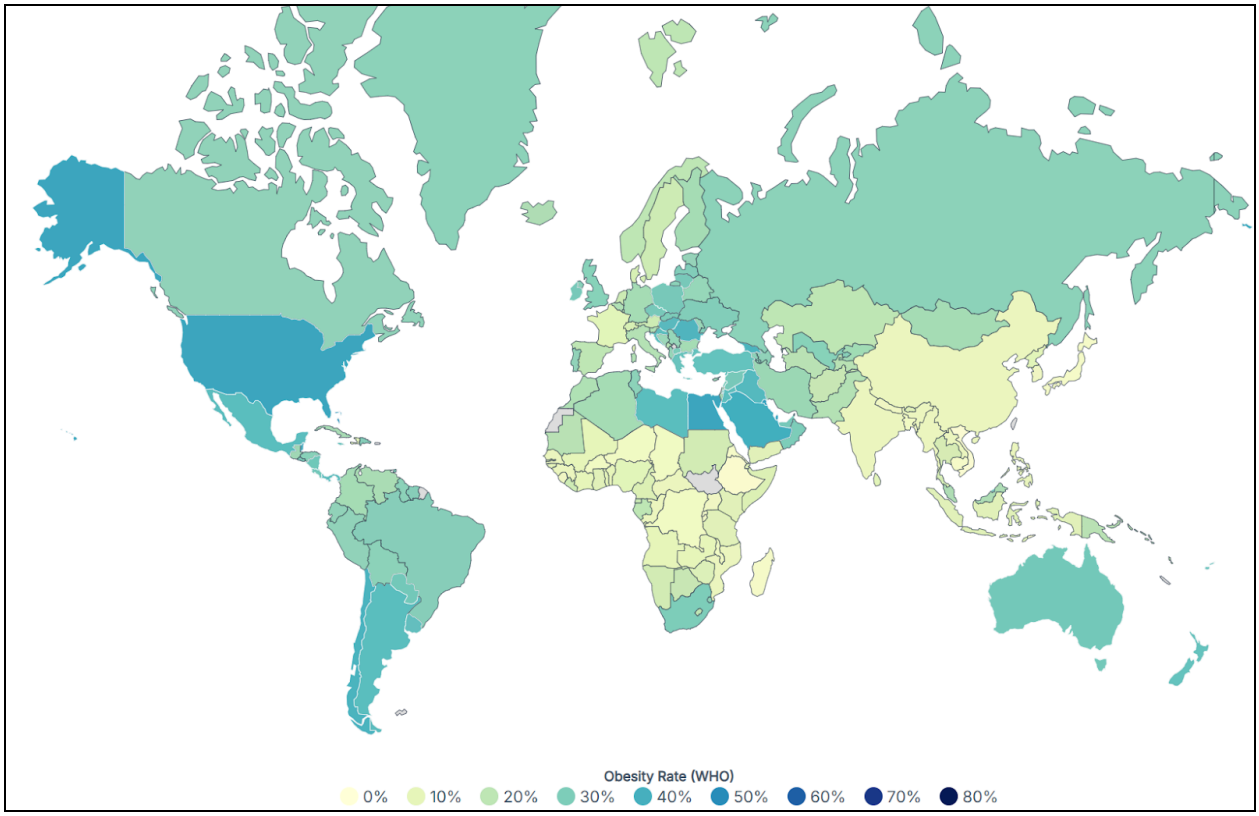


Figure 8: Global adult obesity rates in 2022, disaggregated by country, World Health Organization, 2022

Cultural and Policy Differences Affecting GLP-1 Access

Epidemiology of type-2 diabetes shows similar trends: the U.S. reports higher type-2 diabetes prevalence than many wealthy European and Asian countries, though these disparities are less pronounced than that of type-2 diabetes. Nevertheless, the U.S. reports some of the highest obesity and type-2 diabetes rates in the entire world. Given the size of the U.S. GLP-1 market and the prevalence of obesity and diabetes compared to other countries, it is not surprising that GLP-1 medications are widely accepted for obesity and diabetes management. Within the European Union, however, attitudes towards obesity treatment can vary, with many countries advocating for lifestyle changes over medication. Similarly, in eastern Asia, cultural

attitudes towards obesity and medication affect the perception and usage of GLP-1. These cultural and social beliefs manifest as the unique policies countries adopt regarding GLP-1 access, pricing, and eligibility.

Country Selection and Scope of Analysis

For this report, analysis of international GLP-1 policy will be restricted to countries in which GLP-1s are feasibly accessible. GLP-1 availability varies dramatically across North America, Europe, and Asia. In higher income countries, diseases associated with sedentary lifestyle (e.g., obesity and diabetes) dominate the public health landscape more generally than in lower income countries, where communicative diseases (e.g., malaria, HIV/AIDS, and tuberculosis) are the primary concern of public health intervention.[247] Differences in local healthcare policies, regulatory approvals, and distribution networks—major factors that explain large gaps in GLP-1 access across the world—can be related to a country's income and the allocation of its public health dollars according to the most relevant and prominent adverse health outcomes in their unique social, cultural, and political contexts. Thus, GLP-1s are generally more accessible in higher income countries, though access within a country can vary dramatically depending on socioeconomic status and other demographic factors.[248] This analysis focuses on the following countries to better understand the beliefs and policies regarding GLP-1s beyond the United States: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Italy, Israel, Japan, and the UK.[249]

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[247] Ram Kumar Garg, "The Alarming Rise of Lifestyle Diseases and Their Impact on Public Health: A Comprehensive Overview and Strategies for Overcoming the Epidemic," *Journal of Research in Medical Sciences* 30, no. 1 (January 30, 2025), https://doi.org/10.4103/jrms.jrms_54_24.
[248] "Global Availability of GLP-1 Medications." *GLP-1 Remedy*. Accessed October 6, 2025. https://GLP-1remedy.com/global-availability-of-glp-1-medications/.
[249] Dellgren et al.

Reimbursement and Coverage Policies Across Countries

All countries selected for this analysis use a reimbursement pricing scheme (i.e., the methods and policies used by healthcare payers to cover the costs of medications) to fund semaglutide GLP-1s (e.g., Ozempic and Novo Nordisk) or similar receptor agonists for at least *some* individuals with type-2 diabetes; however, each country's reimbursement eligibility criteria varies.

Nine of the 13 selected countries deny reimbursement of GLP-1 medications for weight management, such as Australia, Germany, Israel, and Italy. The rationale for denying reimbursement is almost entirely cost-based, though it draws on core beliefs about whether medications should be used to manage weight rather than lifestyle or diet change. In Germany, GLP-1s for weight management are placed into the same category as pills taken for impotency or baldness, rendering weight management issues a lifestyle choice, rather than an adverse health outcome necessitating institutional support. The table below describes the obesity and diabetes reimbursement and coverage plans for the 13 selected countries. Notably, the only countries for which coverage varies regionally are the U.S. and Canada.

Country	Obesity Coverage	Notes	Diabetes Coverage	Notes
Australia	No reimbursement	None noted	Covered	Combination therapy
Canada	No reimbursement	None noted	Covered	NOT in combination with another GLP-1 or

				DPP-4
Denmark	No reimbursement	Up to 50% of the drug used to be covered, but the policy ended due to costs	Covered	None noted
Finland	No reimbursement	None noted	Covered	Doctor's position
France	Covered	BMI must be > 35 for an individual under the age of 65	Covered	Step therapy; combination therapy
Germany	No reimbursement		Covered	Label indications
Iceland	Covered	BMI must be > 45 or > 35 with a severe comorbidity	Covered	Step therapy
Israel	No reimbursement	None noted	Trulicity covered, but not Ozempic	Trulicity covered when used according to label indications
Italy	No reimbursement	None noted	Covered	None noted
Japan	Covered	BMI must be > 35 or > 27 with two or more obesity-related	Covered	None noted

		health issues		
Netherlands	No reimbursement	Recently reassessed this policy and kept position firm	Covered	Step therapy or combination therapy
United Kingdom	Covered	BMI must be > 35 or > 27 with one obesity-related health condition	Covered	Label indications
United States	Covered in 9 state Medicaid plans, though there is no national reimbursement policy	None noted	Covered under most state Medicare and Medicaid plans	Conditions vary by state and plan

Table 2: Obesity and diabetes coverage by country, Dellgren et al., 2024.

Cost as a Determinant of GLP-1 Access

Almost all of the countries that do not reimburse obesity do so because of cost restraints. Total cost of GLP-1 reimbursement has been both an explicit justification, as in the recommendation by the Canadian Agency for Drugs and Technologies in Health, and a worry for policy makers. Furthermore, in 2023, German politicians refused to consider changing their laws to allow reimbursement; one lawmaker anonymously cited concerns about the cost for an already over-stretched health budget. Danish Health Ministry calculations revealed that covering

Wegovy, a GLP-1 medication tailored for weight management, would exceed $4 billion each year. Therefore, while beliefs regarding medication, obesity, and lifestyle do affect policies, such as those in France, which allow reimbursement only when accompanied by lifestyle changes, cost is the primary explanation for differential GLP-1 access and coverage.

Commercial Pricing Differences

Despite the shared concern over cost, each country has a different commercial price for GLP-1s. Despite the fact that marginal production costs are estimated to be as low as $5, Wegovy commercial prices can vary as much as 5-times as much from country to country. The table below breaks down these prices for Wegovy in the 13 selected countries.

Country	Price, converted to USD
Australia	No data
Canada	$363.51
Denmark	$338.76
France	No data
Finland	$490.83
Germany	$328
Iceland	$316.88
Israel	$326.45
Italy	No data

Japan	$283.12
Netherlands	$363.05
United Kingdom	$375.87
United States	$1,349.02
Production cost estimate (0.77 mg injection)	Estimated between $0.89 and $4.73

Table 3: Commercial list price of Wegovy (semaglutide 2.4mg FlexTouch, 4- week supply), Dellgren et al., 2024.

Of note, the U.S. charges significantly more for GLP-1s like Ozempic and Wegovy than other high-income countries. Furthermore, while many countries like France will use federal funding to reimburse GLP-1s for particular purposes, GLP-1 coverage in the U.S. varies dramatically by state. Across all selected countries, however, GLP-1s are expensive and require continued funding to meet demand while ensuring everyone who needs access to GLP-1s has the opportunity and resources to take the medication. Future research should explore how middle- and low-income countries compare to high income countries like the U.S. regarding GLP-1 access and need—is obesity as prevalent as an issue? These questions must be answered by referencing the cultural, social, and political contexts of different countries to best understand the dynamics around GLP-1s on not just a financial level, but also an economic one.

Case Study 1: Denmark

The most popular GLP-1 agonists on the market, Ozempic and Wegovy, were developed by Novo Nordisk, a Danish company. Initially, these drugs were covered by the Danish

government through its socialized healthcare system.[250] Though GLP-1s were synthesized by Danish scientists and used to treat target patients years before the sale of Ozempic in the U.S.,[251] the prescription of GLP-1s for weight management, as opposed to type-2 diabetes and other chronic conditions exclusively, transformed the GLP-1 market internationally and rendered Novo Nordisk's products highly sought-after drugs that benefited the entire country. Indeed, Novo Nordisk's market capitalization of $355 billion is near the value of Denmark's GDP.[252] Despite this growth, in 2024, the Danish Medicines Agency adjusted its reimbursement model for GLP-1s, ending the 50% reimbursement of GLP-1s in favor of a strict reimbursement policy to reduce costs.[253] In the U.S., meanwhile, policy is shifting towards an increasing willingness for Medicare and Medicaid to cover GLP-1s for more Americans.

Covering GLP-1 medications like Wegovy and Ozempic, once patients started being prescribed these medications for weight loss, began to take up nearly 20% of Denmark's regional drug budget in 2023, leading officials to consider ending the use of government funds for GLP-1 reimbursement.[254] The Danish Medicines Agency conducted analyses later that year which assessed the cost of Wegovy and other GLP-1s for the government. They found that reimbursing Wegovy for roughly 900,000 Danes with a Body Mass Index (BMI) of 30 or above would cost $3.5-$4 billion every year, which suggests the public healthcare system of Denmark would pay

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[250] Arthur Allen, "Ozempic, Novo Nordisk Lower Prices in Denmark," *Fortune*, August 7, 2024, accessed October 12, 2025, https://fortune.com/well/2024/08/07/ozempic-novo-nordisk-lower-prices-denmark/.
[251] Daniel J. Drucker et al., "Discovery, Characterization, and Clinical Development of the Glucagon-Like Peptides," *The Journal of Clinical Investigation* 127, no. 12 (2017): 4217–27, https://doi.org/10.1172/JCI97233.
[252] Worldometer, "Denmark GDP 2023," *Worldometer*, 2023, accessed October 12, 2025, https://www.worldometers.info/gdp/denmark-.
[253] Johan L. Dellgren, Govind Persad, and Ezekiel J. Emanuel, "International Coverage of GLP-1 Receptor Agonists: A Review and Ethical Analysis of Discordant Approaches," *The Lancet* 404, no. 10455 (2024): 902–6, https://doi.org/10.1016/S0140-6736(24)01356-4.
[254] Worldometer.

around $375 per patient per month.[255] These findings underscored the immense, and rising, costs of funding GLP-1 medications.

Even after Novo Nordisk cut Ozempic prices by almost one-third in Denmark, from $188 to $125 per month after public reimbursement negotiations, the Danish Medicines Agency still saw a need to cut down costs, especially given that doctors were prescribing expensive GLP-1s like Novo Nordisk's Ozempic and Wegovy presumably because they are produced in Denmark.[256] Treatment alternatives like SGLT-2 medications were significantly cheaper than Ozempic and Wegovy, but doctors were generally not offering these alternatives and were instead prescribing Wegovy and Ozempic. In 2023, six out of 10 patients who started treatment with a GLP-1 analogue with supplements in 2023 had not previously tried an SGLT-2 inhibitor, which, as a report from the Danish Medicines Agency details, "is the most obvious treatment alternative to GLP-1 analogues."[257] The same trend was observed in 2022, where seven out of 10 patients who started on a GLP-1 analogue, such as Ozempic, had not first tried a cheaper SGLT-2 inhibitor alternative.[258]

To meet this challenge and cut costs, in May 2024, the Danish Medicines Agency announced its plan to strictly regulate the reimbursement of GLP-1s through a policy in which GLP-1s for weight management would not be reimbursed, and that only those using GLP-1 for chronic disease management and for whom other, cheaper alternatives have been ineffective

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[255] Reuters, "Wegovy Reimbursement Would Cost Denmark up to $4 Billion Each Year: Ministry," *ETHealthworld (The Economic Times)*, August 29, 2023, accessed October 12, 2025, https://health.economictimes.indiatimes.com/news/pharma/wegovy-reimbursement-would-cost-denmark-up-to-4-bln-each-year-ministry/103165656.
[256] Allen.
[257] Danish Medicines Agency, "De Fleste Typer Diabetesmedicin Bevarer Generelt Tilskud, Men Visse GLP-1-Analoger Får Strammere Klausul," *Lægemiddelstyrelsen*, March 2024, accessed October 12, 2025, https://laegemiddelstyrelsen.dk/da/nyheder/2024/de-fleste-typer-diabetesmedicin-bevarer-generelt-tilskud,-men-visse-glp-1-analoger-faar-strammere-klausul/.
[258] Danish Medicines Agency.

would be able to purchase reimbursed GLP-1s.[259] To justify their policy of reimbursement change despite the immense popularity of Ozempic and Wenovy, the Danish Medicines Agency emphasized that there will be an immediate economic gain in the form of reduced medical expenses because the prices of the medicine have been lowered. The Agency believes that "it is most rational to start treatment with the cheaper alternatives, and only those patients who cannot be treated with these should switch to treatment with GLP-1 medication."[260]

This new policy has forced patients who otherwise depended on publicly-funded GLP-1s to seek out different treatment plans with a focus on taking alternative drugs. This change in policy leaves Novo Nordisk with fewer customers and less control over general economic trends in Denmark. Novo Nordisk is disadvantaged in this case, which in turn advantages U.S.-based GLP-1 manufacturers, such as Hims & Hers.

Novo Nordisk believes the FDA, despite ending the GLP-1 shortage, is allowing the sale of compounded alternatives to Ozempic and Wegovy. The company is eager to convert every patient on a compounded drug to its own brand. This has sparked a conflict that some argue reflects the Trump Administration's desire to acquire Greenland from Denmark.[261] Indeed, the success of Hims & Hers and other U.S. GLP-1-producers stilts the growth of Novo Nordisk. Since Novo Nordisk makes up a large portion of the Danish economy, the weakening of Novo Nordisk has potential to pressure the Danish government to relinquish control.

Though the U.S. and Denmark are facing the same challenge of high cost of GLP-1 reimbursement, each respective government's policymakers are approaching the question of

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[259] Danish Medicines Agency.
[260] Danish Medicines Agency.
[261] Seth Joseph, "How GLP-1 Policy Fits into Trump's Greenland Strategy—and Five Other Health-Tech Developments," *Forbes*, March 18, 2025, accessed October 12, 2025, https://www.forbes.com/sites/sethjoseph/2025/03/18/how-glp-1-policy-fits-into-trumps-greenland-strategy-and-five-other-health-tech-developments/.

coverage expansion differently. Both countries battle issues regarding GLP-1 access and the tension between pharmaceutical company interests and public health. Underpinning these trends is foreign policy dynamics between Denmark and the U.S. which alter the ways in which the FDA, Novo Nordisk, and U.S. GLP-1 manufacturers engage.

Case Study 2: France

Though France continues to cover GLP-1s for select patients with diabetes and type-2 diabetes, GLP-1 policy has become increasingly more complex. In November 2024, the French government enacted a policy in which reimbursement of Ozempic, Victoza, and Trulicity would be contingent on a physician providing proof of patient compliance.[262] This was an effort to reduce the cost of covering GLP-1s, informed by the finding that "a third of current reimbursements for drugs in the GLP-1 class [are made] outside reimbursable therapeutic indications (ITR)," according to the French Ministry of Health.[263] Nevertheless, access to GLP-1s for those who need them in France is expanding. While new documentation is required for the prescription of a GLP-1, the French government announced in May 2025 that general healthcare practitioners would be able to prescribe GLP-1s, not just specialists in endocrinology, diabetology, and nutrition, which made access difficult for patients.[264] This new policy, finalized in August 2025, declares that patients with a body mass index (BMI) of 35 or higher who have not responded to other treatments would be eligible for GLP-1 prescription, increasing access.

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[262] Alexandra Chopard, "La délivrance des analogues du GLP-1 se complexifie," *Le Pharmacien de France*, January 17, 2025, https://lepharmaciendefrance.fr/la-delivrance-des-analogues-du-glp-1-se-complexifie/.
[263] Agence France-Presse (or *Le Monde* staff), "French GPs can now prescribe anti-obesity drugs, but not everyone is convinced," *Le Monde* (English), August 27, 2025, https://www.lemonde.fr/en/france/article/2025/08/27/french-gps-can-now-prescribe-anti-obesity-drugs-but-not-everyone-is-convinced_6744750_7.html.
[264] Agence France-Presse (or *Le Monde* staff).

However, that does not mean a patient is eligible for reimbursement. Reimbursement and cost is contingent on a patient's needs and status.[265] If a patient meets strict eligibility criteria, such as the requirement for a patient to integrate changes to diet and exercise into their lifestyles, the government will typically cover 65%, though reimbursement functions on a case-by-case basis.[266] Wegovy is typically only available through private doctors and is not covered by the French national insurance system, Assurance Maladie. Most (roughly 95%) French citizens use private insurance to supplement the national program.[267] If privately prescribed, Wegovy costs up to $400 USD per month.[268] Saxenda (liraglutide), a non-semaglutide-based GLP-1, is more widely available, but public support is limited to strict cases based on eligibility rules.[269] Without public support, Saxenda costs upwards of $350 USD.[270] Ozempic is approved only for the treatment of diabetes. Some doctors may prescribe it off-label for weight loss, but it is not typically covered in this case. Ozempic costs around $115 USD per pen.[271] France's efforts to make GLP-1s more accessible while preventing misuse and overprescription by ensuring a patient has tried other medications and is incorporating changes to diet and exercise into their lives is paired with country-wide initiatives to combat obesity. "Plan obésité" is an effort started in 2025 to address obesity through educational, health, sports, and medical initiatives, bringing the focus away from prescribing more GLP-1s and shifting towards holistic health and access,

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[265] MobiDoctor, "GLP-1 weight loss in Europe: Eligibility, costs & access," MobiDoctor blog, (webpage), accessed October 21, 2025, https://www.mobidoctor.eu/blog/who-qualifies-for-medical-weight-loss-with-glp-1s-in-europe?utm.
[266] Haute Autorité de Santé, "WEGOVY (semaglutide) — Obesity," HAS (English page), (publication page), accessed October 21, 2025, https://www.has-sante.fr/jcms/p_3562976/en/wegovy-semaglutide-obesity. Haute Autorité de Santé.
[267] European Observatory on Health Systems and Policies, "France: Health System Information," accessed October 26, 2025, https://eurohealthobservatory.who.int/countries/france.
[268] MobiDoctor.
[269] MobiDoctor.
[270] MobiDoctor.
[271] Slim4Medoc, "Semaglutide / Ozempic en France 2025," Slim4Medoc (webpage), accessed October 21, 2025, https://slim4medoc.com/semaglutide-ozempic-en-france-2025/.

which the U.S. could learn from as it develops its own policies around a medication used to treat obesity like GLP-1s.[272]

Case Study 3: Iceland

Iceland, like France, has seen a significant increase in GLP-1 usage over the last few years. This can be explained largely by the growing prevalence of obesity and type-2 diabetes in Iceland. Between 2019 and 2024, the number of GLP-1 medication packages sold in Iceland increased by 2266.7%, from 3,000 to 71,000..[273] The Icelandic government's GLP-1 policy has been shaped by its desire to address the increase in obesity and type-2 diabetes prevalence.

GLP-1s joined the list of reimbursed medications in Iceland's National Health Insurance plan in 2023. Additionally, over time, the criteria for prescribing GLP-1s has expanded, allowing more patients with type-2 diabetes and obesity to receive treatment. Of note, Iceland is one of very few European countries to cover GLP-1 prescription for children with obesity, though few children are prescribed GLP-1s as many pediatricians and other practitioners are hesitant to prescribe the drug unless absolutely critical to a child's livelihood.[274] In lieu of prescription, practitioners emphasize the importance of healthy habits with their patients.[275] If a semaglutide like Wegovy is prescribed, the reimbursed cost for a patient is roughly $320 per month.[276] To be prescribed and reimbursed to treat obesity, a patient must report a BMI greater than 45 or a BMI

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[272] "Un 'plan obésité' pour la France prévu par le gouvernement à la rentrée," *Le Monde* (French), May 26, 2025, https://www.lemonde.fr/societe/article/2025/05/26/un-plan-obesite-pour-la-france-prevu-par-le-gouvernement-a-la-rentree_6608636_3224.html.
[273] Government of Iceland / island.is, "Costs of diabetes and weight-control medicines are multiplying," island.is (news), December 4, 2023, https://island.is/en/o/iceland-health/news/2023-12-04-costs-of-diabetes-and-weight-control-medicines-are-multiplying?utm_source.
[274] Skemman (Icelandic repository), "(record)," Skemman, accessed October 21, 2025, https://skemman.is/handle/1946/50533?locale=en.
[275] Skemman (Icelandic repository).
[276] Johan L. Dellgren, Govind Persad, and Ezekiel J. Emanuel, "International coverage of GLP-1 receptor agonists: a review and ethical analysis of discordant approaches," *Lancet* 404, no. 10455 (August 31, 2024): 902–906, doi:10.1016/S0140-6736(24)01356-4.

greater than 35 alongside a comorbidity like cardiovascular disease.[277] For a patient to be prescribed GLP-1 treatment for type-2 diabetes, they must follow a step therapy treatment plan, where the National Health Insurance plan requires a patient to make specific steps before taking a GLP-1 to treat their concerns.[278] A patient must show that they have tried and not found success with other anti-diabetic treatments, in addition to providing prior authorization and necessary documentation to verify their need.[279]

The rise in GLP-1 prescription has not been without a rise in costs, though. In 2018, the cost component for diabetes and weight control medications was $1.3 million, which has now reached $15.6 million for Iceland. Step therapy and the BMI eligibility bounds established by the National Health Insurance plan for reimbursement reflect an effort to reduce cost. The Icelandic government continues to monitor GLP-1 usage, cost, and necessity to inform policy.

Case Study 4: Japan

Just as social media posts promoting GLP-1s have spread across the U.S. and Europe, Japan has experienced an increase in English-language advertisements, social media posts, and sponsorships for GLP-1s such as Ozempic, which has contributed to the country's demand specifically among international residents and tourists.[280]

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[277] Johan L. Dellgren, Govind Persad, and Ezekiel J. Emanuel.
[278] Johan L. Dellgren, Govind Persad, and Ezekiel J. Emanuel..
[279] Government of Iceland / island.is, "Costs of diabetes and weight-control medicines are multiplying," island.is, accessed October 21, 2025, https://island.is/en/o/iceland-health/news/2023-12-04-costs-of-diabetes-and-weight-control-medicines-are-multiplying?utm_source.
[280] Japan Today, "Wondering about Ozempic in Japan? Learn which GLP-1 drugs are approved, how much they cost, where to access them," Japan Today (health features), (date unknown), https://japantoday.com/category/features/health/wondering-about-ozempic-in-japan-learn-which-glp-1-drugs-are-approved-how-much-they-cost-where-to-access-them.

While the Japanese government does cover these medications, it is only under strict medical eligibility, which is a part of a greater effort to reduce off-label prescription and misuse, which has contributed to international supply issues. [281]

In 2020, the Japanese government approved Ozempic to be prescribed for type-2 diabetes patients, though some private doctors did prescribe the medication off-label for weight loss purposes. This trend of subsidizing and approving GLP-1s for type-2 diabetes management, as opposed to weight loss, has characterized the Japanese government's attitudes towards GLPs, which affects access. Beyond Ozempic and Mounjaro, JRybelsus (oral semaglutide), Saxenda (liraglutide), Trulicity (dulaglutide) and Byetta/Bydureon (exenatide) are available, though typically only for diabetes management. Wegovy, on the other hand, is the only injectable medication approved for the treatment of obesity and has been available since 2023. Japan's National Health Insurance covers Wegovy only for patients who meet the BMI criteria: an individual must have a BMI of 35 and above, or 27 and above with a comorbidity, such as high blood pressure. Across nearly all drugs available, Japan's National Health Insurance usually covers 70% of drug costs, meaning patients pay roughly 30%. This does not apply to scenarios in which an individual is prescribed a GLP-1 through a private clinic or off-label. The National Health Insurance copayment for Ozempic in Japan is $11–$44 a month. The Wegovy copayment is typically more expensive, sitting between $15–85 yen a month.[282]

Beyond strict eligibility requirements, there have been issues with GLP-1 shortages in Japan due to off-label prescription, which has caused the government to double-down on off-label prescription and use of the drug for weight loss purposes, as this reduces access for

[281] Japan Today.
[282] Japan Today.

patients who need the medication to manage type-2 diabetes and obesity. Private clinics that prescribe GLP-1s for weight loss intentionally sell the medication at highly inflated prices, limiting GLP-1 access to all who wish to take the drug, whether due to financial barriers or supply challenges. The Ministry of Health, Labor, and Welfare has publicly stated that GLP-1s must not be used off-label for weight loss, a message echoed by both the National Diabetes Association and Japan Medical Association.[283]

In Japan, GLP-1 access is also affected by the stage in the treatment plan at which GLP-1s can be prescribed. GLP-1s are typically the third step in a patient's treatment plan, following failure to find success in diet and exercise changes and oral medication, and it is up to a provider's discretion as to whether or not to prescribe GLP-1s for type-2 diabetes. Due to strict eligibility requirements, GLP-1s are not widely available; however, this has not posed a major problem for Japanese society because of the low rates of obesity and type-2 diabetes in Japan. In Japan, only 4.5% of civilians are obese and 25% are overweight, which is significantly below the prevalence in other high-income countries.[284] Similar to France, Japan focuses its resources on improving its citizens' lifestyles by implementing health education programs, establishing dietary recommendations, and organizing community wellness events.[285]

Case Study 5: United Kingdom

[283] Interac Network, "Off-label use of GLP-1 drugs like Ozempic for weight loss in Japan," InteracNetwork.com (webpage), accessed October 21, 2025, https://interacnetwork.com/off-label-use-of-glp-1-drugs-like-ozempic-for-weight-loss-in-japan/.
[284] World Health Organization, "Japan — country profile," WHO data portal, https://data.who.int/countries/392.
[285] P. S. (Nature staff), "Expanding options for tackling obesity in Japan," *Nature* (Scitable / Careers & features), 2023, https://www.nature.com/articles/d42473-023-00332-0.

Unlike in Japan, the majority (64%, as of 2022) of the adult population in the United Kingdom is overweight or obese.[286] This has caused demand for GLP-1s to skyrocket; however, supply has not yet met demand.

A select number of GLP-1s are licensed in the United Kingdom, meaning that they have been carefully assessed and approved for select uses by the UK Medicines Regulator and the Medicines and Healthcare products Regulatory Agency (MHRA). GLP-1s are licensed exclusively for management of type-2 diabetes, obesity, or another relevant medical disorder.[287] Ozempic, Rybelsus, Mounjaro, and select brands of liraglutide are licensed to treat diabetes alongside a reduced calorie diet and exercise—Wegovy is not licensed in this circumstance, according to the MHRA. Wegovy, Mounjaro, and select brands of liraglutide are licensed for weight management alongside a reduced calorie diet and exercise in people with obesity, or people who are overweight with weight-related health problems. Only some GLP-1 medications are licensed on the United Kingdom's National Health Service (NHS), which varies depending on location and whether an individual is seeking treatment for weight loss or diabetes management. In England, some integrated care boards (ICBs)—partnerships that bring together NHS organisations, local authorities and others—have digital referral systems, while others rely on faxing forms, which limits infrastructure to integrate GLP-1 prescription into treatment plans. Furthermore, there is no requirement for ICBs to offer GLP-1s, and many fail to expand their offerings because of capacity limits.[288]

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[286] NHS Digital, *Health Survey for England 2022, Part 2* (statistical release / dataset), 2022, https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2022-part-2.
[287] GOV.UK, "GLP-1 medicines for weight loss and diabetes: what you need to know," UK government guidance (webpage), accessed October 21, 2025, https://www.gov.uk/government/publications/glp-1-medicines-for-weight-loss-and-diabetes-what-you-need-to-know/glp-1-medicines-for-weight-loss-and-diabetes-what-you-need-to-know.
[288] The King's Fund, "GLP-1 drugs on the NHS: can and should we roll them out at scale?" The King's Fund blog/analysis, (date on page), https://www.kingsfund.org.uk/insight-and-analysis/blogs/glp-1-drugs-nhs-should-roll-them-out-at-scale.

The United Kingdom also faces the challenge of a fragmented online diet and exercise program, which fails to be integrated into the systems used by general practitioners.[289] This means that there fails to be a comprehensive infrastructure for promoting healthy lifestyle either before a patient begins a GLP-1, or during their treatment plan, meaning patients overrely on GLP-1 prescription. Many patients seek the ease of purchasing an off-label GLP-1 medication over working with a provider to integrate lifestyle changes and receive a proper prescription for taking GLP-1 medication.[290]

Access to GLP-1s in the United Kingdom under the NHS is also due to financial burden. The NHS reported that, if all eligible patients were to step forward and seven out of 10 were to begin taking tirzepatides like Mounjaro (the only GLP-1 licensed to treat both diabetes and obesity), the cost in just the first year alone would reach over one-third of the NHS budget.[291] Nevertheless, while the United Kingdom faces access and affordability-related concerns for GLP-1s, a commercial, one-month supply of a semaglutide medication like Wegovy would be roughly $375.[292]

Synthesis: Cross-Country GLP-1 Coverage and Access

[289] The King's Fund.
[290] The King's Fund.
[291] NICE, *TA1026 — Supporting documentation 5* (PDF supporting documentation for appraisal guidance), https://www.nice.org.uk/guidance/ta1026/documents/supporting-documentation-5.
[292] Johan L. Dellgren, Govind Persad, and Ezekiel J. Emanuel.

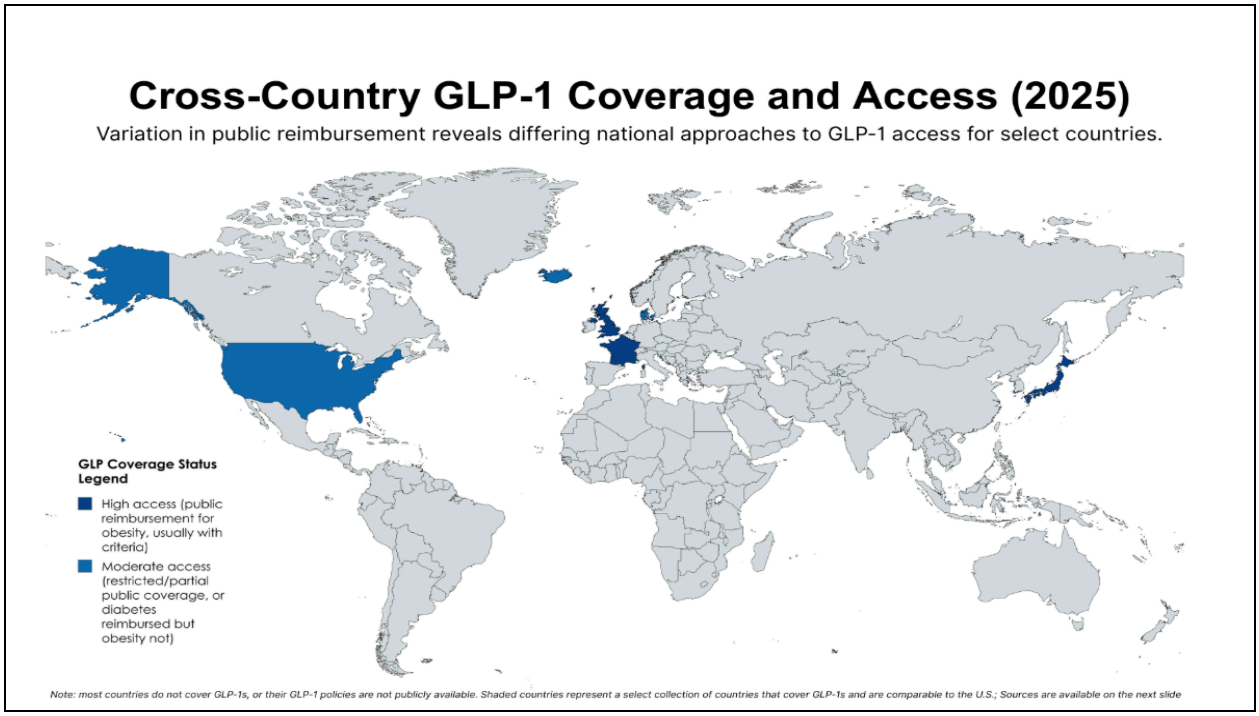


Figure 9: Cross-Country GLP-1 Coverage and Access (2025)

Each country has a unique approach to GLP-1 policy, impacting populations differentially.

Country	Key Policy	Approach	Population Affected	Assessment
Denmark	Covers Ozempic (T2D only) — not Wegovy	Increasing restrictions to reduce too much government spending on GLP-1s.	80% of population with Type-2 diabetes reimbursed	Needs stronger public integration
France	2024–25 reforms: GP prescribing + compliance verification	Expanding access while maintaining strict eligibility criteria.	65% reimbursed if eligible	Strong model balancing cost & access
Iceland	2023 National Health Insurance coverage	Ensuring comprehensive coverage for those who need the medication.	100% reimbursed if their BMI > 35 & comorbidity present	Progressive & data-driven
Japan	2023 NHI coverage for BMI ≥ 35 (27 + comorbidity)	Focusing on prevention and proper usage rather than coverage expansion.	5% of the obese population reimbursed	Effective within low-obesity context
UK	2024 approval for Wegovy on NHS (BMI ≥ 35 + CVD)	Working to expand GLP-1 for those who need it while remaining cost-conscious.	64% of overweight adults reimbursed	Ambitious but fiscally strained

Key Takeaways

- France and Iceland have expanded access while introducing cost-containment safeguards, aiming to balance equitable coverage with fiscal responsibility.
- Japan maintains strict medical eligibility criteria; access remains limited but consistent with its low national obesity rate and prevention-oriented health model.
- The United Kingdom and Denmark face fiscal and infrastructure constraints, resulting in coverage primarily focused on diabetes management rather than obesity treatment.

Sources: Avalere Health, Government of Iceland, GOVUK, Haute Autorité de Santé, Japan Today, Le Monde, The Lancet

Figure 10: Analysis of GLP-1 Reimbursement by Country

From these synthesis figures, it appears that high-access coverage of GLP-1s is limited to developed countries in Europe and Asia. In comparison, the United States offers only medium-access coverage of GLP-1s. In terms of reimbursement, France and Iceland have expanded access while introducing cost-containment safeguards, aiming to balance equitable coverage with fiscal responsibility. Japan maintains strict medical eligibility criteria, with access remaining limited but consistent with its low national obesity rate and prevention-oriented health model. Finally, the United Kingdom and Denmark face fiscal and infrastructure constraints, resulting in coverage primarily focused on diabetes management rather than obesity treatment.

Price Capping of GLP-1s

Learning From the Price Capping of Insulin

I. Overview of Legislative Process

The use of insulin to treat diabetes was first discovered by Frederick Banting and Charles Best in 1921, after which they sold the patent to Eli Lilly for $1.[293] They had planned to scale up production as fast as possible in order to treat more people with diabetes.[294] The problem was that by the mid 2010s, the cost of insulin was $110 per vial, then rising to $275 per vial by 2017.[295] This quick rise in price soon priced out many consumers, which became an issue for the nearly 31% of the 37 million Americans with diabetes who use insulin.[296] This led to a growing public sentiment that the price of insulin had risen far too high, with many using social media to call for price caps on insulin beginning in the mid 2010s.[297] The public outcry eventually led to Colorado setting a $100 co-pay cap on insulin in 2019[298], followed by 21 others states by 2023 to also impose a co-pay cap.[299] The Affordable Insulin Now Act was also passed in 2022, which capped private insurance and Medicare insulin co-pays to $35 or 25%, whichever is less, per month.[300] Several grass-root diabetes advocacy organizations endorsed this piece of legislation,

[293] "Diabetes: The Hidden Epidemic A Brief History Of Insulin Prices." Our Community, Our Health. Accessed October 27, 2025. https://healthstreet.program.ufl.edu/wordpress/files/2018/12/The-cost-of-Insulin.pdf.
[294] FDA History Office. "100 Years of Insulin." FDA, FDA, August 9, 2024. https://www.fda.gov/about-fda/fda-history-exhibits/100-years-insulin.
[295] "Diabetes: The Hidden Epidemic A Brief History Of Insulin Prices."
[296] Capitol Ideas. "State Legislation Provides Hope for Rising Insulin Costs." The Council of State Governments, March 31, 2023. https://www.csg.org/2023/03/31/state-legislation-provides-hope-for-rising-insulin-costs/
[297] Sable-Smith, Bram. "Armed With Hashtags, These Activists Made Insulin Prices a Presidential Talking Point." KFF Health News, February 15, 2023. https://kffhealthnews.org/news/article/armed-with-hashtags-these-activists-made-insulin-prices-a-presidential-talking-point/.
[298] Zdanowicz, Christina. "Colorado Is the First State to Cap Skyrocketing Insulin Co-Pays." CNN, May 23, 2019. https://www.cnn.com/2019/05/23/health/colorado-insulin-price-cap-trnd.
[299] Ollove, Michael. "More States Are Doing What They Can to Cap Insulin Costs." Stateline, January 12, 2023. https://stateline.org/2023/01/12/more-states-are-doing-what-they-can-to-cap-insulin-costs/.
[300] Sen. Warnock, Raphael G. [D-GA. "S.3700 - 117th Congress (2021-2022): Affordable Insulin Now Act." Legislation. February 17, 2022. 2022-02-17. https://www.congress.gov/bill/117th-congress/senate-bill/3700.

playing a role in eventually getting the bill turned into a law.[301] Many advocates considered this only a first step as it was a cap on co-pays, not the price caps on insulin that many were asking for, meaning that consumers might not necessarily pay lower costs. In March of 2023, however, Eli Lilly announced that it would adhere to the $35 co-pay cap, reduce the per-unit prices of some products by 70%, and introduce a biosimilar product for a rival manufacturer's insulin product, and Novo Nordisk and Sanofi quickly followed suit.[302] This was strong evidence that the public pressure, legislation and threat of lawsuits by the Federal Trade Commission[303], over the course of roughly a decade, was playing a role in lowering the prices of insulin.

But these major pharmaceuticals had held out against public pressure for so long before giving in that there were signs of other factors that caused the sudden change in stance. In March of 2022, Civica, a non-profit drug company announced that in 2024, they would sell interchangeable biosimilar insulins at $30 per vial, $55 per box of five pens, and would not pay rebates to intermediaries.[304] This directly threatened Eli Lilly and other pharmaceutical companies' business models. On top of that, in 2022, California announced $100 million in funding for research and development of interchangeable biosimilar insulins, with Washington, Maine, and Michigan also expressing interest in similar ventures.[305] Competition was entering the insulin market and forcing these companies to lower their prices. The previously mentioned

[301] "On the First Day of National Diabetes Month, Grassroots Organizations Endorse Senator Reverend Warnock's Bipartisan $35 Insulin Cost Cap » Reverend Raphael Warnock." Reverend Raphael Warnock, n.d. Accessed October 27, 2025. https://www.warnock.senate.gov/newsroom/press-releases/on-the-first-day-of-national-diabetes-month-grassroots-organizations-endorse-senator-reverend-warnocks-bipartisan-35-insulin-cost-cap/.

[302] Dafny, Leemore S. "Falling Insulin Prices — What Just Happened?" New England Journal of Medicine 388, no. 18 (2023): 1636–39. https://doi.org/10.1056/NEJMp2303279.

[303] "FTC to ramp up enforcement against any illegal rebate schemes, bribes to prescription drug middleman that block cheaper drugs." Washington, DC: Federal Trade Commission, June 16, 2022. https://www.ftc.gov/news-events/news/press-releases/2022/06/ftc-ramp-up-enforcement-against-illegal-rebate-schemes.

[304] Civica. "Civica to manufacture and distribute affordable insulin." March 3, 2022. https://civicarx.org/wp-content/uploads/2022/03/Civica-Affordable-Insulin-Press-Release-03.03.22.pdf.

[305] Dafny, "Falling Insulin Prices — What Just Happened?"

Affordable Insulin Now Act did end up following many critics' fears and did not help the uninsured as the list prices of insulin remained high.[306] Despite this, Eli Lilly still capped co-pays to $35 for insured and uninsured patients with a copayment card or assistance program, and reduced the high list prices for many of their older insulin products while introducing alternatives to their competitors' products, driving the price down.[307] This was likely due to the American Rescue Plan Act of 2021 which, starting in 2024, removed Medicaid's cap on rebates to allow them to exceed 100% of a drug's average manufacturer price.[308] This encouraged these drug companies to dodge the increased amount they would have to pay in rebates by decreasing the list prices of their insulin products, saving Novo Nordisk an estimated $350 million in additional rebates in 2024 and increasing earnings by $210 million, and saving Eli Lilly $430 million in additional rebates and increasing earnings by $85 million.[309] The list prices were initially high due to rebates, so when there was no longer any financial incentive for the companies to continue their high list prices, they decreased them. Newer insulin drugs had not yet accumulated as many price increases relative to inflation, resulting in a lower rebate burden that explains why their prices were not lowered.[310] While the public pressure, legislation, and lawsuits were certainly a factor that pushed drug companies to lower insulin prices, the monetary factors also played a significant role and must be discussed when analyzing why and how major pharmaceutical companies were forced to lower their prices.

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[306] Dafny, "Falling Insulin Prices — What Just Happened?"
[307] Dafny, "Falling Insulin Prices — What Just Happened?"
[308] Dafny, "Falling Insulin Prices — What Just Happened?"
[309] Peng I, Court E. "Insulin price cuts could end up making money for US drugmakers." Bloomberg, March 14, 2023. https://www.bloomberg.com/news/articles/2023-03-14/slashing-insulin-prices-could-make-money-for-lilly-novo-nordisk?leadSource=uverify%20wall.
[310] Peng I, Court E. "Insulin price cuts could end up making money for US drugmakers." Bloomberg, March 14, 2023. https://www.bloomberg.com/news/articles/2023-03-14/slashing-insulin-prices-could-make-money-for-lilly-novo-nordisk?leadSource=uverify%20wall.

II. Overview of Financial Impacts

In 2023, the federal government capped the price of insulin for recipients of Medicare, which includes patients who are elderly or disabled. The price caps came under the broader Inflation Reduction Act, which included other provisions such as incentives for clean energy and increased IRS enforcement. The price capping of insulin initially applied to Part D of Medicare. Medicare coverage is divided between 4 Parts. Part A covers hospital coverage and inpatient visits, Plan B covers doctor visits and outpatient care, Plan C is Medicare Advantage and combines Plan A and B, and Plan D covers prescription medications. In January of 2023, the out-of-pocket cost of insulin among Medicare Part D enrollees was capped at $35 per month. In July of 2023, the cap was extended to patients enrolled in Medicare Part B.[311] If this cap had come into effect in 2020, it is estimated that 1.5 million Americans on Medicare would have saved $761 million on insulin copays.[312]

The impact of the price capping was immediate. A study conducted in 2024 found that the monthly cost of insulin in 2020 was $63. By capping the monthly copays at $35, the IRA saves diabetic patients hundreds of dollars each year. The IRA is not the only insulin price cap. Several states have passed their own versions of insulin price caps, including Colorado which capped the price of insulin at $100 in 2019. According to a study done by researchers at Texas A&M, monthly insulin copays dropped by 40% in the following two years.[313] Additionally, following the addition of price caps and in the face of mounting public pressure, most major

[311] "Insulin Affordability and the Inflation Reduction Act: Medicare Beneficiary Savings by State and Demographics," ASPE, January 24, 2023, http://aspe.hhs.gov/reports/insulin-affordability-ira-data-point.
[312] Ibid.
[313] Ann Kellett, "State Insulin Price Cap Law Cuts Out-of-Pocket Costs by 40%, Study Finds," Vital Record, August 22, 2024, https://vitalrecord.tamu.edu/colorado-insulin-price-cap-cuts-out-of-pocket-costs-by-40-study-finds/.

pharmaceutical manufactures including Eli Lilly and Novo Nordisk began to cut prices themselves.[314]

With most traded commodities, the supply chain is intuitive. Products are manufactured, sold to regional wholesalers, sold to local retailers, then finally sold to consumers. Consumers pay the retailers, who pay the wholesalers, who pay the manufacturers. The linear transfer of product and capital creates middleman overhead, but has the benefit of abstracting away the challenges of bridging gaps between supply and demand.

Medicine does not work this way. Most people who buy prescription drugs use insurance.[315] Individual consumers pay premiums to their insurance provider, as well as out-of-pocket copays whenever they buy a drug. Insurance companies charge copays as well as premiums because copays allow them to create incentives for consumers to purchase drugs that are cheaper for them to buy. Insurance companies and their partnered PBMs (pharmaceutical benefits managers) negotiate for lower prices on drugs produced by manufacturers. However, drug manufacturers offer lower prices in the forms of rebates, a sort of kickback to PBMs and insurance companies when a patient buys their drug. As a result, drug manufacturers compete to offer larger and larger rebates, not smaller list prices. In order to fit the rebate, drug companies are incentivized to artificially inflate drug prices beyond what they would otherwise need to turn a profit. As a result, the list price of drugs continues to rise while the net price paid by insurance companies declines, resulting in higher premiums and larger copays to support the added bureaucracies.

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[314] "Lilly Cuts Insulin Prices by 70% and Caps Patient Insulin Out-of-Pocket Costs at $35 Per Month | Eli Lilly and Company," accessed October 14, 2025, https://investor.lilly.com/news-releases/news-release-details/lilly-cuts-insulin-prices-70-and-caps-patient-insulin-out-pocket.

[315] US Census Bureau, "Health Insurance Coverage in the United States: 2023," Census.Gov, accessed October 14, 2025, https://www.census.gov/library/publications/2024/demo/p60-284.html.

Price capping sets a maximum copay that a patient may pay for a given drug. In the case of insulin, this cap is often around $35. Although setting a maximum copay did improve the affordability of insulin, the reduced payment could easily have been shifted onto higher insurance premiums. Indeed, after the price cap, insurance premiums did rise.[316] The real impact came from the changes to the rebate incentive system. By introducing price caps, the intra-formulary competition among drug makers and the liability added by the removal of the Medicaid rebate removal made it no longer financially viable to inflate list prices. This is what really caused Eli Lilly and Novo Nordisk to slash insulin prices by 70%. In short, price caps are a viable method of augmenting market incentives to grant drug companies the green light to renormalize list prices, limiting rebates to PBM middlemen and insurance companies, reducing the overall cost of lifesaving medications. With other drugs on the market for diabetic patients such as GLP-1 receptor agonists, price capping is a compelling method for reducing overall patient cost and improving accessibility for Americans who otherwise would struggle to afford them.

Higher Prevalence of Diabetes and Obesity Among Low-Income Individuals

Obesity and Type 2 Diabetes are disproportionately concentrated in low-income populations in the United States due to a plethora of systemic and conditional barriers that make it difficult for low-income individuals to invest in healthier lifestyles or access treatment options.

[316] "Producer Price Index by Industry: Premiums for Property and Casualty Insurance: Premiums for Homeowner's Insurance," September 10, 2025, https://fred.stlouisfed.org/series/PCU9241269241262.

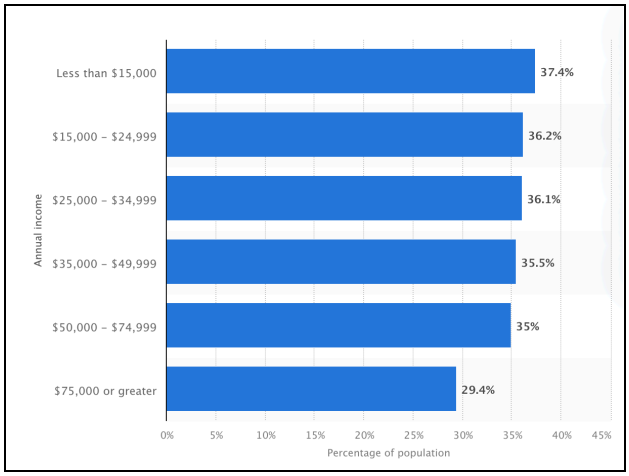


Figure 11: Percentage of U.S. adults who were obese in 2023, by annual income (Source: Statista)

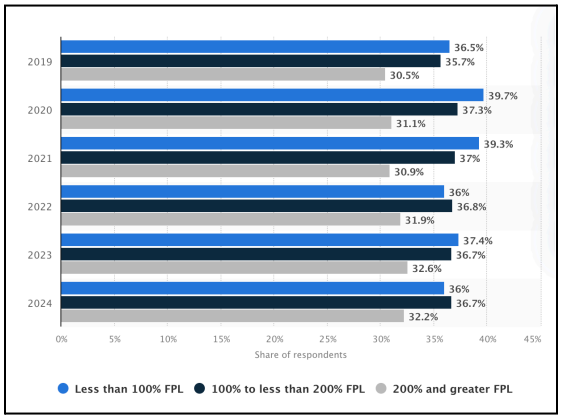


Figure 12: Share of adults who were obese in the United States from 2019 to 2024, by family income (Source: Statista)

Data shows that the highest obesity rates, of over 37%, are found in adults who earn an income of less than $15,000 per year.[317] As income levels rise, the obesity rates decrease gradually, with only 29% of adults earning $75,000 or more being obese.[318] In the same way, the risk of Type 2 Diabetes is also greater in populations made up of individuals living below the

[317] "U.S. Adult Obesity Prevalence by Annual Income 2022," Statista, November 2024, https://www.statista.com/statistics/237141/us-obesity-by-annual-income/.
[318] "Diabetes Prevalence U.S. By Income 2016 | Statistic," Statista (Statista, 2016), https://www.statista.com/statistics/790678/diabetes-prevalence-us-by-income/.

federal poverty level, with rates of obesity reaching higher than 13%, which is much higher compared to higher-income groups (400% of FPL and above) who have a rate of 5%.[319]

The obvious imbalance in obesity rates across income levels reveals structural divides in health outcomes. Lower-income individuals face greater exposure to risk factors that make it significantly easier to fall into the obese category. Studies have also explored how generational and cyclic health inequities are a massive issue in the recurring issue of obesity and type 2 diabetes rates increasing among children in low-income families, who are seen to be more likely to develop obesity and diabetes.

Income Bracket	**Obesity Rate (%)**	**Type 2 Diabetes Rate (%)**
<$15,000	37.4	13.1
$15,000-$24,999	36.2	-
$25,000-$34,999	36.1	-
$35,000-$49,999	34.3	-
$50,000-$74,999	33.6	-
>$75,000	29.0	5.1
<Federal Poverty Level	-	13.1
100-199% FPL	-	10.1

[319] "U.S. Adults with Obesity 2019-2024, by Income| Statista," Statista, 2019, https://www.statista.com/statistics/1622976/us-adults-with-obesity-by-family-income/.

200-399% FPL	-	8.6
400%+ FPL	-	5.1

Table 4: Obesity Rate and Type 2 Diabetes Rate by Income Bracket (Source: Statista Studies)

Combining both studies on income-driven statistics surrounding obesity and diabetes demonstrates that income has a large impact on how individuals are positioned to be victims of these kinds of distribution rates. Figure 3 shows the higher diabetes rate at the lowest income bracket and at the FPL, which indicates that income defines access to managing obesity and weight, and thus diabetes.

The Cost of GLP-1 Treatment Discontinuation

With the rise of the use of GLP-1 Drugs as well as the dependence on them for many people to live and sustain a healthy lifestyle, it is important to take a closer look at times when deviations from this perfect world can happen. Namely, the fact that people who need the drug may start it, but for whatever reason they terminate their treatment entirely or for periods of time in which all of the positive effects either are dramatically reduced or go away completely. One study has found that 23.9% of people with type 2 diabetes and obesity who start the drug stop it within 3 months.[320] This number then increases to 28.1% and 34.2% within the first six and twelve months after the first treatment. These are alarming numbers as this means over ⅓ of people who may need these drugs to treat and manage their conditions are stopping them prematurely. This paper will explore why this trend exists and lay out the negative effects of terminating these treatments, including the loss of any progress made.

[320] Duy Do et al., "GLP-1 Receptor Agonist Discontinuation Among Patients With Obesity and/or Type 2 Diabetes," JAMA Network Open 7, no. 5 (2024): e2413172, https://doi.org/10.1001/jamanetworkopen.2024.13172.

The first major consideration when it comes to people stopping GLP-1 Drugs is the fact that, for some people, it is simply not possible to maintain financially. With the high costs associated with these drugs, the portion of one's budget it can eat up is substantial, and some people, after months of using the drug, may find that the cost is impacting them to the point where they can't afford the other necessities in their lives and must discontinue their treatment. Namely, one study found that 28% of people taking the drug report having difficulties affording the medication from month to month.[321] Additionally, within those same findings, 31% of people report not taking the medication as prescribed for their treatment plan due to the high cost of purchasing the drugs. These effects are drastic as they show that numerous people, mostly low-income individuals who may have the most need for the drug, given their increased rates of conditions like obesity and Type 2 Diabetes, are not able to stick with their treatment plans. Further, this is something that more and more people are realizing: these drugs must be purchased on a repeated monthly basis, where that cost is incurred again and again. That same study found that after hearing this and realizing they could gain the weight back if they stopped the treatment, only 14% of people were even interested in testing GLP-1s to manage their conditions. In addition to the fact that these medications may be stopped due to financial reasons, one study found that 15% of people stop their treatments due to short-term side effects that they experience and choose to end the treatment altogether. [322] These side effects can include experiences with nausea, constipation, or abdominal pain that people feel as though the tradeoff

[321] kffisabellev, "KFF Health Tracking Poll July 2023: The Public's Views Of New Prescription Weight Loss Drugs And Prescription Drug Costs," *KFF*, August 4, 2023, https://www.kff.org/health-costs/kff-health-tracking-poll-july-2023-the-publics-views-of-new-prescription-weight-loss-drugs-and-prescription-drug-costs/.

[322] Hans Schmidt, "Life After Ozempic: The Decision to Stop and What Comes Next," October 24, 2024, https://www.hackensackmeridianhealth.org/en/healthu/2024/10/24/life-after-ozempic-the-decision-to-stop-and-what-comes-next.

isn't worth it to continue the treatment. Overall, these two areas detail reasons that can lead to people stopping their use of GLP-1 drugs in managing their conditions, such as Type 2 Diabetes or obesity.

The first major category of effects that accompany stopping GLP-1 treatment are biological factors that can cause weight regain and loss of other biological functions that make the treatment so effective. According to one study, people who stop taking GLP-1 drugs regain ⅔ of the weight within 1 year after stopping treatment and make major strides in weight loss before the termination.[323] Therefore, the question remains: what biological factor causes the person to regain the weight? When someone takes GLP-1 drugs, a hormone enters the body and can increase insulin secretion and reduce glucagon levels, thereby regulating blood sugar levels from getting too high and preventing complications like hyperglycemia, which can lead to additional short- and long-term effects like heart and kidney disease.[324] This is one way GLP-1s help patients reduce their risk of certain conditions and problems. However, this drug also functions in weight loss by reducing a person's appetite and need to overconsume more food as a way which can lead to overeating, which reduces the amount of calories a person intakes and means that they lose weight over time as eating levels lower from previous highs that contributed to the weight gain. Ultimately, when this drug is stopped, these impacts are lost, and therefore people return to old habits of eating increased proportions that contribute to weight gain and have to eat more in order to feel full, further exacerbating the problem. All of this shows how a person's biology, as it undergoes the treatment, is altered to promote less overeating and contribute to

[323] John P. H. Wilding et al., "Weight Regain and Cardiometabolic Effects after Withdrawal of Semaglutide: The STEP 1 Trial Extension," *Diabetes, Obesity and Metabolism* 24, no. 8 (2022): 1553–64, https://doi.org/10.1111/dom.14725.
[324] Ibrahim Abdullah bin Ahmed, "A Comprehensive Review on Weight Gain Following Discontinuation of Glucagon-Like Peptide-1 Receptor Agonists for Obesity," *Journal of Obesity* 2024 (May 2024): 8056440, https://doi.org/10.1155/2024/8056440.

weight loss, but once the treatment is stopped, those levels return and the weight is most likely gained back fully over time as people feel the need to overeat and their insulin returns to the bad state associated with Type 2 Diabetes.

Another aspect that comes with the gain of weight and problems back as one stops the treatment with GLP-1 Drugs is the fact that they may not be able to afford the treatment in the same way that they cannot afford to live a healthy lifestyle due to cost or incentivized access.[325] Namely, when the treatment is stopped, people tend to return to their previous habits with no major lifestyle changes that positively contribute to keeping the weight off and living an overall better lifestyle that can mitigate some of the negative health risks that people typically encounter with sustained bad habits, such as not eating healthy and choosing fast food options out of convenience or other environmental reasons. This can lead to additional complications that depend on their socioeconomic factors, such as the fact that access to an active lifestyle has not changed drastically in many cases, so people are still not exercising enough to maintain appropriate weight loss levels, as seen with GLP-1 Drugs. Therefore, the same problems that lead them to need GLP-1s also contribute to them stopping that form of treatment, ultimately causing them to regain weight and lose the positive effects of condition management.

The next category of effects that people experience when they stop the use of GLP-1 drugs is the mental and behavioral complications in their individual circumstances. Particularly, for many people who suffer from obesity and similar conditions, they tend to also struggle with other mental issues in which they use eating and overeating to be more specific as a coping mechanism to put off dealing with those issues. One study found that 38% of people who

[325] Adam Drewnowski and Petra Eichelsdoerfer, "Can Low-Income Americans Afford a Healthy Diet?," *Nutrition Today* 44, no. 6 (2010): 246–49, https://doi.org/10.1097/NT.0b013e3181c29f79.

struggle with obesity report engaging in overeating to deal with mental issues such as stress and trauma, contributing to their health problems.[326] This means that when people stop taking GLP-1 drugs due to things like not being able to afford the treatment from month to month, they most likely also are not in a situation to afford other treatment and counseling options for their conditions, causing them to keep struggling and overeating, which once they are off the drug can lead to weight gain as their core issues have not been solved. Other factors within this have to do with people's mental issues surrounding their weight and the health journey, such that people can get frustrated as they attempt to live a healthy lifestyle, leading them to not actually address key issues and giving up on things like being more active or eating better, on top of stopping the treatment entirely. All of these issues can drive people to incur more issues after terminating the treatment of their obesity or Type 2 Diabetes.

In conclusion, obesity and Type 2 diabetes are chronic conditions that require chronic care. The use of GLP-1 drugs has proven highly effective in helping individuals manage these diseases, but the high rates of treatment discontinuation reveal deeper biological, socioeconomic, and behavioral challenges. When patients stop treatment, whether due to cost, side effects, or lack of long-term support, the benefits quickly diminish, and many experience a return of symptoms and weight regain. To ensure lasting success and mitigate these effects, it must be recognized that these conditions demand sustained, comprehensive management that includes not only continued access to the drugs but also the support people may need to achieve long-term health improvements.

The Prohibitive Cost of a Healthy Lifestyle

[326] Antonios Dakanalis et al., "The Association of Emotional Eating with Overweight/Obesity, Depression, Anxiety/Stress, and Dietary Patterns: A Review of the Current Clinical Evidence," *Nutrients* 15, no. 5 (2023): 1173, https://doi.org/10.3390/nu15051173.

When discussing the effectiveness of GLP-1 drugs, we must compare their effects and costs to that of a healthy lifestyle. But in order to explore this relationship, there must be a clearly defined definition of a healthy lifestyle. In the context of GLP-1 drugs, we are defining a healthy lifestyle as a lifestyle that promotes healthy weight loss. The effects of GLP-1 drugs and a healthy lifestyle cannot be directly compared without the lens of weight loss due to other benefits from a healthy lifestyle such as the increased cardiovascular health from exercise.[327] As such, we will be focusing on the costs of maintaining a healthy lifestyle through diet changes, exercise, and longer sleep. We will also be paying attention to the cost of a healthy life-style for lower-income individuals because GLP-1 drugs are of most use to individuals with diabetes, obesity, and hypertension, all of which have been shown to be much higher in low-income individuals, while rates of treatment for diabetes have only increased among higher-income individuals.[328]

When discussing the costs of switching to a diet that promotes weight loss, there are conflicting studies on whether a healthier diet is more expensive. When looking at the dollars per calorie, fruits and vegetables are often more expensive than moderation foods, foods that are high in saturated fat, added sugar, and/or sodium, however, they are actually less expensive in dollars per 100 edible grams and in dollars per average portion size.[329] Comparing based on calorie count can skew prices of healthy foods to become more expensive due to many healthy foods having lower calorie counts, despite calories not necessarily being indicative of satiety. This

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[327] CDC. "Adult Activity: An Overview." Physical Activity Basics, July 19, 2024. https://www.cdc.gov/physical-activity-basics/guidelines/adults.html.
[328] Liu, Michael, Rahul Aggarwal, Zhaonian Zheng, et al. "Cardiovascular Health of Middle-Aged U.S. Adults by Income Level, 1999 to March 2020." Annals of Internal Medicine 176, no. 12 (2023): 1595–605. https://doi.org/10.7326/M23-2109.
[329] Carlson, Andrea, and Elizabeth Frazao. "Are Healthy Foods Really More Expensive? It Depends on How You Measure the Price." SSRN Electronic Journal, ahead of print, 2012. https://doi.org/10.2139/ssrn.2199553.

results in the average daily cost of the Dietary Approaches to Stop Hypertension diet at $12.74 per day and whole food, plant-based diet at $9.78 per day being less than the baseline diet cost of $15.72 per day.[330] Over the course of a 30-day month, the costs of the Dietary Approaches to Stop Hypertension diet would be $89.40 hours less and whole food, plant-based diet would be $178.20 less than the baseline diet. The fact that meals were provided in the study is mitigated by the fact that the cost of ingredients for food away from home is similar among baseline and the Dietary Approaches to Stop Hypertension diet, with the whole food, plant-based diet still being significantly less.[331] That means that eating healthy meals outside of home should not necessarily cost more than eating unhealthy meals. For individuals or families who do food preparation, that does not change when switching to preparing healthier meals, so we do not have to consider the time cost.

Exercise is another recommended way to contribute to weight loss. The Physical Activity Guidelines For Americans recommends about 150 minutes of moderate aerobic activity per week[332], but due to a comparison between the weight loss effects of GLP-1 drugs and a healthy lifestyle that will be done later, we will be analyzing the costs of 250 minutes of aerobic activity per week.[333] At the median hourly wage of $20[334], this weekly exercise requirement would cost

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[330] Campbell, Erin K, Laurie Taillie, Lisa M Blanchard, et al. "Post Hoc Analysis of Food Costs Associated with Dietary Approaches to Stop Hypertension Diet, Whole Food, Plant-Based Diet, and Typical Baseline Diet of Individuals with Insulin-Treated Type 2 Diabetes Mellitus in a Nonrandomized Crossover Trial with Meals Provided." The American Journal of Clinical Nutrition 119, no. 3 (2024): 769–78. https://doi.org/10.1016/j.ajcnut.2023.12.023.

[331] Campbell et al., "Post Hoc Analysis of Food Costs Associated with Dietary Approaches to Stop Hypertension Diet, Whole Food, Plant-Based Diet, and Typical Baseline Diet of Individuals with Insulin-Treated Type 2 Diabetes Mellitus in a Nonrandomized Crossover Trial with Meals Provided."

[332] CDC, "Adult Activity."

[333] Wadden, Thomas A., Ariana M. Chao, Molly Moore, et al. "The Role of Lifestyle Modification with Second-Generation Anti-Obesity Medications: Comparisons, Questions, and Clinical Opportunities." Current Obesity Reports 12, no. 4 (2023): 453–73. https://doi.org/10.1007/s13679-023-00534-z.

[334] Bureau of Labor Statistics. "Percentile Wages." Accessed October 6, 2025. https://www.bls.gov/oes/oes_perc.htm.

about $333.33 per month in opportunity cost, while at the bottom 10% hourly wage of $11[335], this weekly exercise requirement would cost about $183.33 per month in opportunity cost.

Sleep is the final factor that we are considering for a healthy lifestyle that promotes weight loss. Improved sleep quality and lengthened sleep duration is associated with higher success in weight loss efforts, while a lack of sleep can increase appetite levels, resulting in reduced weight loss or even weight gain.[336] The recommended hours of sleep per night are between 7 to 9 hours, with the optimal number of hours being about 7.5 hours.[337] Compared to this, the average US adult only sleeps for roughly 7 hours every night.[338] This means that the average US adult should sleep an extra half hour every night in order to reach optimal levels for a healthy lifestyle promoting weight loss, which, at the median hourly wage of of $20[339], would cost $300 every 30-day month in opportunity cost. A low-income, however, is much more likely to get insufficient levels of sleep than higher-income individuals[340], with lower-income young American adults only sleeping an average of 5.6 hours per night.[341] While this is not necessarily indicative of the average hours of sleep for all low-income US adults, which is a difficult statistic to find, this does tell us that in order for low-income individuals to sleep an optimal amount, at

[335] Bureau of Labor Statistics, "Percentile Wages."
[336] Papatriantafyllou, Evangelia, Dimitris Efthymiou, Evangelos Zoumbaneas, Codruta Alina Popescu, and Emilia Vassilopoulou. "Sleep Deprivation: Effects on Weight Loss and Weight Loss Maintenance." Nutrients 14, no. 8 (2022): 1549. https://doi.org/10.3390/nu14081549.
[337] Papatriantafyllou et al., "Sleep Deprivation."
[338] PBerry-Cabán, Cristóbal S., Thomas A. Beltran, Rachel H. Han, Sharon P. McKiernan, and Y. Sammy Choi. "Sweet Dreams, Bright Futures: The Relationship between Sleep Duration and Health, Income and Education." Discover Social Science and Health 3, no. 1 (2023): 26. https://doi.org/10.1007/s44155-023-00058-w.
[339] Bureau of Labor Statistics, "Percentile Wages."
[340] Wetzel, Sarah, and Usama Bilal. "Socioeconomic Status and Sleep Duration among a Representative, Cross-Sectional Sample of US Adults." BMC Public Health 24, no. 1 (2024): 3410. https://doi.org/10.1186/s12889-024-20977-w.
[341] Fusco, Rachel A., Yan Yuan, Hyunji Lee, and Christina E. Newhill. "Trauma, Sleep and Mental Health Problems in Low-Income Young Adults." International Journal of Environmental Research and Public Health 18, no. 3 (2021): 1145. https://doi.org/10.3390/ijerph18031145.

the bottom 10% hourly wage of $11[342], they would have to incur roughly $627 in opportunity costs every 30-day month.

To be able to compare the costs of a healthy lifestyle to that of GLP-1 drugs, we must also be able to compare the effectiveness of each method for weight loss. Lifestyle changes, such as the ones listed above, would reduce baseline body weight by 5-10% over 68 weeks, compared to 2.4mg weekly doses of semaglutide which reduces baseline body weight by approximately 15% and 15mg weekly doses of tirzepatide which reduces baseline body weight by 20.9% over 68 weeks.[343] These are the highest recommended dosages for these GLP-1 drugs, which might incur higher costs depending on the pricing of individual companies, but they are also the most effective for losing weight. Tirzepatide dosages of 5mg and 10mg result in a reduction in baseline weight of 15% and 19.5% respectively over 68 weeks.[344] There are also other GLP-1 agonists like dulaglutide or liraglutide that may have less significant weight loss rates.[345] The cost of a healthy lifestyle for the average US adult is about $455.13 to $543.93 per month and for the average low-income (roughly bottom 10%) US adult is about $632.13 to $720.93 per month. Considering maximum recommended dosages, semaglutide is at least 1.5 times more effective than a healthy lifestyle at losing weight, so it has an equivalent value based on the price of a healthy lifestyle to an average US adult of at least roughly $682.70 and to an average low-income (roughly bottom 10%) US adult of at least roughly $948.20. For tirzepatide, considering maximum recommended dosages, it is at least twice as effective as a healthy lifestyle at losing weight, so it has an equivalent value based on the price of a healthy lifestyle to an average US

[342] Bureau of Labor Statistics, "Percentile Wages."
[343] Wadden et al., "The Role of Lifestyle Modification with Second-Generation Anti-Obesity Medications."
[344] Wadden et al., "The Role of Lifestyle Modification with Second-Generation Anti-Obesity Medications."
[345] White, Gretchen E, Ingrid Shu, David Rometo, Jon Arnold, Mary Korytkowski, and Jing Luo. "Real-World Weight Loss Effectiveness of GLP-1 Agonists among Patients with Type 2 Diabetes: A Retrospective Cohort Study." Obesity (Silver Spring, Md.) 31, no. 2 (2023): 537–44. https://doi.org/10.1002/oby.23622.

adult of at least roughly $910.26 and to an average low-income (roughly bottom 10%) US adult of at least roughly $1,264.26. This analysis is only in regards to weight loss, so it does not account for the additional benefits to cardiovascular health, among other benefits, that a healthy lifestyle provides, which GLP-1 drugs do not necessarily provide, that could result in the actual value of semaglutide and tirzepatide being lower. The resulting interpretation from this analysis is also not necessarily that the current prices for GLP-1 drugs are justified since it was mentioned earlier that many lower-income individuals are affected by diabetes, obesity, and hypertension. Overall, the cost of living a healthy lifestyle is known to cause increased rates of obesity and Type 2 Diabetes among low-income individuals, and because GLP-1 drugs currently cost more per month than the above calculated cost of weight loss without medication, GLP-1 drugs are also prohibitively expensive for those that may need them the most, leaving many with few remaining options to manage their conditions.

GLP-1 Usage and Income

Due to the well-established improvements observed in the healthcare outcomes for individuals with the ability to access and utilize glucagon-like peptide 1 (GLP-1) medications to treat Type-I and Type-II diabetes, it is essential to consider the possibilities of access to such treatments across all possible individuals who might require, or benefit from, their usage.[346] Moreover, given that pricing points for such medications often tend to be quite exorbitant, from both the standpoint of healthcare providers as well as individual recipients, we will consider the feasibility of obtaining consumer preference data for GLP-1 treatments across broad

[346] Hwang, Jennifer H., Neda Laiteerapong, Elbert S. Huang, Dariush Mozaffarian, A. Mark Fendrick, and David D. Kim. "Fiscal Impact of Expanded Medicare Coverage for GLP-1 Receptor Agonists to Treat Obesity." In JAMA Health Forum, vol. 6, no. 4, pp. e250905-e250905. American Medical Association, 2025. https://jamanetwork.com/journals/jama-health-forum/fullarticle/2833038

socioeconomic classes as well as other relevant demographics.[347] Our analysis on a systematic consideration of access and preference for treatment among individuals, given economic stratification levels, is particularly pertinent, due to the observation that high rates of diabetes and Type-II diabetes (T2D) often tend to be more prevalent among individuals within lower socioeconomic strata.[348] Furthermore, this analysis also extends to broader ramifications across racial groups, since demographics with a history of discrimination and lower average socioeconomic standing – for instance, African-Americans – generally tend to face greater rates of T2D susceptibility as well as the necessity of GLP-1 agonists to treat such disease.[349]

Our analysis is contextualized by the observation that, both among children and adults, socioeconomic position – particularly, when contextualized by wealth as opposed to other plausible determinants (such as education) – correlates strongly to the incidence of Type-II diabetes.[350] As a consequence, it is both morally and pragmatically imperative to consider the possible ramifications of access to treatments for individuals who require the greatest extent of necessary treatment to assuage their conditions.

We first consider the relative impact of consumer preference for GLP-1's as a function of overall income. Numerous seminal investigations have established that consumer preference is generally lower for individuals with lower socioeconomic status, particularly given the ability of such individuals to access hospitals (which allows for the detection of such underlying

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[347] Cawley J, Biener A, Meyerhoefer C, Ding Y, Zvenyach T, Smolarz BG, Ramasamy A. Direct medical costs of obesity in the United States and the most populous states. J Manag Care Spec Pharm. 2021 Mar;27(3):354-366. doi: 10.18553/jmcp.2021.20410. Epub 2021 Jan 20. PMID: 33470881; PMCID: PMC10394178. https://pmc.ncbi.nlm.nih.gov/articles/PMC10394178/

[348] Agardh, Emilie, Peter Allebeck, Johan Hallqvist, Tahereh Moradi, and Anna Sidorchuk. "Type 2 diabetes incidence and socio-economic position: a systematic review and meta-analysis." International journal of epidemiology 40, no. 3 (2011): 804-818.

[349] Mensah, George A., Ali H. Mokdad, Earl S. Ford, Kurt J. Greenlund, and Janet B. Croft. "State of disparities in cardiovascular health in the United States." Circulation 111, no. 10 (2005): 1233-1241.

[350] Demakakos, P., Marmot, M. & Steptoe, A. Socioeconomic position and the incidence of type 2 diabetes: the ELSA study. Eur J Epidemiol 27, 367–378 (2012). https://doi.org/10.1007/s10654-012-9688-4.

conditions) as well as the exorbitant costs of GLP-1's relative to other exogenous expenses and overall income levels.[351] Hence, in numerous studies, investigations on participants themselves have centered predominantly and categorically on individuals from higher-wealth percentiles.[352] However, a categorical analysis conducted by Eberly *et al*. (2021), centered upon the usage of GLP-1 agonists among over one million patients during a period of five years, with specific compensation for traditional sampling methods that tend to prioritize individuals from wealthy backgrounds, established striking results between usage among groups and wealth tertiles.[353] The thorough analysis conducted within the study, for which details are referenced in Figure 13, establish a statistically significant difference between the odds ratio of usage (which is, in effect, an adequate measure for the existing consumer preference for GLP-1's when the plausible and extrapolative impacts of other factors are removed to a maximal extend possible) and income tertiles.[354,355] It is worth noting that, in this scenario, the analysis conducted on such usage and preference data was adjusted specifically to account for clinical and insurance-related factors, as well as access to other medications, such as insulin; thus, the study reveals a significant and well-established trend in systemic disparities entrenched by the healthcare system itself.[356] This

[351] Andrew Dilley, Saroj Adhikari, Pratikshya Silwal, Jayson. L. Lusk, Brandon R. McFadden, Characteristics and food consumption for current, previous, and potential consumers of GLP-1 s, Food Quality and Preference, Volume 129, 2025, 105507, ISSN 0950-3293, https://doi.org/10.1016/j.foodqual.2025.105507.
[352] Ibid.
[353] Eberly, Lauren A., Lin Yang, Utibe R. Essien, Nwamaka D. Eneanya, Howard M. Julien, Jing Luo, Ashwin S. Nathan et al. "Racial, ethnic, and socioeconomic inequities in glucagon-like peptide-1 receptor agonist use among patients with diabetes in the US." In JAMA Health Forum, vol. 2, no. 12, pp. e214182-e214182. American Medical Association, 2021.
[354] McHugh, Mary L. "The odds ratio: calculation, usage, and interpretation." Biochemia medica 19, no. 2 (2009): 120-126.
[355] *See* Eberly, *et al*.
[356] Ibid.

response is particularly critical given existing studies on *risk factors* that also contribute towards downstream access disparities.[357]

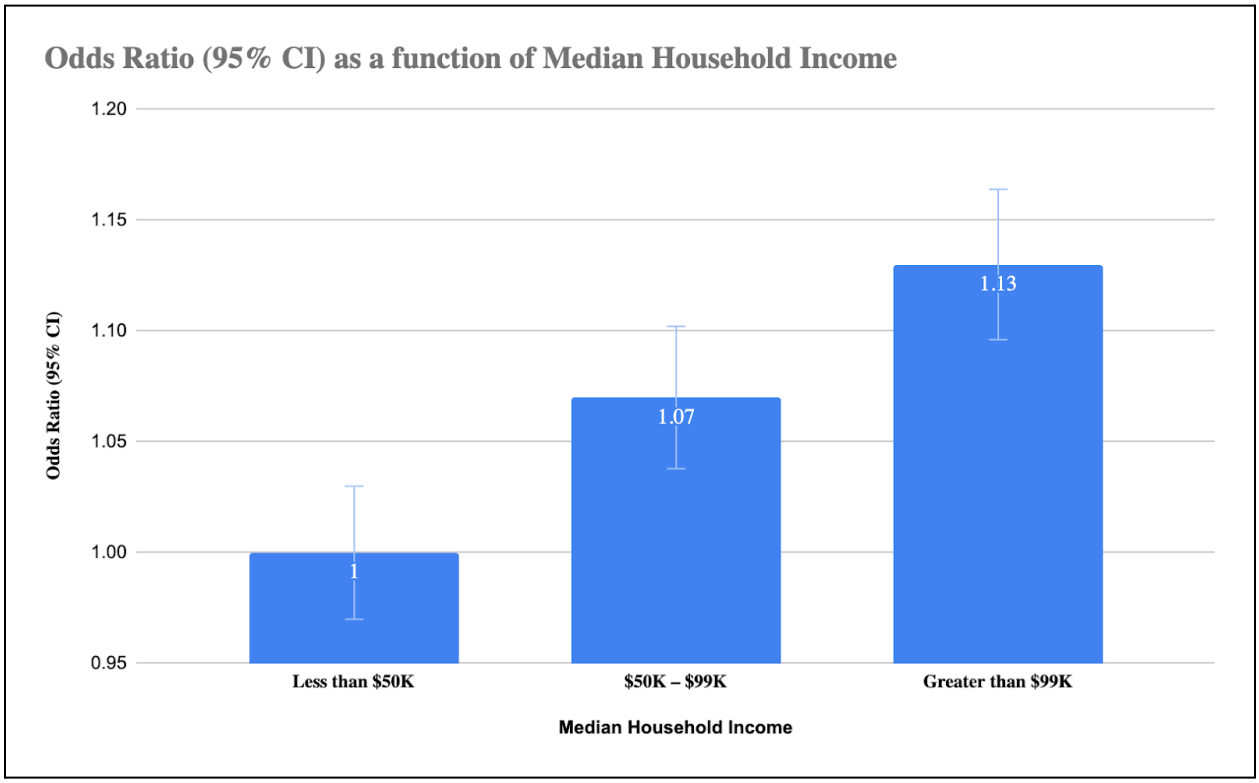


Figure 13: Demonstration of the relative odds ratio for individual usage of GLP-1 agonists among demographic groups, with stratification into three income tertiles.

Other Predictors of GLP-1 Access

I. Insurance Type

To understand the current options of consumers, there needs to be an understanding of the relative costs to consumers of GLP-1 drugs with and without insurance. In order to achieve this, there must be a comparison in the out-of-pocket costs paid by major private and public insurance consumers. Some of the major private insurance companies are United Health Care, Aetna (CVS

[357] Graham, Garth. "Disparities in cardiovascular disease risk in the United States." Current cardiology reviews 11, no. 3 (2015): 238-245.

Health), Kaiser Permanente, and Blue Cross Blue Shield.[358] The major public insurance programs are Medicaid and Medicare.[359] The out-of-pocket costs for United Health Care is difficult to find, but health care insurance plans have an out-of-pocket maximum that indicates the maximum the insurance company can charge you on top of the premium, or cost of the plan. Using this out-of-pocket maximum, the monthly out-of-pocket cost can be estimated to be around $767.[360] For Aetna, Kaiser Permanente, and Blue Cross Blue Shield, the out-of-pocket costs are also difficult to find as they are not publicly available. Aetna, however, has an individual deductible, which is the amount a consumer must pay for a prescription drug before the plan begins to cover costs, of $7,495 and a 50% co-insurance for a 30-day supply.[361] The average annual cost of GLP-1 drugs is about $12,000[362], making the monthly cost about $1000 and the annual co-insurance cost about $5000. Aetna does have an out-of-pocket maximum of $8,695 for individuals[363], which would be reached, limiting the monthly out-of-pocket costs to roughly $725. For Kaiser, their plan has an individual deductible of $3,200, a 25% co-insurance for a 30-day supply, and an out-of-pocket maximum of $7,500.[364] This equates to an annual

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[358] American Medical Association. "AMA Identifies Market Leaders in Health Insurance." December 12, 2023. https://www.ama-assn.org/press-center/ama-press-releases/ama-identifies-market-leaders-health-insurance.
[359] Uninsurance, Institute of Medicine (US) Committee on the Consequences of. "Overview of Public Health Insurance Programs." In Health Insurance Is a Family Matter. National Academies Press (US), 2002. https://www.ncbi.nlm.nih.gov/books/NBK221009/.
[360] "Announcing 2025 Out-of-Pocket Maximum (OOPM) for Group Health Plans." Accessed October 14, 2025. https://www.uhc.com/agents-brokers/employer-sponsored-plans/news-strategies/2025-out-of-pocket-maximum-for-group-health-plans.
[361] AetnaCVSHealth. "Summary of Benefits and Coverage: What this Plan Covers & What You Pay for Covered Services." https://www.aetna.com/content/dam/aetna/pdfs/aetnacvshealthcom/2025-IFP-774721_58840TX0110103-01_SBC.pdf
[362] National Conference of State Legislatures. "Growth, Volume, Price: The Skinny on GLP-1 Medications." Accessed October 14, 2025. https://www.ncsl.org/state-legislatures-news/details/growth-volume-price-the-skinny-on-glp-1-medications.
[363] AetnaCVSHealth. "Summary of Benefits and Coverage: What this Plan Covers & What You Pay for Covered Services."
[364] Kaiser Permanente. "Summary of Benefits and Coverage: What this Plan Covers & What You Pay for Covered Services." https://healthy.kaiserpermanente.org/content/dam/kporg/final/documents/health-plan-documents/summary-of-benefits/co/sg/2024/21032CO0710087-01-en-2024.pdf

co-insurance cost of $3,000, which adds up to a total cost of $6,200 that is under the out-of-pocket maximum. The monthly out-of-pocket cost for consumers of the Kaiser Permanente insurance plan is thus roughly $517. For Blue Cross Blue Shield, their plan has an individual deductible of $2,000, a $60 co-pay for a 30-day supply of a preferred brand-name drug, and an out-of-pocket maximum of $7,800.[365] This equates to an annual co-pay cost of $720, which adds up to a total cost of $2,720 that is under the out-of-pocket maximum. The monthly out-of-pocket cost for consumers of the Blue Cross Blue Shield insurance plan is therefore roughly $227. But private health insurance also comes with premiums. The average premiums for these four major health insurance companies is not easily accessible, however, the average cost for a 30-year old member of United Health Care is $517, for a 30-year old member of Aetna is $553, for a 30-year old member of Kaiser Permanente is $439, and for a 30-year old member of Blue Cross Blue Shield is $544.[366] When factoring in these premiums, the monthly cost of United Health Care is $1,284, of Aetna is $1,278, of Kaiser Permanente is $956, and of Blue Cross Blue Shield is $771. These are the costs for a consumer that is able to get coverage for GLP-1 drugs, meaning that they most likely have diabetes as many of these companies have rolled back coverage for people with obesity.[367] These private insurance plans also have other benefits compared to public insurance plans, but those are ignored under the context of looking at the costs for consumers who solely want to purchase GLP-1 drugs. For public insurance

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[365] Blue Cross Massachusetts. "Summary of Benefits and Coverage: What This Plan Covers & What You Pay for Covered Services." https://www.bluecrossma.org/sites/g/files/csphws1866/files/acquiadam-assets/HMO_Blue_Basic_80-0292CON1-1-20.pdf

[366] Masterson, Les. "UnitedHealthcare Health Insurance Review 2025." Forbes Advisor, October 11, 2022. https://www.forbes.com/advisor/health-insurance/unitedhealthcare-insurance-review/.

[367] Klein, Hayden E. "Rising Costs Lead Insurers to Drop Weight Loss Drug Coverage, Further Increasing Patient Burden | AJMC." October 14, 2025. https://www.ajmc.com/view/rising-costs-lead-insurers-to-drop-weight-loss-drug-coverage-further-increasing-patient-burden.

consumers, Medicaid and Medicare have been announced under the Trump Administration to not cover GLP-1 drugs for obesity, so coverage mostly only applies to consumers with diabetes.[368] Consumers with obesity without private insurance would have to pay the full $1,000 average monthly cost of GLP-1 drugs.[369] For Medicare, there is a $590 deductible and a $2,000 out-of-pocket maximum, after which the cost of the prescription drugs are covered by the insurance plan.[370] This results in the monthly out-of-pocket cost being about $167. For Medicaid, in 2023, the Medicaid spending per prescription of a GLP-1 drug was over $900[371], and with the average monthly cost of GLP-1 drugs being $1000[372], consumers on Medicaid will only have to pay roughly $100 per month. This data is assembled in the stacked bar graph below.

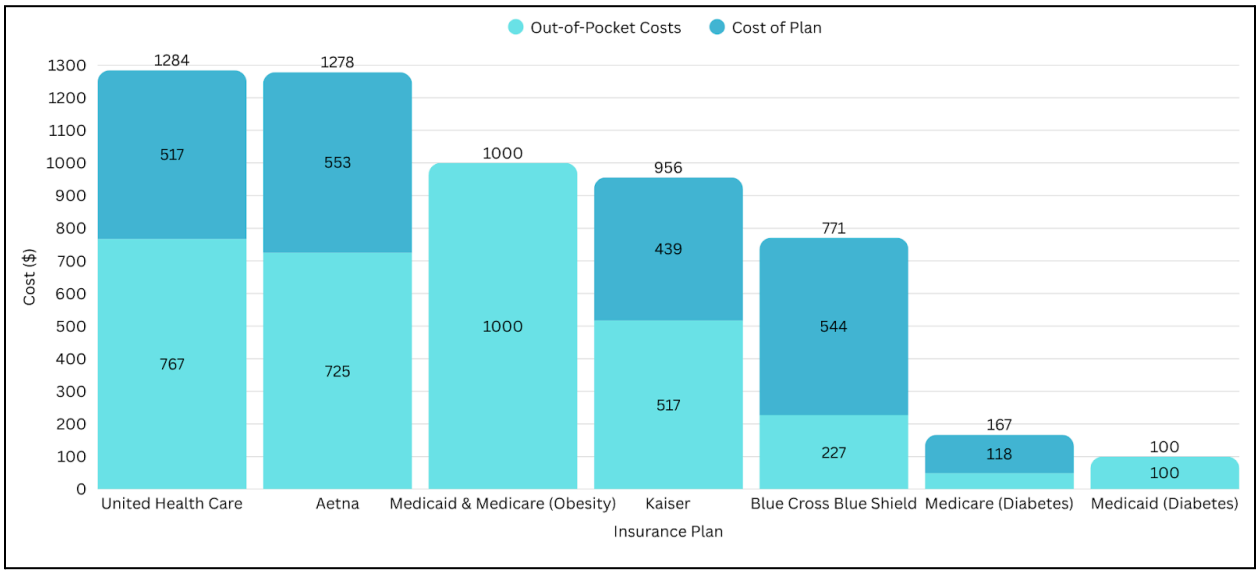


Figure 14: Cost of Insurance Plan To Consumer Based on Insurance Group

[368] Team, The ACG News. "Anti-Obesity Drugs Will Not Be Covered by Medicare and Medicaid in 2026." American College of Gastroenterology, April 17, 2025. https://gi.org/2025/04/17/anti-obesity-drugs-will-not-be-covered-by-medicare-and-medicaid-in-2026/.
[369] National Conference of State Legislatures. "Growth, Volume, Price: The Skinny on GLP-1 Medications."
[370] "How Much Does Medicare Drug Coverage Cost? | Medicare." Accessed October 14, 2025. https://www.medicare.gov/health-drug-plans/part-d/basics/costs.
[371] Williams, Elizabeth, Robin Rudowitz, and Clea Bell. "Medicaid Coverage of and Spending on GLP-1s." KFF, November 4, 2024. https://www.kff.org/medicaid/medicaid-coverage-of-and-spending-on-glp-1s/.
[372] National Conference of State Legislatures. "Growth, Volume, Price: The Skinny on GLP-1 Medications."

Some of the most important factors to consider for the distribution of private insurance compared to public insurance is the race, economic status, and health status of the individual. This data is difficult to come by, but using data from 2017 and assuming a similar distribution currently, there seems to be a clear correlation between having private insurance and being white, high-income, and/or in good health.[373] Being poor, low-income, and/or in bad health seems to be correlated with having public insurance, partial insurance, or no insurance.[374] This data is summarized in the bar graph below.

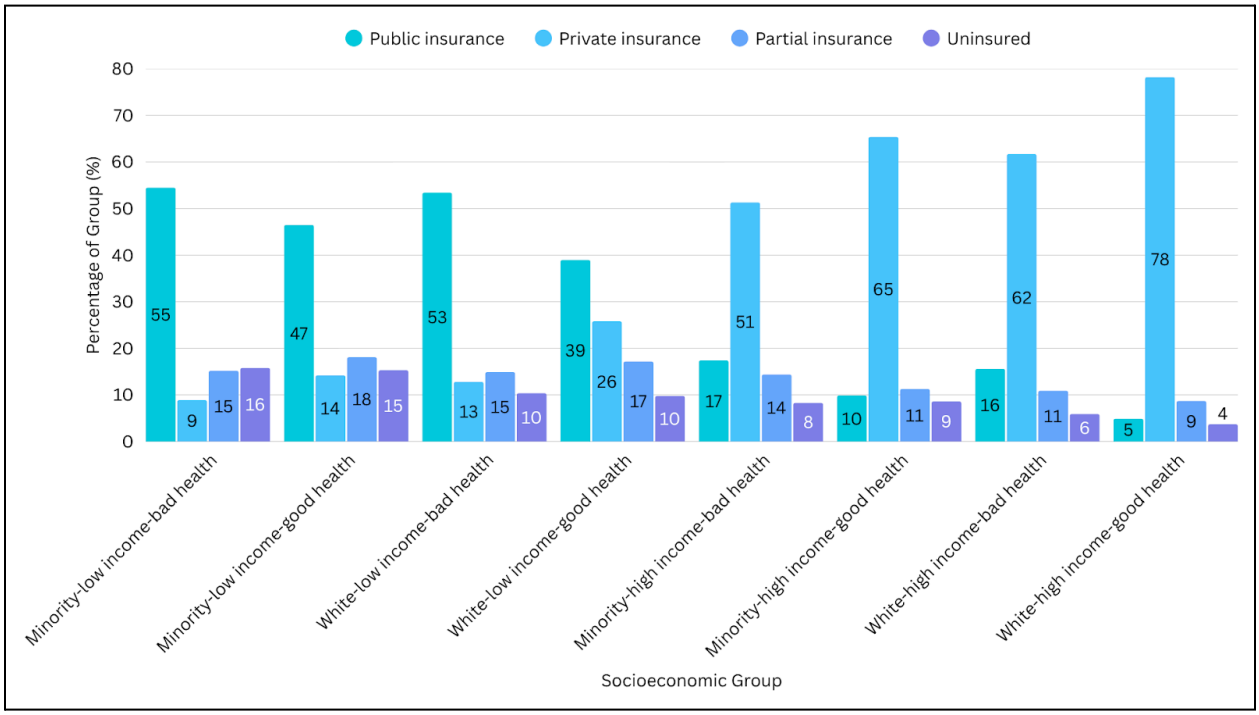


Figure 15: Percentage of Group That Has Public Insurance, Private Insurance, Partial Insurance, and No Insurance Based On Racial, Economic, and Health Group

[373] Lee, De-Chih, Hailun Liang, and Leiyu Shi. "The Convergence of Racial and Income Disparities in Health Insurance Coverage in the United States." International Journal for Equity in Health 20, no. 1 (2021): 96. https://doi.org/10.1186/s12939-021-01436-z.
[374] Lee et al., "The Convergence of Racial and Income Disparities in Health Insurance Coverage in the United States."

Private insurance plans do not seem to reduce the cost of GLP-1 drugs more than public insurance plans. In fact, public insurance plans seem to reduce the costs to a greater extent, perhaps due to the fact that the demographic that these programs cater to are generally low-income and cannot pay high fees. However, this cost analysis does not take into account the other possible benefits of private insurance plans outside of the context of GLP-1 drugs, so there are certainly other reasons that could explain the fact that whiter, higher-income, healthier individuals prefer private insurance plans. There is also the factor that Medicaid and Medicare completely do not cover obesity on a federal level while some private insurance companies might, which could play a factor.

II. Nutrition

Despite the significant relief that Glucagon-Like Peptide 1 (GLP-1) receptor agonists offer, from a theoretical standpoint, for individuals affected by both type-II diabetes as well as broader obesity-related conditions, it is of critical importance to consider the relationship between the practical functionality of such medications and the eating habits of individuals who utilize such treatments.[375] Considerations of food accessibility are of particular interest due to the seminal observation that (i) performance effects of treatments, especially in meeting well-established adequacy thresholds to address obesity, are contingent on the necessity of establishing a health diet to ensure proper metabolic functions throughout usage of GLP-1's, and (ii) conversely, inadequate, volatile, or generally detrimental eating habits can mitigate, or

[375] Aaboe, Kasper, Thure Krarup, Sten Madsbad, and Jens Juul Holst. "GLP-1: physiological effects and potential therapeutic applications." Diabetes, Obesity and Metabolism 10, no. 11 (2008): 994-1003.https://www.researchgate.net/publication/5416702_GLP-1_Physiological_effects_and_potential_therapeutic_applications

reverse, the possible beneficial effects of GLP-1 usage.[376] Indeed, studies on patients with type-II diabetes,

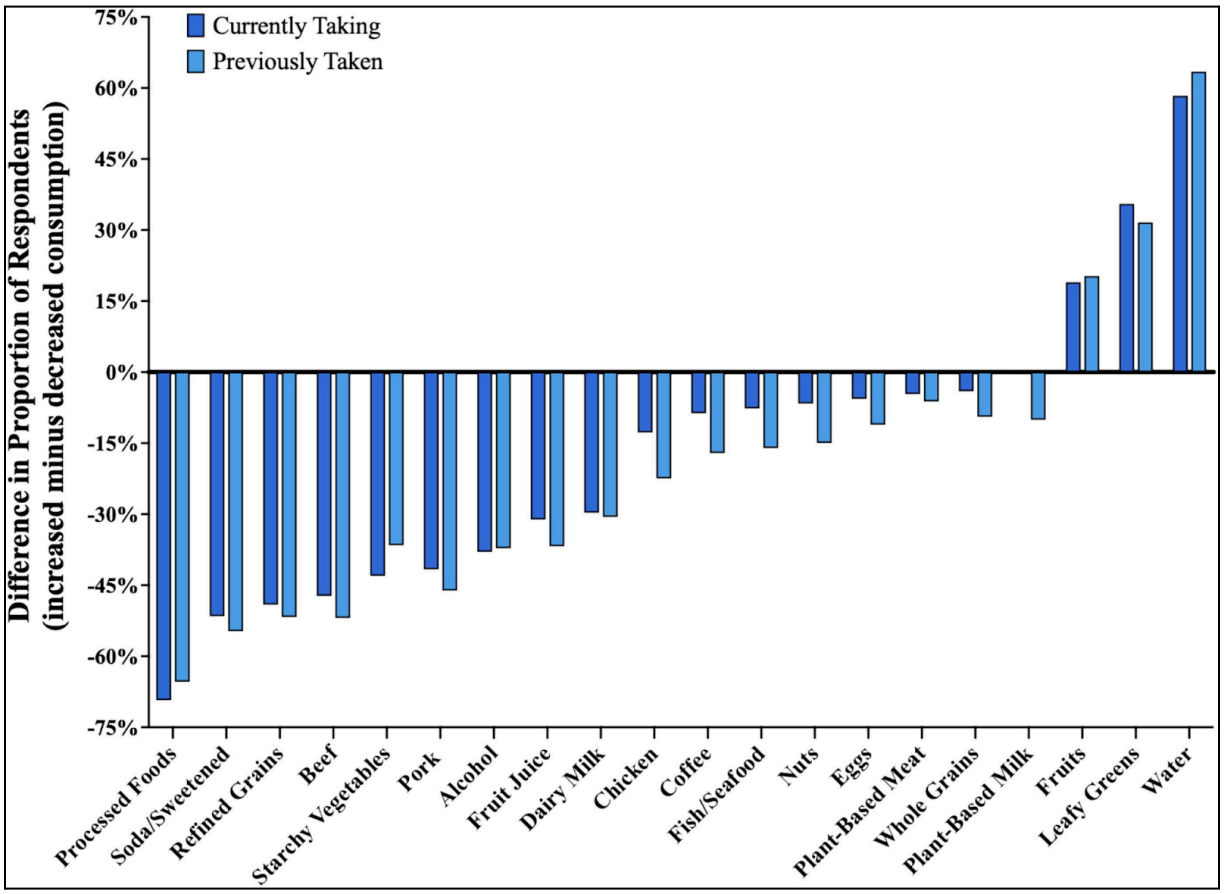


Figure 16: Comparative analysis, established by Dilley *et al*., concerning relative distinctions between individuals with differing levels of GLP-1 utilization.

many of whom utilized GLP-1 receptor agonists, have broadly posited that modifications in the eating patterns of individuals have exerted substantial impacts on treatment consumption of specific food groups among individuals with differing outcomes, often exerting statistically significant impacts on aggregate weight loss.[377] As such, we consider various contingencies in

[376] Filippatos, Theodosios D., Thalia V. Panagiotopoulou, and Moses S. Elisaf. "Adverse effects of GLP-1 receptor agonists." The review of diabetic studies: RDS 11, no. 3 (2015): 202. https://pubmed.ncbi.nlm.nih.gov/26177483/

[377]de Boer, Stefanie Amarens, Joop Daniel Lefrandt, Japke Frida Petersen, Hendrikus Hessel Boersma, Douwe Johannes Mulder, and Klaas Hoogenberg. "The effects of GLP-1 analogues in obese, insulin-using type 2 diabetes in relation to eating behaviour." International journal of clinical pharmacy 38, no. 1 (2016): 144-151.

order to establish correlations between demand, preference, and access to GLP-1's as a function of food access; moreover, we also assess the *usage levels* of GLP-1's in general across individuals with differing levels of food accessibility. We observe that these observations could have broader implications that venture beyond the direct implications and correlative behaviors established within this study, including the estimation of impacts of preference and demand for GLP-1's on impoverished individuals, who have historically exhibited lower levels of food accessibility.[378]

Since the field of GLP-1 research is relatively contemporary, and the vast majority of empirical studies center analysis on clinical outcomes, systematic reviews studying correlative trends between food accessibility and preference or demand for GLP-1's have not yet been well-developed.[379] Nonetheless, various expository investigations and patient surveys have obtained consequential results. Although there exist numerous metrics for appetitive behavior and food preferences, some of which incorporate qualitative considerations, studies have focused on the progressive ratio task (PRT) metric for the specific purpose of consumption in the context of drug-based treatments, whereas fatty and sweet foods ought to be considered with particular weight within this metric itself.[380] Indeed, within a study performed by Dilley *et al*. (2025) over a large time-scale of consummatory behavior measurements, together with coupled data on

[378] Ball, Kylie, Anna Timperio, and David Crawford. "Neighbourhood socioeconomic inequalities in food access and affordability." Health & place 15, no. 2 (2009): 578-585. https://www.sciencedirect.com/science/article/pii/S1353829208001160?casa_token=WSU2hIdPfTEAAAAA:UISwCoJDjyubgRw8g1DPiXizA5f-kufRACt-0gzxd0iQJ949BARtnSsCe0TmWCwggaEDeLoV.

[379] Sharma, Dilip, Suril Verma, Shivani Vaidya, Kiran Kalia, and Vinod Tiwari. "Recent updates on GLP-1 agonists: Current advancements & challenges." Biomedicine & Pharmacotherapy 108 (2018): 952-962.https://www.sciencedirect.com/science/article/pii/S0753332218327537

[380] Dilley, Andrew, Saroj Adhikari, Pratikshya Silwal, Jayson L. Lusk, and Brandon R. Mcfadden. "Characteristics and food consumption for current, previous, and potential consumers of GLP-1 s." Food Quality and Preference 129 (2025): 105507.

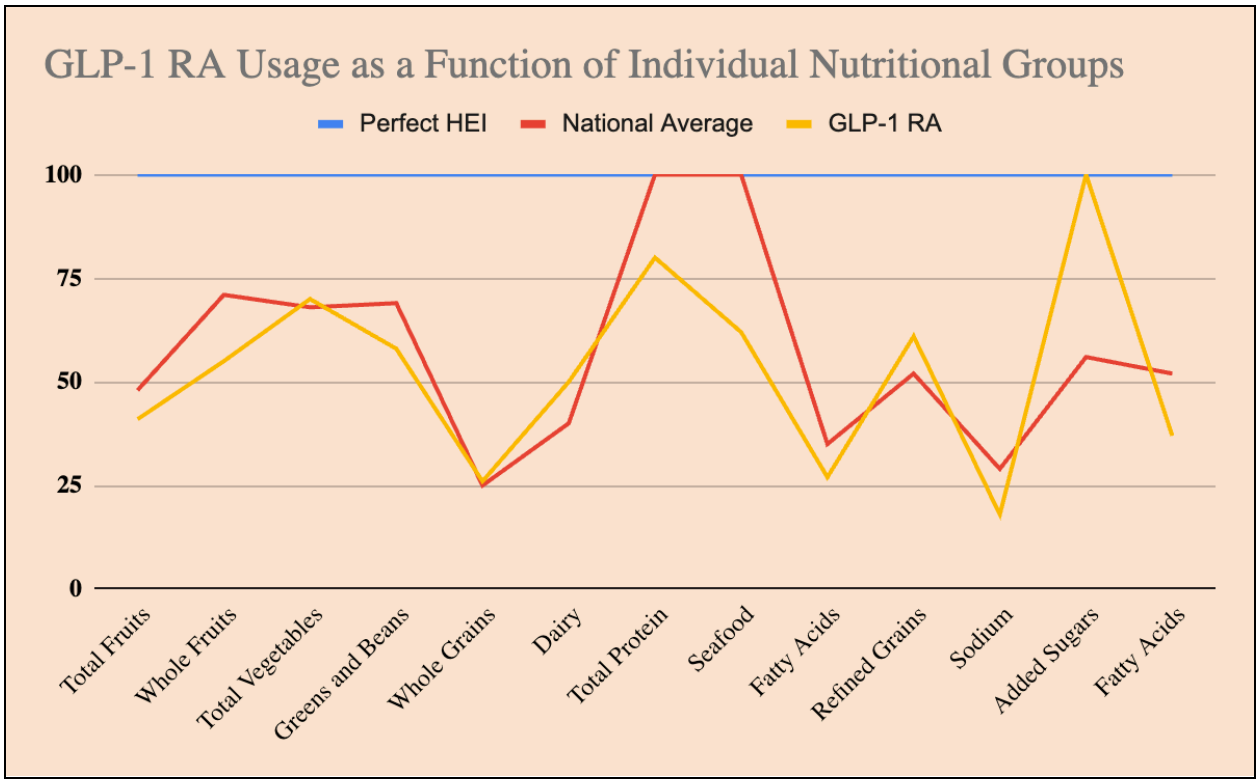


Figure 17: GLP-1 RA Usage as a function of nutritional groups, with a secondary cross-comparison of the national average and GLP-1-RA levels to a perfect HEI (100%), which serves as a normalization factor from the standpoint of direct analysis.

weight and GLP-1 receptor agonist usage as well as patient-centric surveys to obtain qualitative data on nutritional specifications, two observations emerged as clear indicators of the implications of GLP-1 usage:(i) individuals using GLP-1's exhibited significant reduction in caloric intake – between 720–990 calories a day, and (ii) such individuals also reduced intake of fatty and sweet foods substantially.[381]

Therefore, a natural extension from this study is the observation that individuals with greater *access* to nutritious food naturally exhibit a greater *preference* for GLP-1's, since a reduction in caloric intake may then be compensated by the possibility of eating surrogate foods

[381] Ibid.

that offer healthier alternatives (especially when avoiding fatty and sweet foods). However, when considering both quality of diet and aggregate eating habits through the Healthy Eating Index (HEI), after application of a Bonferroni correction and a substantial series of regressions and significance tests, a study by Johnson *et al*. (2025) established that dietary quality was quite suboptimal for patients, especially among individuals with greater usage of GLP-1's (i.e., a positive correlation was established) – a contrast to the study of Dilley *et al*. (2025).[382] Nonetheless, despite this apparent inconsistency, the distinction between the studies is highlighted in the observation that the study of Johnson *et al*. (2025) focused on patients *with existing low access levels to varieties of foods*, which was the only substantial point of key distinction (in a functional sense) from the study of Dilley *et al*. (2025).[383] Hence, from a comparative standpoint, we may posit the conclusion that lower access levels are generally linked to lower GLP-1 consumption, since individuals with higher GLP-1 consumption rates generally require greater substitutes for the aggregate loss of caloric intake.[384,385] Indeed, as demonstrated in Figures 1 and 2 above, the necessity of higher added sugars and a dramatic transformation in major sources of nutrition implies individuals who utilize higher concentrations of GLP-1's likely require a greater diversity of sources of food, which is effectively correlated to broader food accessibility.[386,387]

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[382] Johnson BVB, Milstead M, Green L, Kreider R, Jones R. Diet quality and nutrient distribution while using glucagon-like-peptide-1 receptor agonist: A secondary cross-sectional analysis. Obes Pillars. 2025 Jul 8;16:100195. doi: 10.1016/j.obpill.2025.100195. PMID: 40852562; PMCID: PMC12369429.
[383] Ibid.
[384] Ronveaux, Charlotte C., Guillaume de Lartigue, and Helen E. Raybould. "Ability of GLP-1 to decrease food intake is dependent on nutritional status." Physiology & behavior 135 (2014): 222-229.
[385] Mehrtash, Farhad, Jody Dushay, and JoAnn E. Manson. "Integrating diet and physical activity when prescribing GLP-1s—Lifestyle factors remain crucial." JAMA Internal Medicine 185, no. 9 (2025): 1151-1152.
[386] Ibid.
[387] Imboden, Mary T. "Knowing Well, Being Well: well-being born of understanding: Access to GLP-1s: Where Do Employers Fit in?." American Journal of Health Promotion 39.5 (2025): 828-843.

Finally, we consider the relative need for GLP-1 treatments as a function of food accessibility; that is, we seek to evaluate the extent to which individuals who either urgently require medication or cannot generally afford healthy lifestyles require greater dosages or intensities of GLP-1 treatments (or require such treatments, on aggregate, with higher general probability). Although there are no direct studies that have investigated this implication, we may establish its plausibility using a Modus Tollens-like series of logical implications to establish the desired correlative result.[388,389] In particular, an investigation by Brady *et al*. (2024) established that, among patients whose income was adjusted to accommodate for ability to afford GLP-1 treatments *after other expenses were removed*, adherence and persistence exhibited a monotonic relationship with respect to aggregate income.[390] Since a significant correlative source to the income value reported in Figure 18 is food access, as noted within the study itself, it follows that access to food serves as a significant determinant of long-term GLP-1 necessity (quantified through the MPR value of persistence) and usage (quantified through adherence).[391]

[388]Lahoud, Chloe, Malek Kreidieh, and Liliane Deeb. "GLP-1 Receptor Agonists in Gastrointestinal Practices: Enhancing Both Procedural and Patient-Related Outcomes." SN Comprehensive Clinical Medicine 7, no. 1 (2025): 1-9.
[389] Skibicka, Karolina P. "The central GLP-1: implications for food and drug reward." Frontiers in neuroscience 7 (2013): 181.
[390] Brady, B., K. A. Evans, R. Fowler, and L. A. Palmer. "PCR12 Income and Utilization of GLP-1 RAs: A Role for Patient Wage in Type 2 Diabetes Management." Value in Health 27, no. 12 (2024): S505.
[391] Ibid.

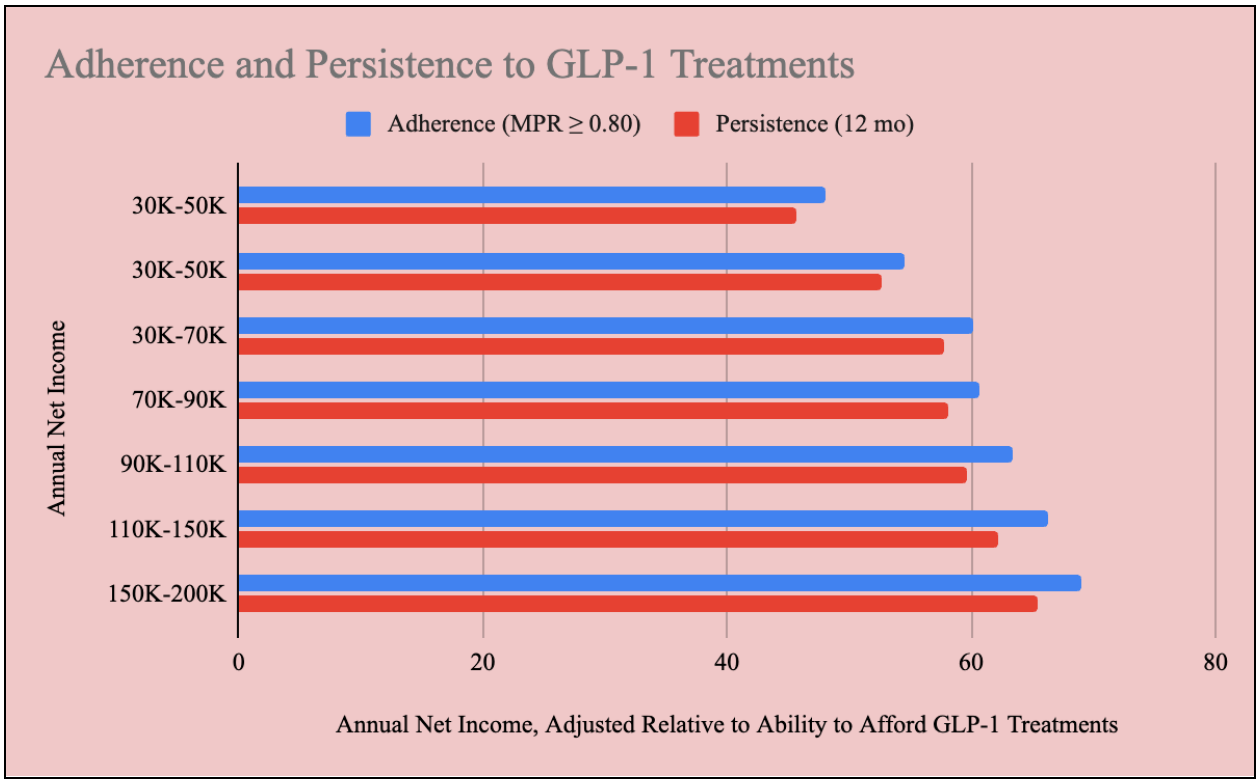


Figure 18: Comparative Usage of GLP-1 Treatments after adjustment for ability to afford such treatments.[392]

Moreover, an additional factor that contributes towards considerations for patients with urgent need is the observation that among GLP-1 treatments, almost 40% of such prescriptions have never been filled, implying that short-term availability could be significantly compromised.[393] Hence, we conclude that food access exhibits a significant implication for GLP-1 retention, with retention increasing substantially under greater access to food, whereas necessity itself of treatment remains roughly invariant across groups.

III. Education Levels

Within the discussion of GLP-1 drugs and access to them, it is important to consider what demographics make up the people affected by conditions like type 2 diabetes and obesity, so as to

[392] Brady, B., K. A. Evans, R. Fowler, and L. A. Palmer. "PCR12 Income and Utilization of GLP-1 RAs: A Role for Patient Wage in Type 2 Diabetes Management." Value in Health 27, no. 12 (2024): S505.
[393] Shaw, Maggie L. 2025. “Prescription Access Crisis: 40% of GLP-1 RA Rx Are Unfilled.” AJMC. AJMC. October 21. https://www.ajmc.com/view/prescription-access-crisis-40-of-glp-1-ra-rx-are-unfilled.

better draw conclusions on what needs to be done going forward in terms of this market and industry. One critical way to explore this is through the relationship with the education level and factors surrounding GLP-1 Drugs, such as need, access, and use. This opens up many comparisons between all of these groups that also hint at arguments surrounding affordability and income levels, which will be explored. However, this paper will ultimately dive deeper into the relationship with these conditions and those in the U.S. who have less than a high school diploma, a high school diploma or equivalent, or a form of higher education, such as some or completed college and advanced degrees. Overall, by looking through this lens, new insights can be drawn as to see who is affected by possible changes within this area of healthcare.

In order to see what populations with different income levels are in need of GLP-1 drugs, it can be broken down into the different conditions that typically can be treated through the use of these drugs. Namely, the following graphs detail the conditions of Type 2 diabetes and obesity compared to the education level of select portions of that population in order to gain a closer insight. Figure 19 details what education levels had the highest and lowest rates of obesity in the United States in 2023, in which the highest portions of the population were 36.5% of people with less than a high school diploma being obese, while only 27.1% of college graduates were obese.[394] Furthermore, Figure 20 showcases the education levels of people with diagnosed type 2 diabetes, with 13.1% of those with less than a high school diploma and 6.9% of those with more than a high school education having the condition.[395]

[394] Centers for Disease Control and Prevention (2024, September 12). Adult Obesity Prevalence Maps. Cdc.gov. Retrieved October 20, 2025, from https://www.cdc.gov/obesity/data-and-statistics/adult-obesity-prevalence-maps.html

[395] Centers for Disease Control and Prevention (2024, May 15). National Diabetes Statistics Report. Cdc.gov. Retrieved October 20, 2025, from https://www.cdc.gov/diabetes/php/data-research/index.html

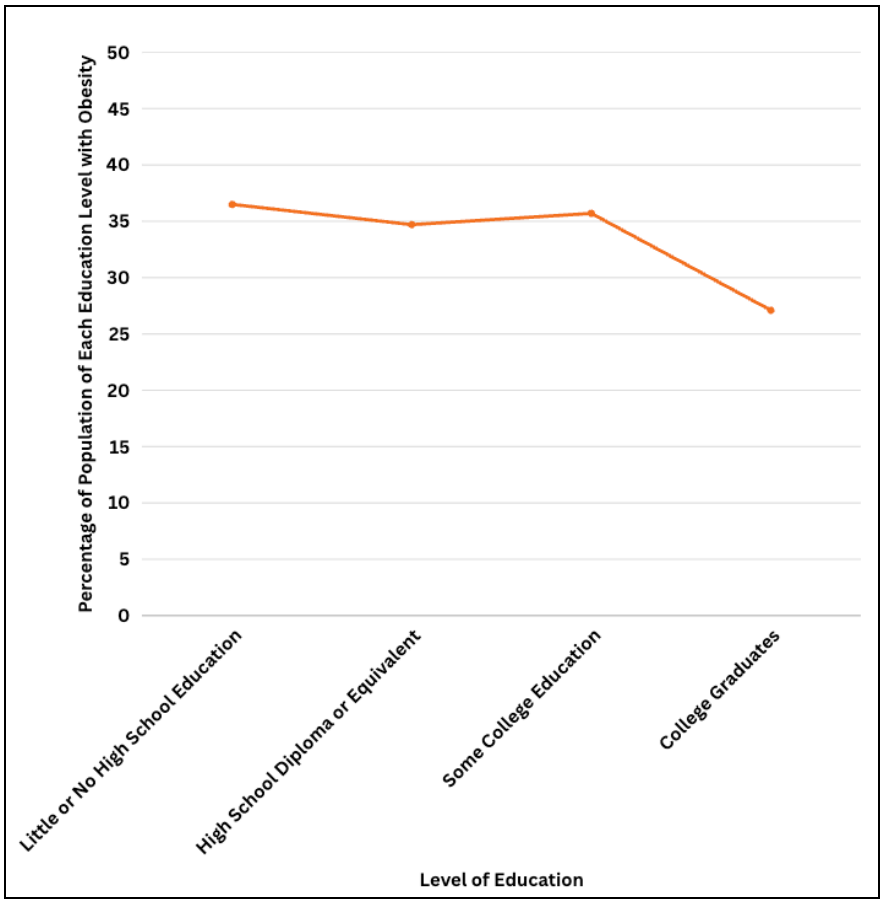


Figure 19: Percentage of People with Varying Education Levels with Obesity

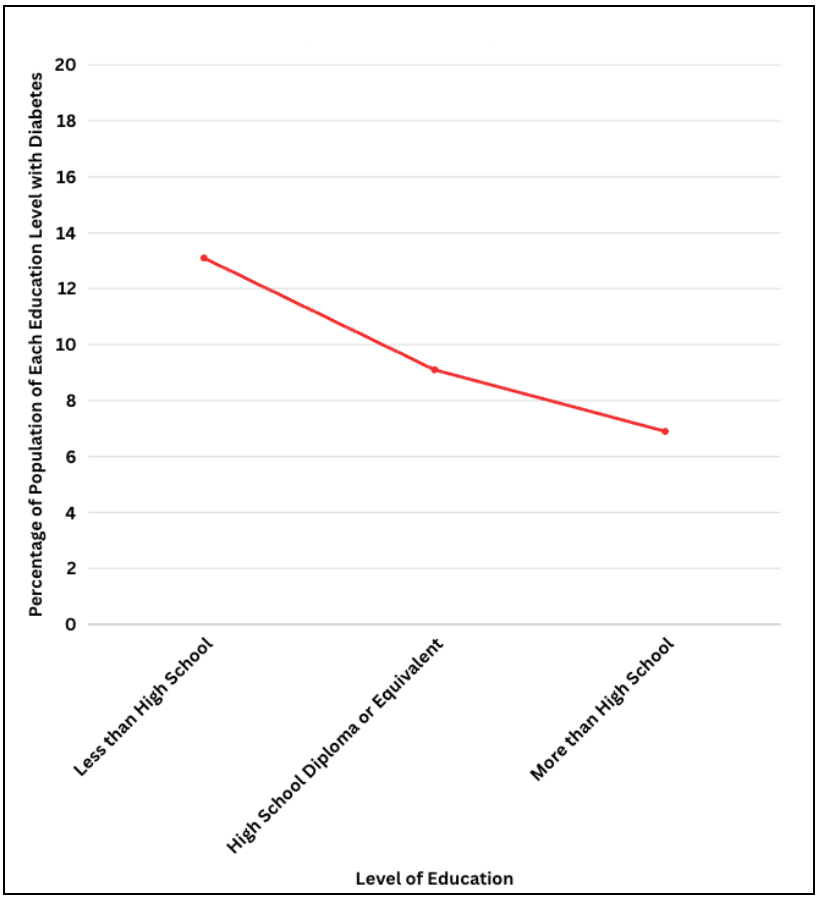


Figure 20: Percentage of People with Varying Education Levels with Diagnosed Type 2 Diabetes

Now that an idea of the people who need drugs like GLP-1s based on education level has been deduced, the next point of analysis revolves around the people who are actually able to have access and use these drugs as part of their treatment plans for conditions like type 2 diabetes. Namely, it is reported that those who have a high school education or some college education have the highest rate of usage of GLP-1 drugs, while those who have less do not have the ability to use the drug as widely, despite being more prone to conditions that place them in need.[396] With that being said, Figure 21 depicts the usage of GLP-1 Drugs among those with varying levels of

[396] Mittman, Benjamin G., Phuc Le, Julia Y. Payne, Gina Ayers, and Michael B. Rothberg. "Sociodemographic Disparities in the Use of GLP-1 Receptor Agonists and SGLT-2 Inhibitors among US Adults with Type 2 Diabetes: NHANES 2005-March 2020." medRxiv, January 1, 2023, 2023.03.30.23287965. https://doi.org/10.1101/2023.03.30.23287965.

education. Furthermore, Figure 22 shows this same idea, except it also includes the percentage makeup of those using drugs other than GLP-1 in obesity and diabetic management. In this graph, you can see that access to GLP-1 drugs is limited among those with less education compared to other treatments.

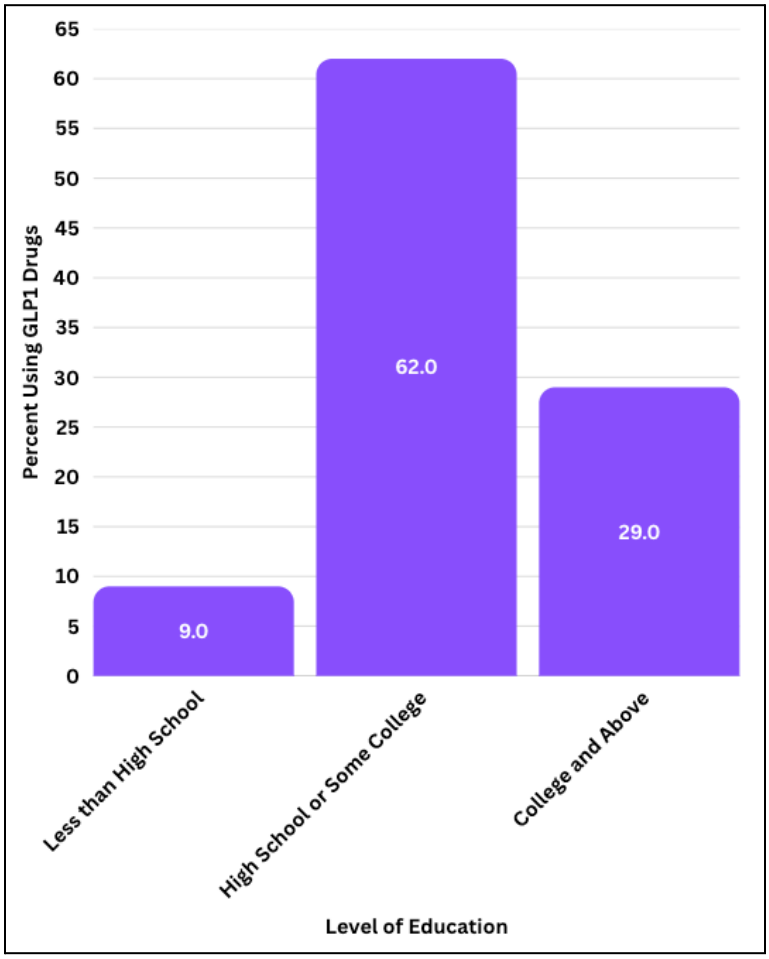


Figure 21: The Use of GLP-1s by Education Level

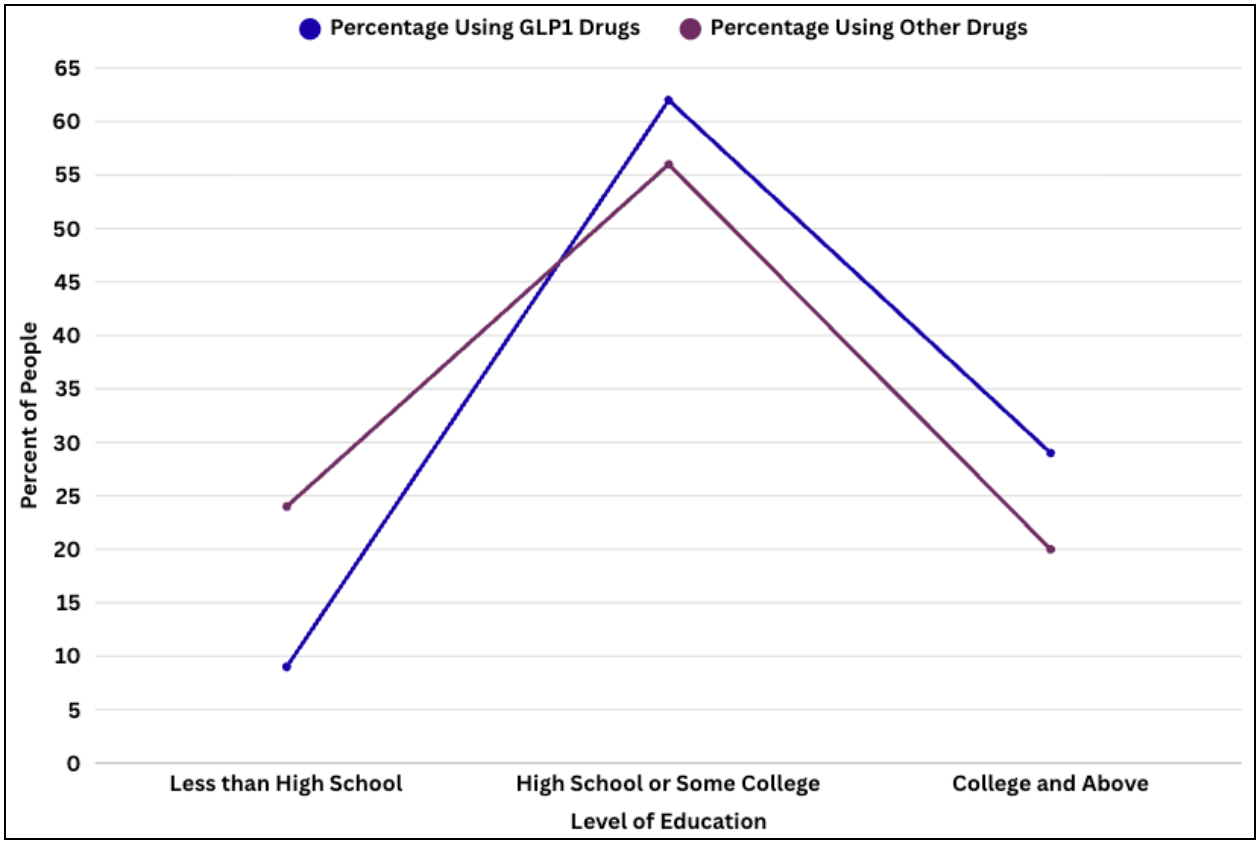


Figure 22: The Use of GLP-1s and Other Drugs to Treat Diabetes by Education Level

The next thing to consider is whether access to GLP-1 Drugs is evenly distributed to those who are proportionally equal in terms of possibly having a condition that would result in GLP-1 drugs being a part of a treatment plan. In order to do this, income levels by each educational attainment can be determined, and then an analysis of what income levels constitute higher access to GLP-1 drugs can be applied to see which educational levels experience a decrease in access to GLP-1 drugs, even with the same or increased need. Namely, it is found that those with incomes lower than $50,000 experience decreased access to GLP-1 drugs due to affordability, and the likelihood of people with these incomes facing barriers to accessing quality healthcare, while people above this threshold are, on average, able to have greater access to

GLP-1 drugs when needed.[397] With this in consideration, this can be overlaid over an analysis of the average income expected by each level of education to determine which education levels, on average, face decreased access to GLP-1 drugs and treatments. This is shown in Figure 23, where the top earners are those with a master's degree or higher, while the lowest income earners are typically those with less than a high school diploma.[398]

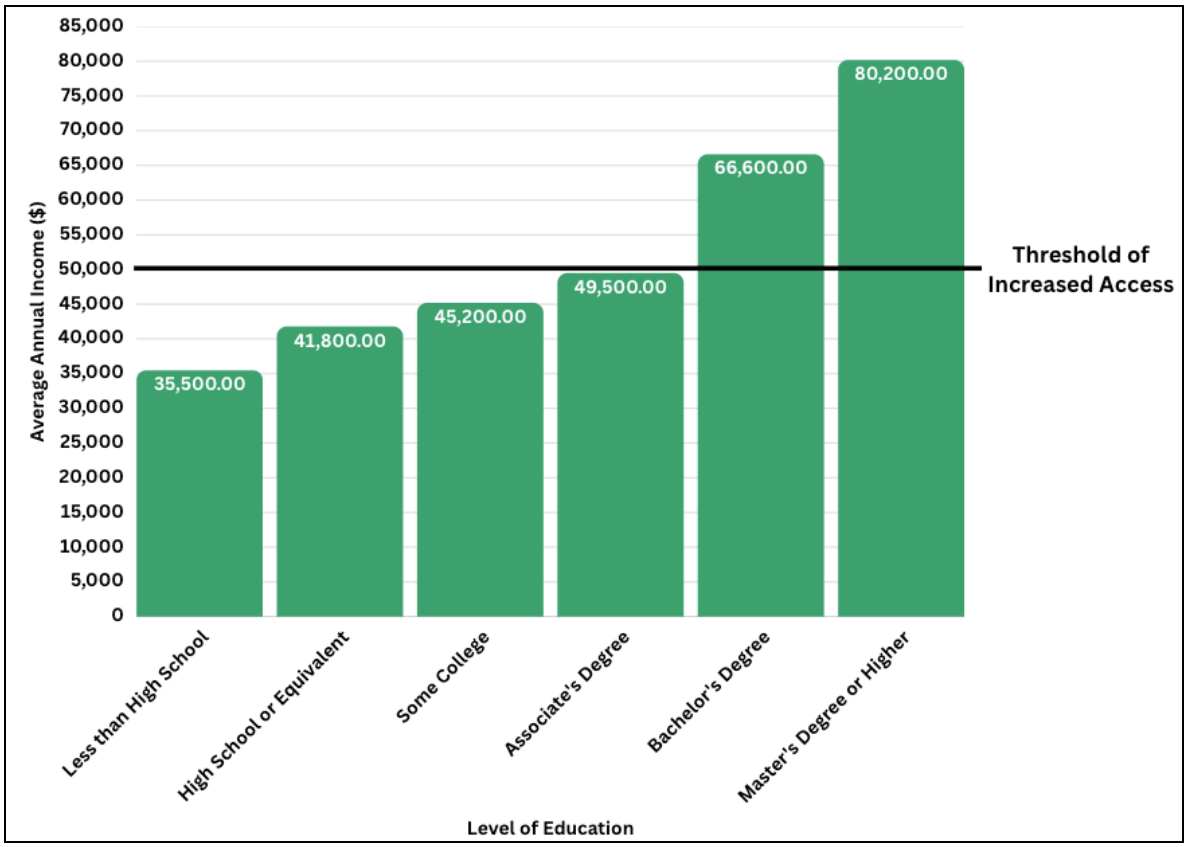


Figure 23: Access to GLP-1 Drugs by Varying Education Levels

[397] Karagiannis, T., Bekiari, E., & Tsapas, A. (2023). Socioeconomic aspects of incretin-based therapy. Diabetologia, 66(10), 1859–1868. https://doi.org/10.1007/s001With all of the following measures and analyses considered, it is noteworthy to point out that those with lower income levels are at greater risk of needing such drugs due to conditions like Type 2 Diabetes or Obesity; however, these same groups are often disadvantaged when it comes to the market and usage of these drugs. Particularly, they have lower rates of using these drugs compared to other alternatives that do not correspond to 25-023-05962-z

[398] National Center for Education Statistics. (2024). Annual Earnings by Educational Attainment. Condition of Education. U.S. Department of Education, Institute of Education Sciences. Retrieved October 20, 2025, from https://nces.ed.gov/programs/coe/indicator/cba.

With all of the following measures and analyses considered, it is noteworthy to point out that those with lower income levels are at greater risk and more inclined to need such drugs due to conditions like Type 2 Diabetes or Obesity; however, these same groups are often disadvantaged when it comes to the market and usage of these drugs. Particularly, they have lower rates of using these drugs compared to other alternatives that do not correspond to such disparities as lower education levels. Furthermore, based on average income level more disparities can be seen as people with less education have lower incomes which corresponds oftentimes to being in communities that may lack healthcare access in general or have barriers to entry for many people who may need these drugs. Overall, therefore, it can be assumed that communities where the median education level is lower are more likely to be both in need of GLP-1 Drugs while similarly disadvantaged in receiving them due to affordability and overall access within areas across the United States.

IV. Employment Status

Since the seminal discovery of glucagon-like peptide 1 (GLP-1) treatments by Mojsov, Habener, and Holst, together with scientific justification for the ability of such treatments to stimulate insulin release in the 1980s, three decades of clinical trials and implementation of such technologies have established substantial improvements in individuals facing both Type-I and Type-II diabetes, as well as broader concerns of chronic obesity.[399,400,401] Given the significance of such treatments, together with various meta-level studies that establish substantial disparities in

[399]Mojsov, Svetlana, Gordon C. Weir, and Joel F. Habener. "Insulinotropin: glucagon-like peptide I (7-37) co-encoded in the glucagon gene is a potent stimulator of insulin release in the perfused rat pancreas." The Journal of clinical investigation 79, no. 2 (1987): 616-619.
[400] Mojsov, Svetlana. "Discovery of Glucagon-Like Peptide-1 and Its Biological Activity." JAMA (2025).
[401] Parkes, David G., Kenneth F. Mace, and Michael E. Trautmann. "Discovery and development of exenatide: the first antidiabetic agent to leverage the multiple benefits of the incretin hormone, GLP-1." Expert opinion on drug discovery 8, no. 2 (2013): 219-244.

access to GLP-1 receptor agonist treatments among individuals of differing racial demographics, income levels, age distributions, and other critical factors, it is imperative to consider the role that individuals' occupations play in enabling the possibility of accessing GLP-1 treatments.[402,403] In particular, various occupations offer differing levels of coverage for such medications among individuals who require treatment or are currently enrolled treatment plans; such plans to ease affordability generally affect consumption of such medications on a proper, regular basis with high correlation.[404]

Thus, we consider the impact of individuals' jobs on whether such occupations provide the possibility of coverage for GLP-1 receptor agonist medications, whether in part or in full, and how coverage itself varies among the average annual salary that such an occupation provides. We note that the motivation for explaining the second correlative series involves the observation that individuals who belong to lower socioeconomic strata within the modern societal framework have a lower aggregate probability of being able to access GLP-1 treatments, particularly due to their relatively high price points.[405406] Moreover, we also evaluate the extent to which access to coverage for GLP-1 treatments differs among individuals who are employed in different sectors; such analysis is motivated from the observation that individuals who engage in activities that are

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[402] Agardh, Emilie, Peter Allebeck, Johan Hallqvist, Tahereh Moradi, and Anna Sidorchuk. "Type 2 diabetes incidence and socio-economic position: a systematic review and meta-analysis." International journal of epidemiology 40, no. 3 (2011): 804-818.
[403] Demakakos, P., Marmot, M. & Steptoe, A. Socioeconomic position and the incidence of type 2 diabetes: the ELSA study. Eur J Epidemiol 27, 367–378 (2012). https://doi.org/10.1007/s10654-012-9688-4.

[404] King, Rebekah A., and Michael S. Sinha. "The Weight of Stigma." Saint Louis U. Legal Studies Research Paper 2025-11 (2025).
[405] Yang CY, Chen YR, Ou HT, Kuo S. Cost-effectiveness of GLP-1 receptor agonists versus insulin for the treatment of type 2 diabetes: a real-world study and systematic review. Cardiovasc Diabetol. 2021 Jan 19;20(1):21. doi: 10.1186/s12933-020-01211-4. PMID: 33468131; PMCID: PMC7816439.
[406] O'Reilly, Kevin B. 2025. "Spending on GLP-1s Has Grown Dramatically. Here Are the Details." American Medical Association. August 27. https://www.ama-assn.org/public-health/prevention-wellness/spending-glp-1s-has-grown-dramatically-here-are-details.

tangential to biotechnology development may have a higher probability of gaining larger potential benefits should such reliance be required.

We first consider the role that the occupation of an individual facing either Type-II diabetes (T2D) or obesity might face in the ability of such an individual to gain coverage for GLP-1 treatments. In particular, a broad analysis conducted by Claxton *et al*. (2024) established workers are generally able to obtain much more substantial deductible values from the benefits of coverage, particularly in large companies (qualified with a threshold of 5,000 employees or greater).[407] Indeed, the improvement in aggregate deductible workers in such large companies (among those who reported such values in a manner that was accessible to the comprehensive analysis conducted within the study), on average, annual deductible values increased by 47% within a ten-year span; moreover, over 28% of large companies covered GLP-1 treatments in full for "weight loss" – note, however, that the definition of how substantial such weight loss treatments might be in order to qualify for such treatments, or whether individuals *without* proven underlying medical conditions could access such treatments, was left ambiguous within the study itself.[408]

It is also notable that, since Tsipas *et al*. (2025) establish that the mean annual growth rate in costs of GLP-1's was approximately 34% over the four-year span 2018-2022, the 322% overall increase in prices during this four-year period *alone* far outweighs the possible increase in deductibles that individuals have received from companies in recent years.[409] Therefore, while

[407]Claxton G, Rae M, Damico A, Winger A, Wager E. Health Benefits In 2024: Higher Premiums Persist, Employer Strategies For GLP-1 Coverage And Family-Building Benefits. Health Aff (Millwood). 2024 Nov;43(11):1491-1501. doi: 10.1377/hlthaff.2024.01006. Epub 2024 Oct 9. PMID: 39381848.
[408] Ibid.
[409]Tsipas, Stavros, Tamkeen Khan, Fleetwood Loustalot, Klodiana Myftari, and Gregory Wozniak. "Spending on Glucagon-Like Peptide-1 Receptor Agonists Among US Adults." JAMA Network Open 8, no. 4 (2025): e252964-e252964.

companies have certainly scaled up deductible values and overall coverage plans, such coverage levels have been insufficient to match the escalating costs of treatments, implying that workers face an escalating deficit in their ability to cover such medications.[410]

However, on a more positive note, the *fraction* of companies that have begun to provide insurance coverage to individuals requiring insulin treatments of consistent dosages of GLP-1's has been steadily increasing. Prior to establishing this trend, we note that small companies, with relatively few employees, should be nominally excluded from this analysis, since such companies likely either do not have the capital or a sufficiently large subset of employees to be able to establish this form of coverage as a relevant consideration for employees.[411] For instance, a comprehensive analysis by the International Foundation for Economic Benefit Plans established, using a comparative from May of 2023 to May of 2024, that substantial improvements had been established in ensuring broad access to GLP-1 treatments, particularly outside sectors in which traditionally wealthy businesses provided extensive coverage due to high surplus revenues.[412] Indeed, as elucidated in Figure 24, a significant portion of companies (in particular, 12%) transitioned away from a firm position on not offering *any* possible coverage for treatments of either diabetes or GLP-1 medications.[413] Therefore, such a model indicates a high

[410] Hu Y, Zheng SL, Ye XL, Shi JN, Zheng XW, Pan HS, Zhang YW, Yang XL, Huang P. Cost-effectiveness analysis of 4 GLP-1RAs in the treatment of obesity in a US setting. Ann Transl Med. 2022 Feb;10(3):152. doi: 10.21037/atm-22-200. PMID: 35284548; PMCID: PMC8904982.
[411] EBRI Press. "New Research Finds Percentage of Small Employers Offering Health Benefits in Decline but Employment-Based Health Coverage Still Most Common Source of Health Coverage for Nonelderly Population." 2025. EBRI. Accessed October 28. https://www.ebri.org/content/new-research-finds-percentage-of-small-employers-offering-health-benefits-in-decline-but-employment-based-health-coverage-still-most-common-source-of-health-coverage-for-nonelderly-population.
[412] IFEBP Press. "Employer Coverage of GLP-1 Drugs on the Rise." 2025. IFEBP. Accessed October 28. https://www.ifebp.org/resources---news/news-and-regulatory-updates/press-room/press-releases/2024/06/13/employer-coverage-of-glp-1-drugs-on-the-rise.
[413] Ibid.

probability that many companies experienced significant incentives to expand coverage accessibility, together with the possibility of providing

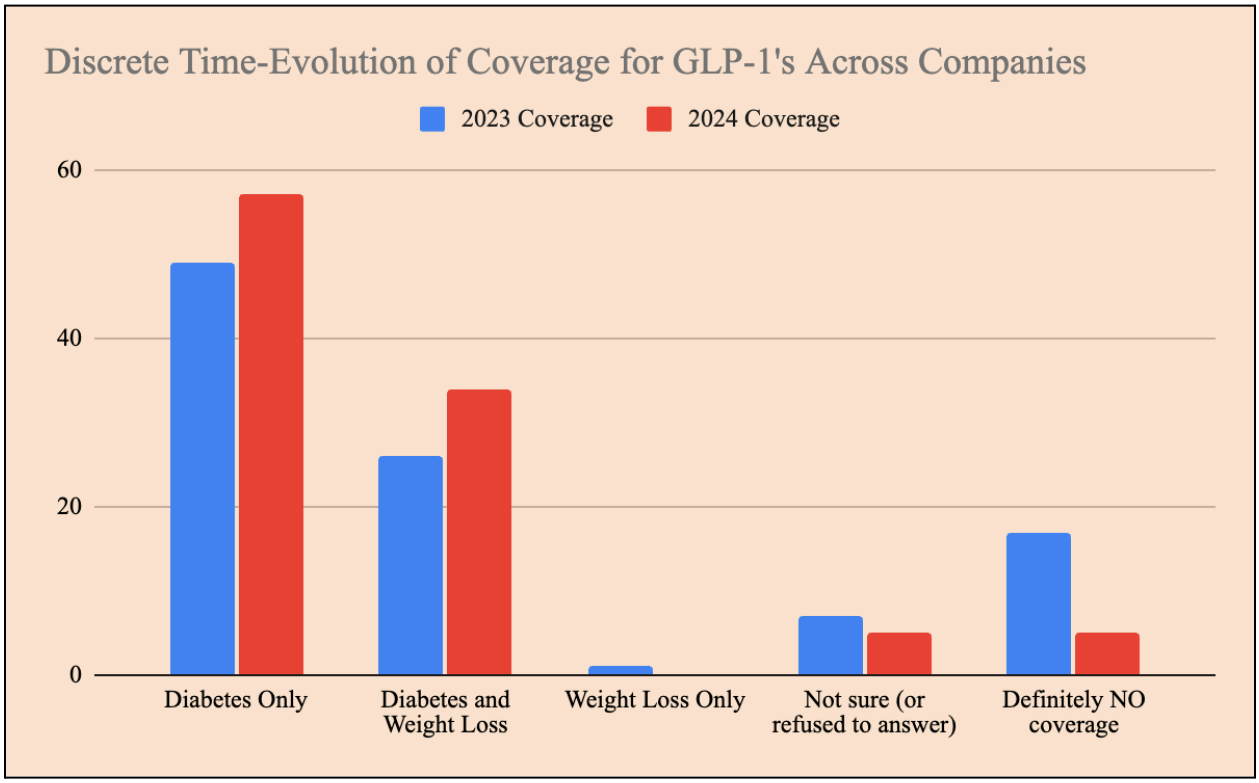


Figure 24: Percentage of companies that cover GLP-1 treatments of a specific type; note, in particular, that this analysis distinguishes between companies that solely cover for diabetes and those that solely cover for weight loss; the most notable relative growth occurs within the range of companies that offer insurance and copy methodologies for individuals who *either* require medications for general weight-loss or for diabetes treatments.[414]

some marginal possibility of treatment – a trend in behavior that is broadly consistent with expected macroeconomic models.[415,416] This behavior is particularly due to the observation

[414] IFEBP Press. "Employer Coverage of GLP-1 Drugs on the Rise." 2025. IFEBP. Accessed October 28. https://www.ifebp.org/resources---news/news-and-regulatory-updates/press-room/press-releases/2024/06/13/employer-coverage-of-glp-1-drugs-on-the-rise.
[415] Ibid.
[416] Pearson, Steven D., Christopher M. Whaley, and Sarah K. Emond. "Affordable access to GLP-1 obesity medications: strategies to guide market action and policy solutions in the US." Journal of Comparative Effectiveness Research 14, no. 9 (2025): e250083.

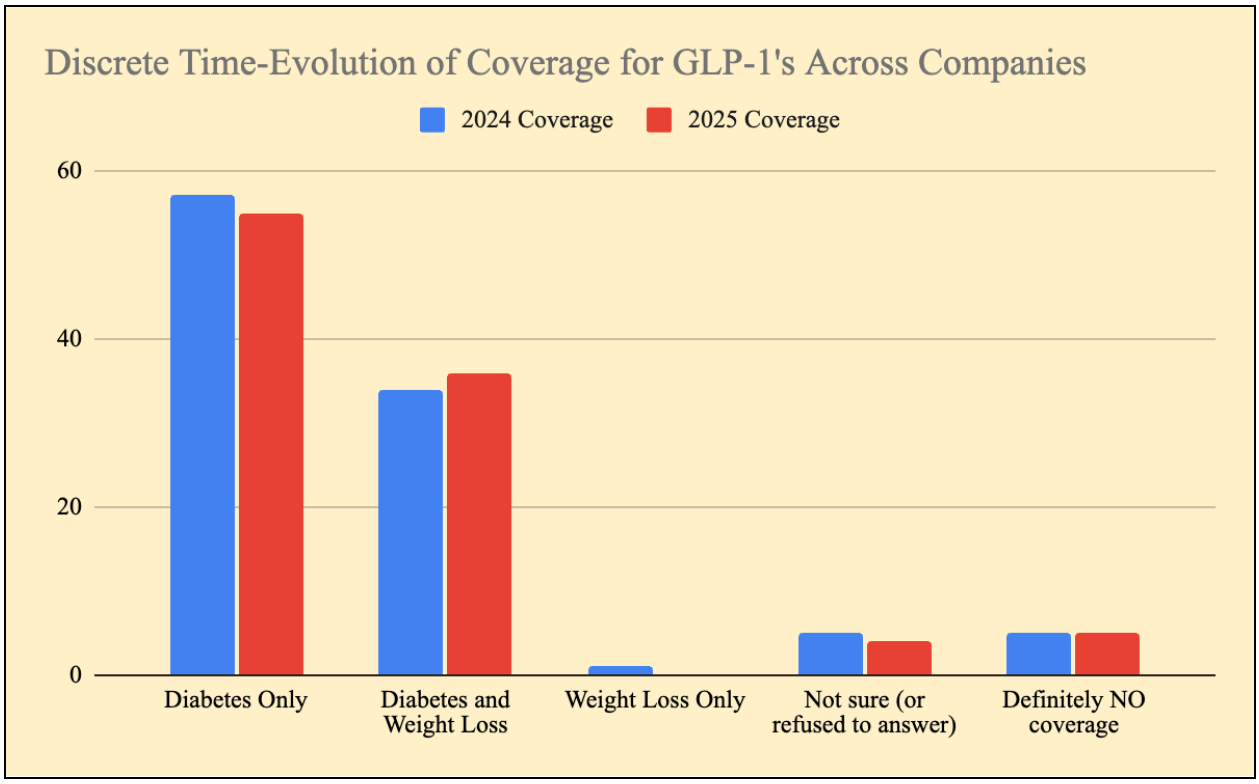


Figure 25: Updated percentage of companies covering GLP-1 insurance treatments during the 2024-2025 years; note that the comparative gains in both companies covering individuals with diabetes as well as companies that cover individuals who either have diabetes or weight loss substantially declined, indicating a lower pressure on those companies who have yet to extend treatments to acquiesce to dominant market trends.[417]

that, if such companies *fail* to adapt, their ability to provide valuable incentives to potential employees also vanishes. However, it is notable that, even after solely one year of time-evolution, this pressure among companies to expand access to treatments subsided substantially; a nearly identical analysis conducted by the IFEBP from May 2024 to May 2025 established marginal gains in the total number of companies providing access to treatment for either patients with diabetes or patients with a desire for weight-loss.[418] Moreover, the transition among companies

[417] International Foundation for Economic Benefit Plans Press and Analysis Team. "GLP-1 Drugs: 2025 Pulse Survey (U.S.)." 2025. IFEBP. Accessed October 28. https://www.ifebp.org/detail-pages/resource/survey/glp-1-drugs-(u.s.)--2025-pulse-survey.

[418] International Foundation for Economic Benefit Plans Press and Analysis Team. "GLP-1 Drugs: 2025 Pulse Survey (U.S.)." 2025. IFEBP. Accessed October 28. https://www.ifebp.org/detail-pages/resource/survey/glp-1-drugs-(u.s.)--2025-pulse-survey.

towards ensuring broader coverage plans, with substantially lower copay rates as well as feasible cost-scaling of medications should treatment require longer dosage periods, has significantly decelerated.[419] Therefore, Keshob and Spiegel (2025) determine that the aggregate effect of expanded access to treatment does *not*, in fact, offset the broader increase in premiums for such treatments. Hence, despite expanded access to coverage, individuals who *obtain* this access often face significant challenges in balancing regimens with the costs associated with a possible lack of effectiveness in treatments.

We conclude by outlining the possibilities for positive transformation in the interests of individuals who seek to optimize their ability to afford GLP-1's through insurance coverage while simultaneously maintaining their treatment plans. Indeed, despite the significant increase in pricing rates and the relatively meager increase in adoption rates of coverage policies among companies, coupled with the extent that such adoption covers prices thoroughly, employers may well offer a competitive advantage against competitors by directly utilizing coverage as a much more prominent incentive for individuals to join firms or large companies. Additionally, we posit that individuals ought to establish a greater pressure on companies to expand coverage for such treatments, particularly given that such avenues may offer the only manners of counteracting existing socioeconomic and racial pressures that dictate which individuals may access the transformative power of GLP-1's.

Calculating a Price Cap for GLP-1s

[419] Fronstin, Keshob Sharma, Jake Spiegel. 2025. "GLP-1 Coverage and Its Impact on Employment-Based Health Plan Premiums: A Simulation-Based Analysis." EBRI. Accessed October 28. https://www.ebri.org/content/glp-1-coverage-and-its-impact-on-employment-based-health-plan-premiums--a-simulation-based-analysis.

As prices of GLP-1 drugs come under the spotlight, it is important to consider the effect these prices have on people who may need these drugs to better their health and manage their conditions, such as Obesity and Type 2 Diabetes, that couple with other existing conditions for many of these individuals, but who may also lack resources in order to reliably afford these drugs. Therefore, the average income of people who lie at the bottom percentiles of annual incomes in the United States needs to be researched to determine at what price these individuals can afford these drugs and receive the benefits these medications can offer them. It must also be noted that the income levels and thresholds prioritized by healthcare systems and cost-reducing programs align with the same groups of people at the forefront of determining what makes GLP-1 drugs affordable for low-income individuals. The following paper details considerations and possible implementations to improve access to these drugs.

To observe how drug prices currently and optimally impact people in the lowest income levels, these groups should be identified, and their annual incomes should be considered to determine what is affordable at these various levels. Therefore, when examining low-income individuals, the bottom 20% of earners should be considered, and the different positions within that spectrum should be evaluated to identify noteworthy values for affordability calculations. Namely, there are three categories that deserve attention in this analysis: the average income for people in the bottom 10% of incomes, the highest income for people in the bottom 10% of incomes, and the highest income for people in the bottom 20% of incomes. By using these values, averages and upper amounts are identified to account for all people within ranges considered low income. These individuals need to be at the forefront of an analysis to determine the affordability of these drugs. To start, the average income of a household within the 10% of

lowest income earners in the United States in 2023 was $9,059 in 2023.[420] Alongside looking at the bottom 10% of income earners, it can be identified that the highest income within this category in the U.S. in 2023 was $18,980.[421] Further, to expand upon this range and provide more numbers to represent up to the 20% of income earners, it can be determined that in 2023, the highest income within the bottom ⅕ of income earners was $33,000.[422] All of these numbers and what they represent are summarized in the table below. The reason to include these three levels of income is that the bottom 20% of income earners are the ones most prioritized in our current governmental programs that offer healthcare coverage to reduce costs or offer other methods of making healthcare costs cheaper for them.

[420] U.S. Bureau of Labor Statistics, Income After Taxes: Income After Taxes by Deciles of Income Before Taxes: Lowest 10 Percent (1st to 10th Percentile) [CXUINCAFTTXLB1502M], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/CXUINCAFTTXLB1502M, October 13, 2025.
[421] U.S. Census Bureau. (2024, September). Income in the Uniprioritized in our current governmental programs that provide healthcare coverage to reduce costs or offer alternative methods to make healthcare more affordableted States: 2023 (P60-282). U.S. Government Publishing Office. https://www2.census.gov/library/publications/2024/demo/p60-282.pdf
[422] United States Census Bureau (2025, August 25). Historical Income Tables: Households. Census.gov. Retrieved October 13, 2025, from https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html

	Annual Income	Monthly Income
Average income of those in the bottom 10% of earners	$9,059	$754
Highest income of those in the bottom 10% of earners	$18,980	$1,581.67
Highest income of those in the bottom 20% of earners	$33,000	$2,750

Table 5: Noteworthy Incomes Within the Bottom 20% of Households in the U.S.

The average family size that constitutes a household is roughly 3.15.[423] However, because lower-income households typically have larger families with an increased overall family size, this number can be increased to 4 members of an average household.[424] With this being said, the government, both federally and at the state level, sets income thresholds for a family of 4 to determine who qualifies for programs like tax credits and Medicaid. Primarily, for a family of 4 who makes less than $32,150, they are expected to qualify for Medicaid, exempting all outstanding factors that could affect this.[425] These ranges within those who qualify for certain programs and benefits are detailed in the table below. Therefore, this shows that the government

[423] United States Census Bureau (2023, November 1). America's Families and Living Arrangements: 2023. Census.gov. Retrieved October 13, 2025, from https://www.census.gov/data/tables/2023/demo/families/cps-2023.html

[424] Hopecroft, R. L. (2024, March 18). More Babies For the Rich? The Relationship Between Status and Children Is Changing. Ifstudies.org. Retrieved October 13, 2025, from https://ifstudies.org/blog/more-babies-for-the-rich-the-relationship-between-status-and-children-is-changing#:~:text=For%20women%20in%20the%20U.S.,children%20than%20low%20income%20women.

[425] U.S. Centers for Medicare and Medicaid (n.d.). Federal poverty level (FPL). Healthcare.gov. Retrieved October 13, 2025, from https://www.healthcare.gov/glossary/federal-poverty-level-fpl/

has determined that they are very focused on helping those within the bottom 20% of income earners in the United States because the income threshold is comparable to the highest income within the lowest ⅕ of household incomes, meaning that this number must also be included within the measures of low-income individuals and households.

Annual Income	Cost-Saving Program
<$32,150	May qualify for Medicaid
$32,150 - $44,367	May qualify for Medicaid if the state has expanded Medicaid coverage
$32,150 - $128,600	Qualifies for tax credits that lower monthly premium for a marketplace plan
> $128,600	May qualify for tax credits that lower monthly premium for a marketplace plan

Table 6: Income Thresholds to Receive Government-Reduced-Cost Health Coverage for The Average Family of 4

At current measures, it is estimated that lower-income individuals, as defined as being in the bottom 20% of earners nationally, will typically spend over 33.9% of their income on healthcare costs when at least one person in the household has a chronic condition such as Obesity or Type 2 Diabetes.[426] With this being said, the table below illustrates the typical current medical costs under this assumption for all individuals within the lowest ⅕ of income levels.

[426] RAND Corporation (2020, January 27). Burden of Health Care Payments Is Greatest Among Americans with the Lowest Incomes. Rand.org. Retrieved October 13, 2025, from https://www.rand.org/news/press/2020/01/27.html

	Annual Income	Annual Amount spent on Healthcare
Average income of those in the bottom 10% of earners	$9,059	$3,071.00
Highest income of those in the bottom 10% of earners	$18,980	$6,434.22
Highest income of those in the bottom 20% of earners	$33,000	$11,187

Table 7: Annual Amount spent on Healthcare by Measure of Income

To determine what constitutes reasonable medical costs for affordability and equal access to these drugs, one can consider the percentage of their income that should be allocated to healthcare costs while still leaving enough for other basic necessities at their income level. Namely, the Centers for Medicare and Medicaid use the convention that, in order for healthcare costs to be affordable, they should not exceed 9.02% of the total household income.[427] The table below uses this metric of affordability to calculate the maximum amount each household should spend on healthcare.

[427] Centers for Medicare and Medicaid. Affordable coverage. Healthcare.gov. Retrieved October 13, 2025, from https://www.healthcare.gov/glossary/affordable-coverage/#:~:text=A%20job%2Dbased%20health%20plan,to%20file%20a%20tax%20return.

	Annual Income	Affordable Annual Amount on Healthcare Spending
Average income of those in the bottom 10% of earners	$9,059	$815.31
Highest income of those in the bottom 10% of earners	$18,980	$1,708.2
Highest income of those in the bottom 20% of earners	$33,000	$2,970

Table 8: Affordable Annual Amount spent on Healthcare by Measure of Income

Before looking into the specifics of the GLP-1 Market, it must be noted that people on Medicaid will still incur costs unrelated to GLP-1s, such as other prescriptions and medical visits. For the average person with diabetes on Medicaid, a 2009 study found that they will spend $177 on annual medical costs. [428] Adjusted for inflation, this results in average costs $267.70 beyond GLP-1 Drugs. The table below shows the new amount, accounting for this outside cost, which serves as the maximum price at which low-income households can afford to buy GLP-1 drugs.

[428] The Kaiser Family Foundation (n.d.). The Role of Medicaid for People with Diabetes. KFF.org. Retrieved October 13, 2025, from https://www.kff.org/wp-content/uploads/2013/01/8383_d.pdf

	Annual Income	Affordable Annual Amount on GLP-1 Drugs	Affordable Monthly Amount on GLP-1 Drugs
Average income of those in the bottom 10% of earners	$9,059	$547.61	$45.63
Highest income of those in the bottom 10% of earners	$18,980	$1,440.50	$120.04
Highest income of those in the bottom 20% of earners	$33,000	$2,702.30	$225.19

Table 9: Affordable Amount spent on GLP-1 Drugs by Measure of Income

Given these values, the average monthly amount that the bottom 20% of income earners account for various income levels is shown, which can be averaged to give a monthly affordable cost for GLP-1s roughly equal to $130 per month or an annual cost of $1,560. While this number is not directly affordable for those within the bottom 10% of income earners, it does show a drastic step towards affordability as their medical costs would be roughly between 10% to 20% of their income for the highest and average incomes, respectively, which is both lower than the estimated 33.9% currently being spent on medical costs without lowering the price of GLP-1 drugs. One step further would be to focus only on people within the bottom 10% and ensure it is more affordable for them, which would constitute a monthly price of $80. However, this still wouldn't be affordable for the average income within the bottom 10% of earners, but it would

indicate a significant shift towards greater affordability, allowing increased access for low-income individuals. Overall, this ultimately does show that a lower cost for GLP-1 drugs is warranted in order to make them more affordable for people from lower-income backgrounds who still need the drug to manage their medical conditions, such as Obesity or Type 2 Diabetes.

Including Patients With Metabolically Healthy Obesity

GLP-1 drugs for weight loss are currently capped and covered by government programs only for patients with obesity who also have medical comorbidities, following the same criteria that most insurers use. Expanding access to all patients with obesity, regardless of comorbidities, remains an open debate due to concerns about cost, adherence, and effectiveness.[429] Public and private coverage of GLP-1s for weight management in the US is currently highly constrained, with most payers only covering these drugs when obesity is accompanied by qualified comorbidities such as type 2 diabetes or high cardiovascular risk.[430] This aligns with historical practice under Medicare and many commercial plans, which have treated anti-obscurity medications as elective or "lifestyle" treatments unless tied to a recognized high-risk condition.[431] Recent policy moves to cap prices under federal agreements seem to follow the same kind of pattern, where they are now focusing on patients with comorbidities first due to their higher baseline risk and clearer expected clinical benefit.[432]

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[429] The White House, "Fact Sheet: President Donald J. Trump Announces Major Developments in Bringing Most-Favored-Nation Pricing to American Patients," The White House, November 6, 2025, https://www.whitehouse.gov/fact-sheets/2025/11/fact-sheet-president-donald-j-trump-announces-major-developments-in-bringing-most-favored-nation-pricing-to-american-patients/.
[430] "Medicare Coverage of GLP-1 Drugs," Congress.gov, 2025, https://www.congress.gov/crs-product/IF12758.
[431] Kathryn Pomroy, "Medicare to Cover Obesity Drugs under Trump Deal for as Little as $50. What You Need to Know," Kiplinger, November 14, 2025, https://www.kiplinger.com/retirement/medicare/medicare-to-cover-obesity-drugs-under-trump-deal.
[432] Steven D Pearson, Christopher M Whaley, and Sarah K Emond, "Affordable Access to GLP-1 Obesity Medications: Strategies to Guide Market Action and Policy Solutions in the US," *Journal of Comparative Effectiveness Research*, July 11, 2025, https://doi.org/10.57264/cer-2025-0083.

The underlying driver behind these kinds of practices is both critical clinically and fiscally: individuals with obesity and established comorbidities have demonstrably higher rates of hospitalization, disability, and mortality, which is why weight loss in this group is more likely to translate into measurable reductions in downstream costs.[433] For payers and policymakers, this makes the incremental cost of GLp-1 therapy easier to justify, especially when the drugs are used as an adjunct to existing disease management pathways for diabetes and cardiovascular disease. The coverage is being targeted at those with the greatest marginal benefit per dollar spent.[434]

On the other hand, coverage for people with the label of "obesity alone" (BMI above threshold without documented comorbidities) remains rate, with the surveys of employer and commercial plans showing that most either exclude these drugs entirely for weight loss or impose stringent utilization management criteria. Even where coverage exists, patients often face step therapy requirements, prior authorization hurdles, and time-limited approvals that restrict long-term use.[435] These fractions reflect payer concerns about potentially open-ended exposure to high drugs costs in a very large eligible population.

Real-world data on persistence and adherence have reinforced payer caution, because a substantial fraction of patients discontinue GLP-1 therapy within 6-12 months in routine practice.[436] Claims-based studies and employer analyses reduce short-term pharmacy spend, as

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[433] "The GLP-1 Coverage Conundrum: Managing Costs for Group Health Plans," Verrill, June 18, 2025, https://www.verrill-law.com/blog/the-glp-1-coverage-conundrum-managing-costs-for-group-health-plans/.
[434] Steven Pearson, Christopher Whaley, and Sarah Emond, "Affordable Access to GLP-1 Obesity Medications: Strategies to Guide Market Action and Policy Solutions," 2025, https://icer.org/wp-content/uploads/2025/04/Affordable-Access-to-GLP-1-Obesity-Medications-_-ICER-White-Paper-_-04.09.2025.pdf.
[435] "A Guide to Understanding and Navigating GLP-1 Coverage," NFP, n.d., https://www.nfp.com/insights/glp-1-coverage/.
[436] "Perspectives from Employers on the Costs and Issues Associated with Covering GLP-1 Agonists for Weight Loss - Peterson-KFF Health System Tracker," Peterson-KFF Health System Tracker, October 22, 2025, https://www.healthsystemtracker.org/brief/perspectives-from-employers-on-the-costs-and-issues-associated-with-covering-glp-1-agonists-for-weight-loss/.

initiation cycles are still costly.[437] This pattern undermines the value proposition of broad, lightly managed coverage, especially for lower-risk individuals.

Another driver of the current policy stance is the high list and net prices of GLP-1 agents for obesity, which commonly run to hundreds of dollars per month even after rebates, resulting in potential multi-billion dollar budget impacts if uptake is wide.[438] Health technology assessments and modeling exercises have found that, at these prices, GLP-1 therapy can be cost-effective in specific high-risk subgroups but struggles to meet typical cost-per-QALY (quality adjusted life year) thresholds when applied to the general obesity populations.[439] As a result, it leads policymakers to prioritize capped prizing and subsidized access where the clinical yield is greatest.

Framing GLP-1 access as a targeted clinical intervention rather than a universal weight-loss benefit has also seen to help address public perceptions and political optics. By focusing the emphasis on people who need treatment with serious medical risk, policymakers can justify government negotiations and caps as a response to a public health burden instead of as a broad subsidy for cosmetic weight loss.[440]

Supporters of expanded coverage argue that obesity is itself a chronic disease and a major risk factor for diabetes, cardiovascular diseases, osteoarthritis, and certain cancers, so intervening earlier, before comorbidities manifest, should improve long-term population health. From this

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[437] "Results of Two-Year Study Show Limited Adherence, Savings for GLP-1 Obesity Drugs | Blue Cross and Blue Shield of Kansas," Bcbsks.com, January 24, 2025, https://www.bcbsks.com/employers/resources/results-two-year-study-show-limited-adherence-savings-glp-1-obesity-drugs.

[438] Grace Niewijk, "Are GLP-1 Drugs Worth Their Current Cost?," Uchicagomedicine.org (UChicago Medicine, 2025), https://www.uchicagomedicine.org/forefront/research-and-discoveries-articles/glp-1-drug-pricing-analysis.

[439] Jennifer H. Hwang et al., "Lifetime Health Effects and Cost-Effectiveness of Tirzepatide and Semaglutide in US Adults," *JAMA Health Forum* 6, no. 3 (March 14, 2025): e245586, https://doi.org/10.1001/jamahealthforum.2024.5586.

[440] Danielle Kaye, "Trump Unveils Deals to Lower US Weight-Loss Drug Prices," November 6, 2025, https://www.bbc.com/news/articles/czxk7k9nd11o.

perspective, restricting GLP-1 access to people who already have significant comorbidities misses a crucial prevention window, rather than a proactive healthy system.[441] Advocates also stressed that long-term obesity is associated with diminished quality of life and functional limitations even in the absence of formal diagnoses like diabetes.

There is empirical support for the clinical effectiveness of GLP-1s in reducing weight among people with obesity but without diabetes, with randomized trials showing substantial average weight loss and improvement in intermediate cardiometabolic markers.[442] These gains often exceed those seen with older pharmacologic options and many lifestyle-only programs, suggesting that GLP-1s have unique potential to move the needle on obesity outcomes at the large scale.[443]

Equity arguments also exist in that obesity disproportionately affects lower-income populations and racial/ethnic minorities, who often face structural barriers to effective lifestyle interventions and bariatric surgery.[444] Limiting GLP-1 coverage to those with documented comorbidities can amplify disparities if higher-resource patients are more likely to have those conditions diagnosed, coded, and linked to treatment.[445] Universal obesity-based eligibility, within certain BMI thresholds, could reduce these inequities largely in access to highly effective treatments.

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[441] Libbi Green and Patty Taddei-Allen, "Shifting Paradigms: Reframing Coverage of Antiobesity Medications for Plan Sponsors," *Journal of Managed Care & Specialty Pharmacy* 29, no. 5 (May 2023): 564–68, https://doi.org/10.18553/jmcp.2023.29.5.564.

[442] Ailie H Brennan-Davies and Samuel Lakey, "Pharmacological Privilege: How Glucagon-like Peptide-1 (GLP-1) Medications Are Widening Health Inequalities," *Cureus*, November 17, 2025, https://doi.org/10.7759/cureus.97124.

[443] Treah Haggerty et al., "Navigating Coverage: A Qualitative Study Exploring the Perceived Impact of an Insurance Company Policy to Discontinue Coverage of Antiobesity Medication," Obesity Pillars 11 (September 2024): 100120, https://doi.org/10.1016/j.obpill.2024.100120.

[444] Alison M Bjornson et al., "Costs of Obesity, Obesity-Related Complications, and Weight Loss in the United States: A Systematic Literature Review.," PubMed, July 17, 2025, 1–11, https://doi.org/10.18553/jmcp.2025.25051.

[445] "How Many Adults with Private Health Insurance Could Use GLP-1 Drugs - Peterson-KFF Health System Tracker," Peterson-KFF Health System Tracker, September 12, 2024, https://www.healthsystemtracker.org/brief/how-many-adults-with-private-health-insurance-could-use-glp-1-drugs/.

However, several strands of evidence temper these arguments when the focus shifts specifically to cost-effectiveness for "obesity alone." Economic modeling of agents such as semaglutide and tirzepatide has shown that, at current or recent prices, the cost per QALY gained is relatively favorable in high-risk, comorbid populations but much less attractive when applied to people with obesity but lower short-term risk.[446] Because such individuals have fewer near-term events to avert, the ghost of chronic therapy can outweigh the value of avoided morbidity in standard willingness-to-pay frameworks.

Real-world studies among commercially insured populations have further highlighted issues with adherence and total cost offset. A two-year analysis by a large regional Blue plan found limited persistence with GLP-1 therapy and only modest savings on medical costs, which were insufficient to offset pharmacy spending in the cohort as a whole. These finds are particularly relevant for an "obesity alone" expansion, where the underlying risk is lower and the bar for net savings is higher.[447]

Payers and employer coalitions also have concerns about the budget impact of universal coverage if every eligible obese adult could obtain capped-price GLP-1 therapy. Even if cost-effectiveness thresholds were technically met in some scenarios, large budget requirements could crowd out other needed services.[448] Another behavioral concern exists in which easy access

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[446] "Optional, Not Mandatory: NAMD's Recommendations on Anti-Obesity Medication Coverage - National Association of Medicaid Directors," National Association of Medicaid Directors, February 4, 2025, https://medicaiddirectors.org/resource/optional-not-mandatory-namds-recommendations-on-anti-obesity-medication-coverage/.

[447] Tami Luhby and Meg Tirrell, "Certain Obesity Drugs Will Cost as Little as $149 and Medicare Will Start Covering Them under White House Deals," CNN, November 6, 2025, https://www.cnn.com/2025/11/06/politics/weight-loss-drugs-medicare-deals.

[448] "Bariatric Surgery Is More Cost Effective than Newer Weight Loss Drugs Alone," ACS, 2024, https://www.facs.org/media-center/press-releases/2024/bariatric-surgery-is-more-cost-effective-than-newer-weight-loss-drugs-alone/.

might displace lower-cost lifestyle interventions, reducing emphasis on diet, physical activity, and behavioral support that remain foundational to long-term weight management.

These conflicting arguments make payers reluctant to fully embrace coverage for a much broader, lower-risk population without stronger long-term data.

Disseminating Price Cap Information

Once price caps on GLP-1 drugs are passed, there must be a coordinated social media advertisement campaign to spread awareness of the policy. In November of 2024, over two years after President Biden signed the Inflation Reduction Act, which imposed the $35 co-payment cap on insulin for Medicare beneficiaries, into law on August 16, 2022[449], only 35% of total voters knew about the $35 co-payment cap.[450] This indicates an inadequately slow dissemination of information regarding the passing of the policy, resulting in a majority of people being completely unaware of the price cap on insulin. There needs to be more effective methods of informing citizens about price caps if the price cap on GLP-1 drugs is to generate actual benefits for real people.

As of 2024, there are roughly 267 million people over the age of 18 in the United States.[451] Of those people, 53% report that they get at least some of their news from social media, with 38% of those people relying on Facebook, 35% relying on YouTube, and the rest spread across various other social media sites.[452] This roughly translates to 53.77 million people deriving

[449] Gimont, Sarah, Mellerio, Paige, and Bryant, Blaire. "Inflation Reduction Act Signed into Law | National Association of Counties." August 8, 2022. https://www.naco.org/news/inflation-reduction-act-signed-law.
[450] Sparks, G, Montero, A, Presiado, M, Kirzinger, A, and Hamel, L. "KFF Health Tracking Poll May 2024: Voters' Views of Health Policy Issues in Context of Presidential Campaigns." KFF, May 15, 2024. https://www.kff.org/medicare/kff-health-tracking-poll-may-2024-voters-views-of-health-policy-issues-in-context-of-presidential-campaigns/.
[451] "Adult Population by Age Group Statistics." Accessed November 17, 2025. https://datacenter.aecf.org/data/tables/6538-adult-population-by-age-group.
[452] "Social Media and News Fact Sheet." Pew Research Center, September 25, 2025. https://www.pewresearch.org/journalism/fact-sheet/social-media-and-news-fact-sheet/.

their news from Facebook and 49.53 million people deriving their news from YouTube. The average cost per view on an advertisement on Facebook is an estimated $1.01 to $3.00 per 1000 views, or impressions.[453] This means that to get views equivalent to the number of US adults on Facebook, an advertisement campaign would only need to spend roughly $54,300 to $161,300. On YouTube, the average cost per view on an advertisement is an estimated $4 to $10 per 1000 views, or impressions.[454] Thus, an advertisement campaign would have to spend roughly $198,100 to $495,300 to generate as many impressions as US adults. Additionally, once the advertisements are approved, they only take a few days to begin reaching a large number of viewers. There are limitations to these estimates as region-targeted advertisements are likely to cost more, and impressions do not equate to the number of unique US citizens who view the advertisement. But for a combined total of an estimated $249,000 to $656,600, an advertisement campaign would be able to spread information about GLP-1 price caps to a vast number of US adults through social media sites. Even if the region-based targeting causes the price of the advertisements to increase, the spread of information through word of mouth about the advertisements would compound the effect of the campaign by spreading information even to those who might not use social media. This additional effect is difficult to quantify, but social media seems to be an economically viable option to quickly spread information on GLP-1 price caps.

As this GLP-1 price cap will be a law, it will naturally garner attention from media outlets. This will result in the price cap being advertised on television, radio, and newspapers without any cost to the government. As long as the government is open and transparent about the

[453] "Facebook Advertising Pricing: What Facebook Ads Cost in 2025?" LYFE Marketing, n.d. Accessed November 18, 2025. https://www.lyfemarketing.com/services/facebook-advertising-services/costs/.
[454] Heitman, Stephanie. "Starter Guide to YouTube Advertising Costs in 2025." LocaliQ, n.d. Accessed November 18, 2025. https://localiq.com/blog/youtube-advertising-cost/.

price cap to reporters and the public, there should be a natural spread of information even without social media advertisements.

An approximate 32% of Americans mainly get their news from television, 11% mainly from radio, and 7% mainly from newspapers.[455] This includes some overlap with the citizens who receive some news from social media, however, that should not greatly affect the policy recommendation. Approximately 73% of Americans have some level of interest in following politics, demonstrating that political news is in demand.[456] News companies will have an economic incentive to report on the price cap, resulting in government advertisement in this field to be largely unnecessary as additional funding for advertisements would only serve to reach a relatively small number of additional people. But this does mean that the government must be very public about this news and not attempt to hide it in any way, since statements from the government also serve as a form of advertisement that is then repeated by television, radio, and newspaper companies.

[455] "News Platform Fact Sheet." Pew Research Center, September 25, 2025. https://www.pewresearch.org/journalism/fact-sheet/news-platform-fact-sheet/.
[456] Inc, Gallup. "U.S. Attention to Political News Slips Back to Typical Levels." Gallup.Com, October 25, 2023. https://news.gallup.com/poll/513128/attention-political-news-slips-back-typical-levels.aspx.

The Impact of Social Media on Weight Loss Drugs

Weight Loss Drugs: From Medical Treatments to Cosmetic Trends

Amidst an increasing turn to Ozempic and similar GLP-1 drugs, the origin of such demand is becoming less directly related to diabetes treatment, and more that of aesthetic goals.[457] As noted by Reardon, 22% of Americans seek weight-management prescriptions from their physicians, of which 15% have personally used it for weight management, not to mention an additional 47% of respondents reportedly knowing an individual who had used Ozempic for similar weight-loss purposes.[458] Undoubtedly, these figures suggest cosmetic and body-image motives increasingly overshadow health-related reasons to use. Nonetheless, despite such increased interest in weight-loss drugs by those who lack health concerns, gaining popularity comes at the cost of various health factors. Still, with promotions by "celebrities across all demographics," little has been done to mitigate an informational spread of its benefits on social media.[459] Through further analysis of weight-loss drugs' popularity, in addition to the audience of these "Ozempic influencers," one can begin to recognize the increasing importance of regulation around GLP-1 marketing.

I. Off-Label Demand and Global Shortages

Noting the turn to GLP-1 use for weight loss, rather than diabetic purposes, off-label brands, often linked to social media promotion, have created worldwide supply shortages for those with diabetes.[460] Fong et al. emphasize this finding, highlighting Han et al.'s Google Trends

[457]Renee Reardon, "Implications of Ozempic: A Semaglutide with Peptide (GLP)-1 Receptor Agonists Misused for Cosmetic Weight Loss," *Undergraduate Research Journal for the Human Sciences* 18 (2025).
[458] Reardon, "Implications of Ozempic: A Semaglutide with Peptide (GLP)-1 Receptor Agonists Misused for Cosmetic Weight Loss."
[459] Ibid.
[460] Ibid.

analysis, revealing a parallel growth between searches for GLP-1 receptors and that of the hashtag "#Ozempic" on both TikTok and Instagram, where users tended to focus less on the benefits connected to diabetes, and more on that of positive experiences with weight loss.[461] Accordingly, contrary to a smaller group of users with the primary intent of diabetic prevention, Fong et al. note "an increasingly prevalent and positive public interest in the drug class." [462]

II. The Rise of Unsupervised and Self-Directed Use

Given the rise in non-diabetic usage of weight loss drugs, studies have also shown a lack of interest in medical advice. Sarhan et al. further this conclusion, finding around 53% of participants reportedly using weight-loss medications without consulting a physician.[463] Instead, users have turned to social media platforms. Despite concerns with unsupervised drug usage, Sarhan et al. note of little research exploring the prevalence, motivations, or consequences of self-medication behavior.[464] Expanding on this research, Chiappini et al. utilized data from the FAERS database, finding a trend of increased off-label and unsupervised Semaglutide for weight loss, with around 6% of semaglutide users prescribed without medical oversight.[465]

III. A Modern Digital Marketplace

With an increased interest amongst those without medical-related illnesses, a substantial proportion of participants opted, instead, for electronic marketplaces or peer sources. Such a

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[461] Seraphina Fong et al., "Ozempic in social media posts: Unveiling user perspectives through Reddit topic modeling," *Emerging Trends in Drugs, Addictions, and Health* 4 (2024).

[462] Seraphina Fong et al., "Ozempic in social media posts: Unveiling user perspectives through Reddit topic modeling."

[463] Neven Sarhan et al., " "Patterns and predictors of self-medication behavior of weight loss medications: a cross-sectional analysis of social media influence and role of pharmacist intervention," *Front Pharmacol* 14, no. 16 (2025).

[464] Neven Sarhan et al., " "Patterns and predictors of self-medication behavior of weight loss medications: a cross-sectional analysis of social media influence and role of pharmacist intervention."

[465] Stefana Chiappini et al., "An update on psychoactive substances: pharmacology and toxicology issues," *Basel* 18, no. 16 (2023).

turn, without close monitoring, can be particularly risky, as Sarhan et al. point out that patients purchasing drugs from online platforms, or through social media, hold "lower rates of medication legitimacy affirmation."[466] Yanovski and Yanovski confirm this finding, stressing the need for close monitoring, particularly given the risks of abrupt cessation, rebound weight gain, heightened cravings, and psychological distress.[467] As such potential risks are less likely to gain attention, influencers avoid highlighting the potential consequences of GLP-1 usage. Thus, social media not only normalizes the use of GLP-1s for aesthetic purposes, but also reframes them as lifestyle products rather than medical interventions.

IV. Social Media's "Miracle Drug" Narrative

Interestingly enough, the manner through which GLP-1 is framed, particularly as a "miracle drug" on TikTok, plays a large role in increasing the popularity of GLP-1 drugs amongst non-diabetic users. Herring expands on this notion, highlighting the hundreds of TikTok videos with captions such as "[C]all it what you want but the miracle shot LITERALLY changed my life" and "The new 'miracle' weight loss drug - Ozempic explained."[468] Whether the TikTok video was posed as an educational video, or a "transformation" video, as Herring goes on to explain, "one thing remains consistent—the framing of Ozempic as a thing of magic or a 'miracle drug.'"[469] Herring further highlights the central role of TikTok in Ozempic's marketing strategy. Through a recent study by Basch et al., a descriptive analysis of the top 100 TikTok videos including the #Ozempic hashtag garnered over 69 million views.[470] As Herring goes on to

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[466] Neven Sarhan et al., " "Patterns and predictors of self-medication behavior of weight loss medications: a cross-sectional analysis of social media influence and role of pharmacist intervention."
[467] Susan Yanovski and Jack Yanovski, "Long-term drug treatment for obesity: a systematic and clinical review," *JAMA 3011,* no. 1 (2014).
[468] Matthew Herring, "It's Magic, You Know," *The Motley Undergraduate Journal* 2, no. 2 (2024).
[469] Matthew Herring, "It's Magic, You Know."
[470] Ibid.

explain, however, only 14% of such videos were uploaded by professionals, thereby depicting the power of "individual narratives" in "dominating the platform with little room for professional voices that could warn about possible side effects and dangers of using Ozempic." [471]

V. Body Image, New Media, and the Expansion of Influence

The media's depiction of weight impacts the spread and popularity of GLP-1 drugs. As shown through a study by Kyrola, weight depictions seemingly "define how individuals are supposed to feel about their bodies and what they can do to make themselves look thinner."[472]

Given an increase in TikTok videos under body image hashtags, thereby pushing certain messages regarding "ideal" weights by "individuals acting as quasi-experts."[473] Contrary to prior media periods where body representation was regulated by celebrity appearances, as Herring goes on to explain, "new media places that expectation on the individual.[474] With new media, individuals are no longer simply spectators, but active participants held up to the same standards of desirability as others on the platform."[475] As a result of such "new media" influence, Ozempic's usage amongst those without diabetes will continue to increase, primarily through TikTok.[476] Given that direct pharmaceutical sponsorship of individual influencers remains limited and difficult to trace, many creators are indirectly incentivized through affiliate partnerships; such content, assumedly, mirrors paid advertising, and effectively functions as unpaid marketing that boosts demand.[477]

VI. Youth Exposure and Algorithmic Amplification

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[471] Ibid.
[472] Katariina Kyrola, *The Weight Loss of Images: Affect, Body Image and Fat in the Media* (Oxfordshire: Routledge, 2014).
[473] Matthew Herring, "It's Magic, You Know," *The Motley Undergraduate Journal* 2, no. 2 (2024).
[474] Matthew Herring, "It's Magic, You Know."
[475] Ibid.
[476] Ibid.
[477] Ibid.

Influencers play a central role in TikTok's spread of Ozempic marketing, thereby expanding the audience of those interested in weight-loss drugs. As noted by Minadeo and Pope, given TikTok's large number of adolescent and young users, "food, nutrition, and weight-related posts are particularly popular on the social media platform."[478] Interestingly enough, Minadeo and Pope go on to highlight a key theme of weight loss glorification within nutritional videos, not to mention videos under the "weight loss" hashtag garnering a total of 9.7 billion views.[479] Hence, social media is not only reinforcing popularity amongst adult non-diabetic users, but also expanding the appeal to those of younger ages.

VII. Overall Takeaways

The informal marketing of GLP-1 drugs through social media is undeniably effective. In addition to personalizing transformation, such marketing strategy seems to normalize off-label use, reaching audiences far beyond traditional advertising. This success, however, also underscores the need for stronger oversight. With most exposure occurring through unregulated platforms and non-medical influencers, existing advertising standards fail to protect consumers from misinformation and health risk. To mitigate harm, regulators could require clear sponsorship disclosures and standardized warnings about potential side effects, ensuring GLP-1 drugs are presented as medical treatments rather than cosmetic quick fixes.

GLP-1 Drugs and Disordered Eating

As the use of GLP-1s such as semaglutide continues to rise, little discourse, surprisingly, addresses their potential impact on body image and disordered eating. Slowing gastric emptying,

[478] Marissa Minaadeo and Lizzy Pope, "Weight-normative messaging predominates on TikTok—A qualitative content analysis," *PLOS ONE* 17 (2022).
[479] Marissa Minaadeo and Lizzy Pope, "Weight-normative messaging predominates on TikTok—A qualitative content analysis."

and therefore affecting one's appetite-regulating pathways, GLP-1s essentially reduce food intake, thereby normalizing a form of restrictive eating. In other words, such drugs can cause people to eat less. As explained by Bartel et al., such medications could, as a result, "exacerbate, or contribute to the development of ED pathology."[480] Cooper et al. have also noted this trend, particularly amongst younger clients.[481] Despite such calls for concern, others have recognized the ability of these medications to "reduce some ED behaviors (e.g., binge eating)."[482] Nonetheless, as explained by Boffone, given the undeniable influence of social media on an unprecedented use of these weight-loss drugs amongst younger audiences, TikTok content has recently been shown to hold "a strong influence[..]on individuals' behaviours, including simple actions of reading, eating, or listening to music," not to mention a romanticization of "severe topics like anxiety, eating disorders, and other mental illnesses."[483] Through closer analysis of GLP-1s' both positive and negative relationship with eating disorders, new discussions are hopeful to emerge regarding new regulatory guidelines, ensuring that clients are fully informed of the potential risks and benefits that accompany GLP-1s.

I. Self-Objectification and the Desire for Control

Recent literature has begun to observe a correlation between negative evaluation, particularly through self-objectification, and one's interest in GLP-1 treatments. As explained by Objectification Theory, self-objectification primarily occurs when individuals "internalize observers' views of their physical selves."[484] When individuals view themselves as objectives,

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[480] Sara Bartel et al., "Use of glucagon-like peptide-1 receptor agonists in eating disorder populations," *International Journal of Eating Disorders* 57, no. 2 (2023).
[481] Dan Cooper et al., "Unintended consequences of glucagon-like peptide-1 receptor agonists medications in children and adolescents: A call to action," *Journal of Clinical and Transitional Science* 7, no. 1 (2023).
[482] Sara Bartel et al., "Use of glucagon-like peptide-1 receptor agonists in eating disorder populations," *International Journal of Eating Disorders* 57, no. 2 (2023).
[483] Serar Omar, "Oh, oh, oh, Ozempic!" *The Glamorization of Ozempic and Restrictive Eating Disorders* (2025).
[484] Markey et al. "Body image and interest in GLP-1 weight loss medications," *Body Image*, no. 53 (2025).

and therefore only valued for their approximate attractiveness, one is left with a "fragmented rather than holistic view of the self, leaving individuals focused on parts of themselves that they believe to be inadequate." Markey et al.'s study reinforces the impact of self-objectification, particularly among adolescent girls, finding that, consistent with their hypothesis, "participants had a greater interest in trying GLP-1s and reported a greater willingness to tolerate the side effects[...]if they had a higher BMI[...]more body shame[...]and[...]lower body appreciation."[485] Hence, while GLP-1s have undoubtedly reshaped the health and weight-loss industry, the mere motivation for taking such drugs, notably amongst young women, indicates an inevitable connection to disordered eating.

II. Social Media and the Glamorization of Restriction

Given such strong motivation to use GLP-1s on the basis of low self-image, TikTok only exacerbates the risk of harmful behaviours. In a recent study, Omar reinforced this notion, hypothesizing that a glamorization of Ozempic on TikTok "does encourage [anorexia nervosa] behaviors due to the popular social ideals romanticizing weight loss."[486] Ultimately, Omar observed, of the twenty-one videos utilized for analysis, the vast majority "portrayed a skew view of eating behaviours, including food avoidance."[487] Through a similar analysis of over 7,500 comments, 4,704 were flagged for promoting key ideas, such as "Eating Habits and Exercise." Given that, according to Nagata et al., TikTok has become adolescent's "most popular social media platform," this platform has, undoubtedly, reinforced restrictive eating disorder behaviours through viral content, exposing younger audiences to ideas central to "ED etiology."[488]

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[485] Markey et al. "Body image and interest in GLP-1 weight loss medications."
[486] Serar Omar, "'Oh, oh, oh, Ozempic!' The Glamorization of Ozempic and Restrictive Eating Disorders," (2025).
[487] Serar Omar, "'Oh, oh, oh, Ozempic!' The Glamorization of Ozempic and Restrictive Eating Disorders."
[488] Jason Nagata et al., "Prevalence and Patterns of Social Media Use in Early Adolescents," *Academic Pediatrics* 25, no. 4 (2025).

III. Beyond Gendered Narratives: The Understudied Male Experience

While women tend to stand central to the research of GLP-1's impact on eating disorders, men are similarly impacted, though significantly understudied. Analyzing data from a sample of boys and men located in Canada and the United States, Ganson et al. find that many who used prescription weight loss have greater occurrence of "eating disorder attitudes across all EDE-1 subscales and overall eating disorder psychopathology as measured by the Global Score."[489] Ganson et al. go on to note of higher levels of purging via vomiting, thereby indicating that "boys and men who use prescription weight loss medication also engage in maladaptive behaviors to control their body and weight."[490] Furthermore, such findings suggest that while GLP-1 use is often discussed through a gendered lens, the psychological and behavioral consequences extend well beyond women, thereby calling for a more comprehensive understanding of how societal body ideals influence all users.

IV. Counterfindings: GLP-1s as Therapeutic Tools

Interestingly enough, other studies have come to different conclusions regarding the impacts of GLP-1s on disordered eating, instead highlighting its benefits. While certain animal-based studies have noted a correlation between GLP-1 use and binge-eating behaviors, Kalas et al. note the role of GLP-1s as a "therapeutic option[...]in the context of comorbidities of Binge Eating Disorder."[491] Kalas et al. go on to explain that, from the perspective of patients suffering from BED, GLP-1s are effective in acting on "reward-driven feeding" through the

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[489] Kyle Ganson et al., "Prescription weight loss medication use and eating disorder psychopathology among adolescent boys and young men from Canada and the United States," *Eating Behaviors* 58 (2025).
[490] Kyle Ganson et al., "Prescription weight loss medication use and eating disorder psychopathology among adolescent boys and young men from Canada and the United States."
[491] Maria Kalas et al., "Glucagon-like Peptide-1 Receptor Agonists in the Context of Eating Disorders: A Promising Therapeutic Option or a Double-Edged Sword?" *J Clin. Med* 14, no. 9 (2025).

activation of "hindbrain areas involved in feeding control."[492] Accordingly, given that the main goals of BED therapy include a mitigation of binges, Kalas et al. explain that "it seems to be a natural consequence that the potential of GLP-1 analogs as a therapeutic tool[...]has been investigated."[493] Just in February of 2025, a study under Radkhah et al. confirmed this notion, confirming GLP-1's influence, as "Bing Eating Scale scores improved significantly."[494]

V. Balancing Efficacy, Ethics, and Image

Ultimately, the rise of GLP-1s has opened a complex frontier in both medicine and media culture. While these drugs have shown measurable benefits for individuals struggling with binge eating and weight-related conditions, their widespread use, especially as glamorized on platforms like TikTok, raises considerable ethical and regulatory concerns. For one, the normalization of appetite suppression through medication blurs the line between medical treatment and aesthetic enhancement, reinforcing the same ideals that sustain body dissatisfaction and disordered eating.

In order to protect vulnerable populations, particularly adolescents, policymakers and health professionals should, therefore, expand regulatory oversight to include social media marketing, a strengthening of informed consent procedures, and integrate body-image education into clinical practice. Through these actions, resulting in a more thoughtful and comprehensive approach to GLP-1s, society can ensure that their usage serves public health, rather than perpetuating cycles of self-objectification and harm.

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[492] Maria Kalas et al., "Glucagon-like Peptide-1 Receptor Agonists in the Context of Eating Disorders: A Promising Therapeutic Option or a Double-Edged Sword?"

[493] Maria Kalas et al., "Glucagon-like Peptide-1 Receptor Agonists in the Context of Eating Disorders: A Promising Therapeutic Option or a Double-Edged Sword?"

[494] Hanieh Radkhah et al., "The impact of glucagon-like peptide-1 (GLP-1) agonists in the treatment of eating disorders: a systematic review and meta-analysis," *Eating Weight Disorders* 30, no. 1 (2025).

Policy Recommendations: Beyond GLP-1 Price Caps

The Insulin Affordability Crisis: Lessons for Future Pharmaceutical Policy

I. Rising Costs and Global Disparities

In 2018 alone, more than one-third of the adult population was considered prediabetic; 1.4 million of these adults were living with type 1 diabetes, and most were consequently using insulin.[495] Nonetheless, despite the necessity of insulin for the treatment of diabetes, particularly for managing blood glucose levels in those who produce little to no insulin, prices of commonly used forms of insulin are rising. Between 2012 and 2016, the average wholesale acquisition cost of insulin pens experienced a 15-17% annual growth rate within the United States.[496] While other developed countries such as Canada and France maintain insulin costs at less than $50, just 10 mL of insulin glargine within the United States can cost as much as $350.[497] As outlined in an article conducted by *Diabetes Spectrum*, therefore "high insulin prices limit access to the life-saving therapies and threaten patients' health outcomes."[498]

II. Legislative Efforts and Barriers to Reform

In an effort to address the dangerously high costs of insulin, policymakers have brought considerable attention to this issue. During the 116th Congress, between 2019 and 2021, 23 bills were introduced in an attempt to improve insulin's access and affordability. Seven of such bills received bipartisan support.[499] Among such bipartisan bills, two proposed an enhancement of

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[495] Mariana Socal et al., "Bipartisan Federal Legislation to Address Insulin Access and Affordability," *Diabetes Spectrum* 34, no.4 (2021).
[496] Ibid.
[497] Kathryn Nagel et al., "Lessons from Insulin: Policy Prescriptions for Affordable Diabetes and Obesity Medications," *Diabetes Care* 47, no. 8 (2024).
[498] Mariana Socal et al., "Bipartisan Federal Legislation to Address Insulin Access and Affordability," *Diabetes Spectrum* 34, no.4 (2021).
[499] Ibid.

price transparency, including that of H.R. 7722-Matt's Act, which would require insulin manufacturers to publish the net price for the previous quarter. Other bills targeted a reduction of out-of-pocket costs to patients, not to mention attention towards price certification and the permission of insulin importation. Nonetheless, as explained by Socal et al., despite legislative attempts at improving affordability, legal challenges from drug manufacturers threaten the plausibility of such policies, arguing that price information can be a "trade secret." [500]

III. Market Competition

Regulatory shifts only strengthened the barriers that limited competition. Prior to 2020, insulin was approved in a similar manner to small-molecule drugs such as metformin. Nonetheless, following recognition of insulin as a biologic, biosimilars, such as basaglar and admelog, confronted greater difficulty in entering the market due to stricter requirements.[501] Given the lack of competitors, therefore, insulin sustained its high prices. As explained by Socal et al., however, through automatic interchangeability, increased competition could "drive down prices, and benefit patients and insurers, similar to the experience of the conventional generics market." [502]

IV. Outcomes of the Inflation Reduction Act

In an effort to address the insulin affordability crisis, the Inflation Reduction Act (IRA), though partisan, capped insulin at $35 per month among Medicare Part D enrollees. Unsurprisingly, its impact was widespread. As shown through Sayed et al.'s study on the impact of IRA insulin provisions, had the IRA taken effect in 2020, nearly 1.5 million Part D enrollees

[500] Ibid.
[501] Kathryn Nagel et al., "Lessons from Insulin: Policy Prescriptions for Affordable Diabetes and Obesity Medications," *Diabetes Care* 47, no. 8 (2024).
[502] Ibid.

would have benefited.[503] Not to mention, additional savings of up to $27 million would have been allotted to 31,000 Part B beneficiaries.[504] Furthermore, as a result of the IRA, beneficiaries from all demographics were shown to benefit, including that of a greater share of Black and Latino women, 31,000 Asian beneficiaries, as well as 7,000 American Indian beneficiaries.[505]

V. Evaluating Cost-Effectiveness and Long-Term Impact

Nonetheless, some have questioned the effectiveness of the IRA. In an initial analysis, Shao et al. found that the copayment cap policy would likely reduce the copayment cost of insulin by about $500 per year for 1.6 million people, thereby not only avoiding thousands of diabetes complications that could eventually be fatal, but also producing 21,000 quality-adjusted life years (QALYs).[506] Nonetheless, following a more recent analysis, and even after accounting for the cost-saving due to a reduced risk of diabetes complications, Shao et al. eventually found such a policy to "still increase total medical costs by $5.6 billion over 20 years." [507]

Through a calculation of the policy's incremental cost-effectiveness ratio (ICER), Shao et al. presented the ICERs of the copay cap policy at different levels of insulin cost. Given the average costs for a yearly supply of insulin in 2021, standing at around $7,930, the policy's 5-year and 20-year policy time horizons predicted an ICER of $250,000/QALY.[508] In order to establish cost-effectiveness, therefore, Shao et al. argue that insulin costs "Must be reduced to below $5,300, or by more than 34%."[509] Utilizing the $100,000/QALY threshold as a societal benchmark, therefore, Shao et al. view the price cap as not sufficiently effective unless the prices

[503] Sayed et al., "Insulin Affordability and the Inflation Reduction Act: Medicare Beneficiary Savings by State and Demographics," *ASPE,* (October 2023).
[504] Ibid.
[505] Ibid.
[506] Hui Shao et al., "Economic Evaluation of the $35 Insulin Copay Cap Policy in Medicare and Its Implication for Future Interventions," *Diabetes Care* 45, no. 11 (November 2022).
[507] Ibid.
[508] Ibid.
[509] Ibid.

continue to fall.[510] Despite the political popularity of IRA's copay cap, Shao et al. fear the government's purchase of large amounts of insulin, at today's inflated prices, is therefore a waste of health care resources. Instead, Shao et al. recommend the IRA framework to reduce prices by 60-80%, a standing that would roll back to pre-2010 levels.[511]

VI. State-Level Experiments

A closer look at state-level experiments help illustrate these challenges. In Utah, House Bill 207 capped insulin copayments at $30 per month for commercially insured patients beginning in 2021. While a study by Li et al. found this policy to substantially lower patients' out-of-pocket costs, thereby reducing the median monthly expense by nearly 60%, such savings were offset by a $22 increase in costs borne by health plans, not to mention the total system-wide insulin expenditures remaining unchanged.[512] Li et al. go on to point out that no significant improvements were observed in insulin adherence or blood sugar control, as the "PDC did not change, and HbA1c did not improve."[513] In other words, while the IRA shifted costs away from patients, it did little to change the underlying prices or improve health outcomes.

VII. From Insulin to GLP-1s: Future Policy Insights

Nagel et al. not only address such concerns regarding insulin's affordability, but also go on to apply insulin-related policy outcomes to research on the implications of weight-loss drugs in the contemporary market. In other words, Nagel et al. argue that insulin gives a set of valuable lessons on the contemporary pharmaceutical value chain. While challenges to policy reform (typically through the pharmaceutical lobby) continue to thwart efforts at improving accessibility

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[510] Ibid.
[511] Ibid.
[512] Li et al., "The impact of a statewide insulin copay cap policy for insured patients with diabetes in Utah," *Journal of Managed Care & Specialty Pharmacy* 30, no. 2 (February 2024).
[513] Ibid.

to insulin and GLP-1 drugs such as Ozempic, Nagel et al. consider a set of solutions to the pricing crisis, asserting that "understanding the effects of these policies on[...]affordability[...]can help illuminate a path to promote greater fairness, affordability, and equity."[514] One such solution is increased transparency, with thirteen states passing laws to help uncover the ways in which intermediaries are "incentivizing list price increases rather than promoting cost control."[515] Nagel et al. go on to mention a recent federal policy that further reformed rebate requirements, eliminating a cap on Medicaid drug rebates, and therefore allowing Medicaid to collect rebates beyond 100% of a benchmark average manufacturer price.[516]

Ultimately, the case of Insulin offers a crucial lesson for shaping future policy responses to GLP-1 drugs such as Ozempic and Wegovy. Insulin's trajectory, furthermore, reveals that a lowering of out-of-pocket costs, while politically appealing, does little to address the structural drivers of high drug prices, including that of limited market competition, coupled with the concentration of power among only a few manufacturers. The mixed outcomes of insulin reform, therefore, demonstrate that affordability cannot rely on caps or subsidies alone. With this, sustainable equity requires both transparency throughout the pharmaceutical supply chain and the encouragement of biosimilar and generic alternatives.

Applying these lessons to GLP-1 drugs suggests that early, proactive regulation focused on price disclosure, formulary fairness, and innovation incentives could prevent the same cycle of unaffordability which so often defines insulin's market. In this sense, therefore, insulin not only serves as a cautionary example, but also a policy roadmap, an important message that meaningful

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[514] Nagel et al., "Lessons From Insulin: Policy Prescriptions for Affordable Diabetes and Obesity Medications," *Diabetes Care* 47, no. 8 (July 2024).
[515] Ibid.
[516] Ibid.

affordability emerges not from temporary caps, but rather, systemic reform that aligns profit incentives with public health.

Health Disparities Policy Recommendations

I. Adapt a sliding-scale insurance coverage plan for GLP-1 Usage in Food Deserts

The federal government should mandate that insurance providers offer, sliding-scale coverage for GLP-1 medications (i.e. Ozempic, Wegovy, Mounjaro). Sliding-scale coverage, in essence, is where services are based on and adjusted for an individual's income. This would specifically appeal to patients residing in USDA-designated food deserts and food swamps who meet criteria for obesity or T2DM.

Current GLP-1 medications cost upwards of $1,000 per month without insurance coverage in the United States, while production costs range from $0.75 to $72.49 per month.[517] This price variation disproportionately affects low-income individuals in food deserts, populations most likely to benefit and improve health outcomes from these medications. The state of Mississippi, which has 30% of residents living in food deserts, also ranks among the lowest in healthcare system performance.[518] Cities, like Memphis that has 32% of its population residing within food deserts and a 44.9% adult obesity rate, and Atlanta (highest number of food desert residents nationally) demonstrate high obesity rates coupled with poverty rates exceeding 20% of the population, creating a healthcare access crisis.[519] Currently, low-income individuals,

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[517] Miles Meline, "Key Lessons for Ethical and Affordable Access to GLP-1 Drugs," Penn LDI, October 17, 2024, https://ldi.upenn.edu/our-work/research-updates/key-lessons-for-ethical-and-affordable-access-to-glp-1-drugs-like-ozempic-and-wegovy/.

[518] "USDA ERS - State-Level Estimates of Low Income and Low Access Populations," www.ers.usda.gov, January 6, 2025, https://www.ers.usda.gov/data-products/food-access-research-atlas/state-level-estimates-of-low-income-and-low-access-populations.

[519] David Nulph, Ryan Williams, and Michele Ver Ploeg, "USDA ERS - Data Feature: Mapping Food Deserts in the U.S.," Usda.gov, 2017, https://www.ers.usda.gov/amber-waves/2011/december/data-feature-mapping-food-deserts-in-the-u-s.

particularly minority groups including Black, Hispanic, and Asian populations, show significantly lower GLP-1 usage despite higher rates of T2DM and obesity, while white females from higher-income zip codes and urban areas represent the majority of users and current target demographic for GLP-1 companies.[520] A sliding-scale coverage system would ensure that out-of-pocket costs decrease proportionally with income levels in food-insecure areas, making these life-saving medications accessible to the very individuals who need and would benefit from them the most.

II. Implement mandatory federal price caps on GLP-1 medications based on international pricing standards.

Congress should pass legislation establishing federal price caps on GLP-1 medications that align with international pricing standards, specifically limiting costs to no more than double of the average price in comparable high-income nations that utilized GLP-1s that we have researched thus far.

The United States pays drastically inflated prices for GLP-1 medications compared to other developed nations. In Japan, a one-month supply of Ozempic (1mg) costs approximately $169 USD and Rybelsus (7mg) costs $79 USD, while the same medications cost U.S. consumers approximately $936 each for the same dosage, representing a 454% price increase for Ozempic and 1084% increase for Rybelsus compared to Japanese prices.[521] This pricing remains persistent despite the U.S. ranking 10th globally for male obesity rates and 36th for female obesity rates,

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[520] Lauren A. Eberly et al., "Racial, Ethnic, and Socioeconomic Inequities in Glucagon-like Peptide-1 Receptor Agonist Use among Patients with Diabetes in the US," *JAMA Health Forum* 2, no. 12 (December 17, 2021): e214182, https://doi.org/10.1001/jamahealthforum.2021.4182.

[521] Krutika Amin et al., "How Do Prices of Drugs for Weight Loss in the U.S. Compare to Peer Nations' Prices?," Peterson-KFF Health System Tracker, August 17, 2023, https://www.healthsystemtracker.org/brief/prices-of-drugs-for-weight-loss-in-the-us-and-peer-nations/#List%20prices%20of%20drugs%20used%20for%20weight%20loss%20in%20the%20U.S.%20and%20peer%20nations.).

indicating high need for GLP-1 medications.[522] Senator Bernie Sanders highlighted in September 2024 hearings that production costs range from under $1 to $72.49 monthly, yet manufacturers charge nearly $1,000 per month in the U.S.[523] With 50-75% of patients discontinuing GLP-1 usage (50.3% for obesity patients, 35.8% for T2DM patients over 12 months). This data makes evident that affordability is clearly a barrier to treatment and continuity for many individuals.[524] A federal price cap would reduce the $173 billion annual cost of obesity in the U.S. by making weight-loss management medications accessible, while still allowing pharmaceutical companies to earn profit, in comparable manner to other developed nations.[525]

III. Mandate Medicaid Coverage for weight-management purposes in states with high food desert populations

Congress should pass legislation requiring state Medicaid programs to cover GLP-1 medications for weight management, not just diabetes or other cardiovascular disease, in states where a significant amount of the population resides in USDA-designated food deserts (20%+), with potentially federal funds increased to offset state costs.

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[522] 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* 403, no. 10431 (February 1, 2024), https://doi.org/10.1016/s0140-6736(23)02750-2.

[523] "Why Is Novo Nordisk Charging Americans with Diabetes and Obesity Outrageously High Prices for Ozempic and Wegovy? | the U.S. Senate Committee on Health, Education, Labor & Pensions," Senate.gov (Senate Committee on Health, Education, Labor and Pensions, September 24, 2024), https://www.help.senate.gov/hearings/why-is-novo-nordisk-charging-americans-with-diabetes-and-obesity-outrageously-high-prices-for-ozempic-and-wegovy.

[524] "Why Is Novo Nordisk Charging Americans with Diabetes and Obesity Outrageously High Prices for Ozempic and Wegovy? | the U.S. Senate Committee on Health, Education, Labor & Pensions," Senate.gov (Senate Committee on Health, Education, Labor and Pensions, September 24, 2024), https://www.help.senate.gov/hearings/why-is-novo-nordisk-charging-americans-with-diabetes-and-obesity-outrageously-high-prices-for-ozempic-and-wegovy.

[525] James A. Levine, "Poverty and Obesity in the U.S.," *Diabetes* 60, no. 11 (October 17, 2011): 2667–68, https://doi.org/10.2337/db11-1118.

Currently, U.S. insurers very rarely cover weight management medications despite high obesity rates and demonstrated demand for GLP-1 drugs, including government-run programs such as medicaid.[526] This creates an inequitable healthcare system where wealthy individuals can access obesity treatment while low-income populations, who (based on previously mentioned data) face the highest obesity risk, are denied coverage until they sometimes develop more costly conditions like T2DM s or cardiovascular disease. States with the highest food desert populations, including Mississippi at 29%, New Mexico at 26%, and Arkansas at 24%, also rank among the lowest in healthcare system performance according to the Commonwealth Fund's 2025 rankings.[527] More than a quarter of individuals making less than $25,000 annually are uninsured, and this lack of insurance for this population generates $9 billion in diabetes healthcare costs annually. The $173 billion annual cost of obesity, combined with increased risk for heart disease and T2DM, far exceeds the cost of preventative GLP-1 treatment.[528] Discontinuation rates of 50.3% for obesity patient treatment (versus 35.8% for T2DM patients) suggest that current insurance programs, which only cover GLP-1s post-diabetes diagnosis, incentivize patients to delay treatment until their condition becomes much more severe. Mandatory Medicaid coverage for weight management in high-risk states would provide early preventative care to vulnerable populations (obese, low-income, minorities), potentially reducing long-term healthcare costs while addressing currently apparent disparities in food-insecure areas.

Compound Pharmacy Policy Recommendations

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[526] Miles Meline, "Key Lessons for Ethical and Affordable Access to GLP-1 Drugs," Penn LDI, October 17, 2024, https://ldi.upenn.edu/our-work/research-updates/key-lessons-for-ethical-and-affordable-access-to-glp-1-drugs-like-ozempic-and-wegovy/.

[527] *2025 Scorecard on State Health System Performance: Fragile Progress, Continuing Disparities (Commonwealth Fund, June 2025)*

[528] James A. Levine, "Poverty and Obesity in the U.S.," *Diabetes* 60, no. 11 (October 17, 2011): 2667–68, https://doi.org/10.2337/db11-1118.

I. Apply to the FDA for Permanent Approval of GLP-1 Generic Medications

The United States Food and Drug Administration should grant permanent approval of generic tirzepeptide and semaglutide medications. Research shows that compounding pharmacies can offer the same GLP-1 drugs, and treatment options for a fraction of the price.[529] In order to combat the increasing concerns of affordability, introducing compounding pharmacies as permanent players would counter the current duopoly and drive greater competitive pricing.

The current GLP-1 market offers very few options for generic medications. In December of 2024 the FDA authorized approval of generic medications for Liraglutide GLP-1 treatments.[530] Due to the vast demand and limited supply, GLP-1 medications have frequently come under shortage. The 2024 FDA approval was yet another reaction to a shortage of Liraglutide treatments. Yet, there was great speculation as to what effect the introduction of generics would have on the GLP-1 Market Landscape. In an article published by *USA TODAY,* their interview with a weight loss specialist touches upon how generic GLP-1s could offer more affordable options. Critically, the article mentioned how generic medications offer a far more financially feasible option to consumers.[531] Furthermore, it is widely recognized in the GLP world that liraglutide and other GLP-1 alternatives are not as effective as the semaglutide and tirzepatide market options commonly found in the forms of Ozempic, Wegovy, Zepbound, and Mounjaro. Additionally, Stanford went on further to assert that the current tirzepatide and semaglutide

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[529] Aedit Staff, "Compounded Vs. Branded GLP-1s: What's the Difference & Is It Safe? | the AEDITION," Aedit.com | Aesthetic Edit, September 29, 2025, https://aedit.com/aedition/compounded-vs-branded-glp-1s-whats-the-difference-and-is-it-safe.

[530] Office of the Commissioner, "FDA Approves First Generic of Once-Daily GLP-1 Injection to Lower Blood Sugar in Patients With Type 2 Diabetes," U.S. Food And Drug Administration, December 23, 2024, https://www.fda.gov/news-events/press-announcements/fda-approves-first-generic-once-daily-glp-1-injection-lower-blood-sugar-patients-type-2-diabetes.

[531] Karen Weintraub, "FDA Approves Generic in Same Class as Ozempic for Diabetes. Could It Ease Shortage, Price?," *USA TODAY*, December 23, 2024, https://www.usatoday.com/story/news/health/2024/12/23/fda-generic-approval-lower-cost-ozempic/77174916007/.

market options cost more than $1,000 a month, and that "she hopes lower-priced generics will trigger Novo Nordisk and Lilly to lower the price of their brand-name drugs, and could encourage more insurers to cover GLP-1 medications for both diabetes and weight loss."[532] The key message to understand in relation to generics within the GLP-1 market landscape is that they could be an agent for greater affordability and accessibility. Considering the persistent issues in relation to supply and shortages, providing permanent approval of semaglutide and tirzepatide generic medications would prove to be critical for both Type 2 diabetes patients as well as weight loss drug consumers.

II. Streamline the Current FDA Approval Process for Compound GLP-1 Medications

The United Stated Food and Drug Administration should adopt and streamline an approval process for compound GLP-1 Medications. Compound medications are rarely approved by the FDA, yet not for any serious and dire concerns to safety. To improve accessibility to GLP-1 weight loss medications, reducing restrictions would allow for a sub-alternative to current market standards and provide consumers with a more financially accessible option.

Compound medications have been a topic of vibrant discussion within the GLP-1 Market Landscape. At the moment, the United States FDA does not authorize any approval for compound GLP-1 Medications. Citing concerns relating to mishandled dosages, transportation, and fraudulent medications the FDA has refused to approve them.[533] However, GLP-1 Compound Medications show little signs of disappearing. In an article of the *Journal of the Endocrine*

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[532]Karen Weintraub, "FDA Approves Generic in Same Class as Ozempic for Diabetes. Could It Ease Shortage, Price?," *USA TODAY*, December 23, 2024, https://www.usatoday.com/story/news/health/2024/12/23/fda-generic-approval-lower-cost-ozempic/77174916007/.
[533] Center for Drug Evaluation And Research, "FDA's Concerns With Unapproved GLP-1 Drugs Used For Weight Loss," U.S. Food And Drug Administration, September 25, 2025, https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/fdas-concerns-unapproved-glp-1-drugs-used-weight-loss.

Society experts assert the proliferation of compound GLP-1 Medications as a direct result of multiple issues relating to the supply of name-brand medications and the challenges of shortages. Furthermore the journal also cites financial and affordability concerns as another viable reason as to why compound GLP-1s have grown quite significantly.[534] Critically, compound GLP-1 medications have not been FDA approved because of a lack of oversight and testing. Yet, if the FDA were able to invest in an initiative to investigate compound GLP-1 medications, then consumers could foresee a massive win in affordability and access. Notably, Compound Medications are produced at the pharmacy and thus has introduced the influx of online pharmacies, paving a new way for accessibility.[535] Furthermore, GLP-1 Compound Medications are notoriously cheaper and more financially accessible for consumers. This is critical for low-income consumers and marginalized populations, as often compounders are the only viable weight loss drug option available to them. Finally, the most critical advantage compound GLP-1 medications display is their ability to rapidly address troubles in supply and shortage. In 2022, when the FDA declared a shortage in the GLP-1 Medication market, one of the leading strategies which emerged and met the demand were compound GLP-1s.[536] Therefore, despite concerns over standardization and oversight, it would be critical to advocate for greater investment from the FDA in compound medications. GLP-1 compounded medications are considered safe and effective under proper medical supervision.[537] It is only without proper regulation and oversight

[534] Nikhil Sood, Rohini Garg, Global Rise of Compounded Weight-Loss Medicines: A Worrisome Trend, *Journal of the Endocrine Society*, Volume 9, Issue 8, August 2025, bvaf084, https://doi.org/10.1210/jendso/bvaf084
[535] Nikhil Sood, Rohini Garg, Global Rise of Compounded Weight-Loss Medicines: A Worrisome Trend, *Journal of the Endocrine Society*, Volume 9, Issue 8, August 2025, bvaf084, https://doi.org/10.1210/jendso/bvaf084
[536] Alyssa Billingsley, "Are Compounded GLP-1s Going Away? 5 Reasons You Might Still See Them," GoodRx, August 8, 2025, https://www.goodrx.com/classes/glp-1-agonists/compounded-glp-1-going-away?srsltid=AfmBOorpfgGc9zyzFilNePiLHxp2OBlhlYnV3Ju6qn6jTA0APmBG9L-e.
[537] "The Dangers of Buying and Using Compounded GLP-1 Medications," January 6, 2025, https://irmedicalservices.com/blog/the-dangers-of-buying-and-using-compounded-glp-1-medications#:~:text=Why%20You%20Should%20Stick%20to,monitoring%20any%20potential%20side%20effects.

in which they may pose a danger. Thus, the United States Food and Drug Administration should create an efficient and streamlined approval process for compound GLP-1 Medications.

PBM Policy Recommendations

I. Mandate fixed fees instead of rebates or spread pricing to prevent price inflation

Rebates are currently tied to the list price of drugs, which is set by the drug manufacturer. PBMs are typically compensated as a percentage of a drug's list price before any rebates or discounts are applied to the final negotiated cost. The current system, therefore, incentivizes PBMs to prefer higher-priced medications, which leads to larger profits for the PBMs. Fixed fees would make more expensive drugs less appealing to PBMs, promoting preference for cheaper medications. A fixed-payment model for PBMs would cut annual net drug costs by $95.4 billion, or about 15%, without compromising pharmaceutical innovation.[538]

PBMs generate revenue through these fees, mail-order pharmacy operations, spread pricing and price-protection agreements, specialty pharmacy services, and rebates. However, over the past decade, the share of PBM profits coming from fees charged to manufacturers, pharmacies, insurers, and employers has risen by more than 300%.[539] PBMs fees have doubled in the commercial market over the past five years, rising from $3.8 billion in 2018 to $7.6 billion in 2022.[540]

PBMs are generating a growing share of revenue through less transparent fees and by directing patients to pharmacies they own. After rebates and discounts, net U.S. prescription drug

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[538] Jason Millman, "Delinking PBM Compensation from Drug List Prices Could Unleash Major Savings," *USC Alfred E. Mann School of Pharmacy & Pharmaceutical Sciences*, July 25, 2025, https://mann.usc.edu/news/delinking-pbm-compensation-from-drug-list-prices-could-unleash-major-savings/.
[539] Stephen J. Ubl, "New Analysis Shows PBMs Use Fees as a Profit Center," *PhRMA Blog*, September 18, 2023, https://www.phrma.org/blog/new-analysis-shows-pbms-use-fees-as-a-profit-center.
[540] Eric Percher, *Trends in Profitability and Compensation of PBMs & PBM Contracting Entities*, Nephron Research, September 18, 2023, https://www.nephronresearch.com/trends-in-profitability-and-compensation-of-pbms-and-pbm-contracting-entities/.

spending is assumed to be roughly 650 billion dollars per year. If we assume a $4 fixed rebate that results in reduced total cost by 15%, this equates to a decrease in spending of $95.4 billion. PBMs may try to resist regulation by only partially complying or introducing new fee categories, as performed with Medicare Part-D. Therefore, transparency bills are essential to prevent this tactical skirting.

II. Enforce PBM transparency to require disclosure of rebates, fees, and structures

Currently, PBMs are not obligated to disclose how large their rebates are (estimates point to as high as 90%). Thus, this "middle-man" activity systematically increases patient costs. Improving transparency would inform researchers and policymakers about the actual benefits that PBMs provide and identify any conflicts of interest. It would also de-incentivise PBMs from marking up prices and demanding ridiculous rebates.

The original House version of the One Big Beautiful Bill Act included reforms to separate PBM compensation from drug list prices and adopting a pass-through pricing system, where PBMs would pay pharmacies the drug's ingredient cost plus a dispensing fee. This provision was removed from the final bill when the legislation was ultimately passed by the Senate.[541] Like the original provision in the One Big Beautiful Bill Act, Rep. Earl "Buddy" Carter (R-GA) introduced the bipartisan H.R.4317, or the PBM Reform Act of 2025, in July 2025.[542] This standalone bill would prohibit spread pricing in Medicaid, mandate that PBMs pass all manufacturer rebates to plan sponsors, and unlink PBM compensation from drug prices in Medicare Part D. The bill also gives federal oversight and auditing powers over PBM activities.

More than 40 states have introduced their bills aimed at PBM reforms, including

[541] Susan Morse, "Senate Removes PBM Provision from Tax and Spending Bill," *Healthcare Finance News*, July 3, 2025, https://www.healthcarefinancenews.com/news/senate-removes-pbm-provision-tax-and-spending-bill.
[542] "PBM Reform Act of 2025," H.R. 4317, 119th Congress (2025-2026), Congress.gov, https://www.congress.gov/bill/119th-congress/house-bill/4317.

Alabama (SB 93 and SB 99), Connecticut (HB 6814; SB 446, 758, and 821), Iowa (HB 213), Maryland (HB 321), Mississippi (HB 1123 and HB 1124), New Hampshire (SB 247), Oklahoma (SB 161), and Virginia (HB 2375 and SB 1311). Most of these measures are still at early legislative stages and must secure bipartisan support.[543] Notably, California Governor Gavin Newsom signed SB 41 in October 2025, a new law that imposes limits on PBM contracts with health plans and pharmacy networks, barring PBMs from using spread pricing and mandating that any PBM agreements created or renewed after January 1, 2026, compensate PBMs through flat-fee payments rather than fees linked to drug prices or formulary decisions.[544]

Foreign Policy Recommendations

I. Integrate GLP-1 Coverage Into MassHealth With Mandatory Enrollment in a Lifestyle Program (Mass in Motion).

The Massachusetts Legislature should require that any future MassHealth coverage of obesity-indicated GLP-1 medications be explicitly tied to mandatory enrollment and verified participation in a state-approved lifestyle program such as Mass in Motion, modeled after the service-based and compliance-verified systems used on an international scale. This policy would ensure that GLP-1 access is an integral facet of holistic care, rather than a standalone pharmaceutical intervention.

Mass in Motion, a cornerstone lifestyle program of Massachusetts, currently operates across 52 municipalities, representing one-third of the state population, and is designed to

[543] Amanda Rachidi, "PBM Reform Takes Off in 2025," *Pharmacy Times*, April 11, 2025, https://www.pharmacytimes.com/view/pbm-reform-takes-off-in-2025.
[544] Academy of Managed Care Pharmacy (AMCP), "Legislative Update: California Governor Signs PBM Reform Bill," AMCP Letters, Statements & Analysis, October 11, 2025, https://www.amcp.org/letters-statements-analysis/legislative-update-california-governor-signs-pbm-reform-bill.

support local nutrition, exercise, and community wellness initiatives.[545] Its infrastructure is ideally positioned to operate as the integrated service model present abroad in countries like France to prevent inappropriate prescribing and overspending.[546]

International GLP-1 policy approaches demonstrate that coverage tied to lifestyle adherence strengthens patient outcomes and reduces unnecessary spending. In France, reimbursement for GLP-1s requires documented proof of compliance with diet and exercise. This requirement was instituted after the French Ministry of Health found that one-third of GLP-1 reimbursements were occurring outside approved indications.[547]

Similar to France, in the United Kingdom, NICE guidance restricts semaglutide use to specialist weight-management programs and requires treatment discontinuation after two years unless a patient demonstrates adequate response. In effect, GLP-1s are supplementing holistic lifestyle change, rather than replacing behavioral change.

By integrating GLP-1 coverage with the Mass in Motion participation, Massachusetts would focus its resources on prevention in its approach to public health policy, rather than treatment, which, over time, is significantly more expensive. This approach mirrors what has been done in France, Iceland, and Japan; each of these nations has connected GLP-1 coverage to lifestyle modification, eligibility verification, and adherence.

France's 2024–2025 GLP-1 policy reform demonstrates how mandating lifestyle participation for reimbursement is conducive to success. Following concerns over inappropriate

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[545] Massachusetts Department of Public Health, "Mass in Motion Municipal Wellness and Leadership Program," https://www.mass.gov/info-details/mass-in-motion-municipal-wellness-and-leadership-program.
[546] Alexandra Chopard, "La délivrance des analogues du GLP-1 se complexifie," *Le Pharmacien de France*, January 17, 2025, https://lepharmaciendefrance.fr/la-delivrance-des-analogues-du-glp-1-se-complexifie/.
[547] "French GPs can now prescribe anti-obesity drugs, but not everyone is convinced," *Le Monde* (English), August 27, 2025, https://www.lemonde.fr/en/france/article/2025/08/27/french-gps-can-now-prescribe-anti-obesity-drugs-but-not-everyone-is-convinced_6744750_7.html.

GLP-1 use, France implemented new rules requiring physicians to verify their patients were following diet and exercise programs before GLP-1 prescriptions could be reimbursed by their national payer plan.[548]

Massachusetts could adapt France's model by requiring Mass in Motion participation as a condition of GLP-1 approval and renewal, ensuring that obesity treatment aligns with public health principles rather than pharmaceutical incentive solely.[549] In Massachusetts, the high-risk type 2 diabetes and obesity pool is around 140,000. If eligibility requires participation in lifestyle programs, and around 25% of people qualify, then approximately 35,000 people are eligible. Given a program cost of $6000 per person, this equates to between $175M to $210M annually. Because around $1,000 to $1,200 of annual medical spending would be saved per person, around $35M to $42M of annual medical spending would be saved. There is also an additional lifestyle-driven adherence efficiency to be considered, which we estimate to be between $10M to $15M in savings. Therefore, the annual net is around $45M to $60M in avoided costs, with long-term reductions in dialysis, CVD, and hospitalizations.

II. Implement a Standardized Step-Therapy and Eligibility Framework for GLP-1s Across MassHealth, GIC, and State-Regulated Commercial Plans.

Massachusetts should adopt a uniform step-therapy and eligibility standard similar to models used in Iceland, Japan, and the United Kingdom. Step therapy helps ensure that GLP-1 access is targeted towards patients who are most likely to benefit from GLP-1s while reducing state costs and preventing inappropriate prescribing.

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[548] Alexandra Chopard.

[549] "Un 'plan obésité' pour la France prévu par le gouvernement," *Le Monde* (French), May 26, 2025, https://www.lemonde.fr/societe/article/2025/05/26/un-plan-obesite-pour-la-france-prevu-par-le-gouvernement-a-la-rentree_6608636_3224.html.

Iceland, Japan, and the United Kingdom each brought different approaches to their GLP-1 policy, but each provides insight into what Massachusetts has the potential to do. In Iceland, their National Health Insurance system requires patients seeking GLP-1s for diabetes or obesity to demonstrate failure of lower-cost therapies, provide documentation, and meet BMI thresholds.[550] Collectively, these requirements contributed to reducing the rapidly growing GLP-1 spending landscape.[551] In Japan, similar to Iceland, eligibility is restricted through specific BMI and comorbidity status requirements. Importantly, GLP-1s are positioned as a third-line treatment after documented failure of lifestyle and oral therapies.[552] This is aimed to prevent off-label prescribing, supply shortages, and overall reduce overspending and overconsumption.[553] The United Kingdom, which, unlike Japan, faces a high obesity prevalence similar to that of the United States, has integrated a mix of clinical eligibility and regional controls through Integrated Care Boards, which together demonstrate the risk of access when it's unstructured.[554] Massachusetts, by creating a structure to improve GLP-1 access and affordability, can reduce the volatility of price and consumption when prescription is uncontrolled.[555]

Iceland offers the clearest parallel for Massachusetts, by combining strict BMI requirements with step-therapy verification and prior authorizations. Iceland has managed to

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[550] Government of Iceland, "Costs of diabetes and weight-control medicines are multiplying," December 4, 2023, https://island.is/en/o/iceland-health/news/2023-12-04-costs-of-diabetes-and-weight-control-medicines-are-multiplying.
[551] MobiDoctor, "GLP-1 Weight Loss in Europe: Eligibility, Costs & Access," https://www.mobidoctor.eu/blog/who-qualifies-for-medical-weight-loss-with-glp-1s-in-europe.
[552] *Japan Today*, "Wondering about Ozempic in Japan? Learn which GLP-1 drugs are approved…," https://japantoday.com/category/features/health/wondering-about-ozempic-in-japan-learn-which-glp-1-drugs-are-approved-how-much-they-cost-where-to-access-them.
[553] Interac Network, "Off-label use of GLP-1 drugs like Ozempic for weight loss in Japan," https://interacnetwork.com/off-label-use-of-glp-1-drugs-like-ozempic-for-weight-loss-in-japan/.
[554] The King's Fund, "GLP-1 drugs on the NHS: can and should we roll them out at scale?" https://www.kingsfund.org.uk/insight-and-analysis/blogs/glp-1-drugs-nhs-should-roll-them-out-at-scale.
[555] NICE (National Institute for Health and Care Excellence), "TA1026 Supporting Documentation 5," https://www.nice.org.uk/guidance/ta1026/documents/supporting-documentation-5.

implement these restrictions and requirements while also ensuring those who need GLP-1s have access: GLP-1s are covered for both diabetes and obesity.[556]

Based on Iceland's model, Massachusetts should require: verified engagement in lifestyle intervention; failure of lower-cost alternatives; eligibility for GLP-1 initiation under MassHealth rules; renewal only when weight loss and metabolic improvement are documented. As a result, GLP-1s are reserved for those in Massachusetts who need them most.

The Step-Therapy Model (as in France, UK, and Iceland) is as follows:

1. Cheaper treatment + lifestyle therapy for 3–6 months
2. GLP-1 only if A1c ≥8% OR A1c ≥7% + obesity or CVD risk
3. Discontinue if no clinical response

If we again consider the population of 140,000 high-risk T2D + obesity MassHealth members, we will assume that 70% respond to Step 1. Therefore, 98,000 do not move to the GLP-1 phase. If 30% fail Step 1, then 42,000 are eligible for GLP-1 initiation. We expect the uptake after eligibility verification to be 65%, or around 27,000 GLP-1 users under step therapy. Without step therapy, we expect 20% to 25% uptake among the 140,000 eligible, which is approximately 28,000 to 35,000 users. Therefore, at the high end, step therapy reduces use by 8,000 members, adding substantial savings from clinical non-responders.

III. Establish an Outcomes-Based Renewal and Time-Limited Treatment Window (Inspired by NICE).

[556] MobiDoctor.

Massachusetts should also consider adopting a renewal requirement model that is modeled based on the United Kingdom's NICE guidance. These guidelines restrict semaglutide coverage to two years unless a patient demonstrates sustained clinical benefit.[557]

Outcome-based renewal is also consistent with practice in France, where GLP-1 reimbursement requires evidence that a patient is adhering to their plan and seeing improved outcomes.[558]

In Massachusetts, this model could be reproduced through a combination of biannual renewal reviews, where those who receive any support for their treatment plan are required to have their outcomes and status reviewed before they can review; required documentation of attendance to a lifestyle and diet improvement program; demonstration that they have seen a documented weight loss or cardiometabolic improvement due to the combination of GLP-1 treatment with lifestyle changes; and automatic discontinuation of their coverage program if no response is observed and documented.

Social Media Policy Recommendations

I. Expand FDA "direct-to-consumer" guidelines to social-media micro advertising

The Federal Drug Administration (FDA) should, first and foremost, update its existing direct-to-consumer (DTC) pharmaceutical advertising guidelines to explicitly apply to social media micro-advertising formats, including that of TikTok, Instagram Reels, and Youtube Shorts. Current guidelines for television, print, and long-form digital media do not clearly address

[557] *Le Monde* (English).
[558] NICE (National Institute for Health and Care Excellence), "TA1026 Supporting Documentation 5," https://www.nice.org.uk/guidance/ta1026/documents/supporting-documentation-5.

emerging formats, leading to the risk of misconstrued or diminished health information.[559] As prescription drug information adjusts to the digital age of social media, therefore, this regulatory gap can allow for an inconsistent presentation of important safety and eligibility details.[560] Hence, expanding DTC guidelines to include micro-advertising would ensure that promotional content for all prescription drugs, whether those delivered through traditional or digital channels, meets the same federal standards for risk disclosure and accuracy.

Federal advertising oversight of e-cigarette companies serves as a particularly effective case study. As digital platforms, including that of Instagram, Snapchat, and Youtube, transformed into central spaces for health-related product advertising, the FDA and Federal Trade Commission (FTC) broadened their enforcement to address promotional content appearing in these platforms. Through a series of warning letters, and public advisories, regulators considered "failure to disclose material health or safety risks in advertising" pertaining to nicotine as a potential violation of the "FTC Act."[561] Further, the FTC reminded companies "that social media influencers should clearly and conspicuously disclose their relationships[...]when promoting[...]products through social media."[562] Although these expectations currently operate through the FTC's Endorsement Guides rather than binding regulation, they serve as a formal

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[559] Kristina Rozgonyi, "How to Modernize Media Laws to Cope With Digital Change," Media and Journalism Research Center, January 22, 2025, https://journalismresearch.org/2024/01/how-to-modernize-media-laws-to-cope-with-digital-change/#wp-block-themeisle-blocks-advanced-heading-a73805d0.

[560] "FDA Launches Crackdown on Deceptive Drug Advertising," Federal Drug Administration, September 9, 2025, https://www.fda.gov/news-events/press-announcements/fda-launches-crackdown-deceptive-drug-advertising#:~:text=The%20U.S.%20Department%20of%20Health,seniors%20to%20read%20or%20hear.

[561] "FTC and FDA Send Warning Letters to Companies Selling Flavored E-Liquids About Social Media Endorsements without Health Warnings," Federal Trade Commission, June 7, 2019, https://www.ftc.gov/news-events/news/press-releases/2019/06/ftc-fda-send-warning-letters-companies-selling-flavored-e-liquids-about-social-media-endorsements?utm_.

[562] "FTC and FDA Send Warning Letters to Companies Selling Flavored E-Liquids About Social Media Endorsements without Health Warnings."

notice that companies using influencers must comply with applicable disclosure requirements across all media formats.

Such regulatory expansion produced measurable policy outcomes. As shown through a study by Wu et al., observing the impact of health warnings on Instagram advertisements for e-cigarettes, results suggest that "enforcing FDA-compliant health warnings on social media posts of synthetic nicotine products may reduce youth engagement with tobacco marketing on social media."[563] Prior to 2022, due to synthetic nicotine's lack of relation to tobacco, it evaded regulatory authority of the FDA, granting manufacturers a "regulatory loophole," all without acknowledgement of the considerable risks and drawbacks to its usage.[564] Similar to the marketing strategy of GLP-1s, e-cigarette manufacturers "use social media marketing platforms," granting the "gray areas surrounding federal regulation specific to social media marketing."[565] While around 87% of brand Instagram posts do not adhere to FDA health warning requirements for tobacco advertising, Wu's findings suggest the effectiveness of warning labels for "all forms of social media marketing," observing a drop in media exposure and influence of these social media advertisements, indicating "that compliance with FDA guidelines reduces user engagement."[566]

Focus on the importance of enforcement, in many ways, also contributed to broader structural policy changes, including platform-level restrictions on paid e-cigarette advertising, not to mention the eventual congressional expansion of FDA authority over synthetic nicotine

[563] Jiaxi Wu et al., "Health Warnings on Instagram Advertisements for Synthetic Nicotine E-Cigarettes and Engagement," *JAMA New Open* 7, no. 9 (2024).
[564] Jiaxi Wu et al., "Health Warnings on Instagram Advertisements for Synthetic Nicotine E-Cigarettes and Engagement."
[565] Ibid.
[566] Ibid.

products in 2022. Such developments, furthermore, demonstrate the role of modernized advertising to match contemporary media environments.[567]

By extension, broadening FDA and DTC guidelines to encompass social media micro-advertising for GLP-1 pharmaceuticals is both feasible and supported by evidence, where updated advertising requirements can meaningfully reduce misleading promotional exposure.

II. Require all marketing firms and drug manufacturers to report paid influencer content to the Federal Trade Commission (FTC)

Despite the FDA's 2022 reform to regulations surrounding influencer advertisement of prescription drugs, as of now, and as noted by Politico, "'individualized' experiences with patient influencers offering specific advice on topics such as dosages present challenges to regulators."[568] Such influencers are generally considered "patient leaders," though, while federal law requires transparency amongst pharmaceutical companies to "reveal their spending on doctors," no framework holds for "tracking payments to patient influencers even when they reveal whether they are being paid by a drug company."[569] Such absence of a reporting requirement creates a significant transparency gap in the fastest-growing segment of pharmaceutical promotion. To address this gap, requiring all firms and drug manufacturers to report paid influencer content to the FTC would extend existing disclosure expectations to an area where regulatory oversight has yet to keep pace.

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[567] Ibid.
[568] Lauren Gardner, "FDA to update TV drug ads, but rise of online influencers marks gray area," PoliticoPro, August 8, 2023, https://subscriber.politicopro.com/article/2023/08/fda-to-update-tv-drug-ads-but-rise-of-online-influencers-marks-gray-area-00112152.
[569] "Tech Regulation Digest: Regulating Direct-to-Consumer Drug Marketing in the US: FDA and FTC Adapt to Changing Tech Landscape," Milken Institute, February 12, 2024, https://milkeninstitute.org/article/tech-regulation-digest-regulating-direct-consumer-drug-marketing-us-fda-and-ftc-adapt-changing-tech.

The Physician Payments Sunshine Act, enacted under Section 6002 of the Patient Protection and Affordable Care Act (ACA), stands as a strong policy precedent for establishing a federal reporting requirement. As a central initiative, the Sunshine Act requires pharmaceutical and medical-device manufacturers to report all payments or transfers of value made to physicians and teaching hospitals, including consulting fees, honoraria, travel, meals, and research funding.[570] Accordingly, through a centralization of these disclosures in a public database, the Sunshine Act transformed, what was once, vague manufacturer-clinician relationships into a transparent and federally monitored system.

Such findings were further promoted through Cheng et al.'s assessment of the Sunshine Act's impact, including a reduction in "meal-related payments to physicians, aligning with the PPSA's objectives to promote transparency in financial relationships within the healthcare sector."[571] Such results illustrate a federal mandate's impact on successfully increasing visibility, thereby establishing greater compliance from physicians and manufacturers, not to mention a shift in industry behavior in accordance with national transparency standards.

Although this Act applies exclusively to clinicians, its implementation, ultimately, demonstrates the effectiveness of placing the reporting burden on companies, rather than individuals. In the context of pharmaceutical influencer marketing, where no comparable reporting framework exists, regulators lack the information necessary to track the scale, frequency, and content of paid promotional activity. Adapting the Sunshine Act's model to require marketing firms and drug manufacturers to report paid GLP-1 influencer content to the

[570] "Sunshine Act," OHSU Integrity Department, https://www.ohsu.edu/integrity-department/sunshine-act.
[571] Sherri Cheng et al., "Assessing the impact of the Physician Payments Sunshine Act on pharmaceutical companies' payments to Physicians," *PLoS One* 19, no. 8 (2024).

FTC would, therefore, fill this regulatory gap, as it provides necessary transparency in emerging media environments.

III. Establish standardized guidelines for health-risk disclosures in short-form pharmaceutical advertising

Finally, the FDA should develop both standardized and mandatory health-risk disclosures for all prescription-drug content presented in short-form formats, including that of TikTok videos, Instagram Reels, and Youtube Shorts. Contrary to traditional broadcast advertisements, where the FDA already requires a statement of side-effects under 21 CFR 202.1(3)(1) implementation, micro-ads vary widely in design, making it difficult for manufacturers to convey safety information consistently.[572] Although the FDA has issued guidance for internet platforms, no standardized disclosure framework, particularly in the context of short videos, exists.[573] Accordingly, the FDA should introduce a uniform, pre-approved disclosure statement and format required in every short-form pharmaceutical advertisement. At minimum, this would include:

1. Standardized federal language such as: "This medication carries serious risks. Side effects may include X, Y, and Z. Visit [website] for full safety information."
2. A mandated display format, including:
    a. Text occupies at least 20% of the screen.
    b. High-contrast fonts and no background filters.

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[572] "Direct-to-Consumer Prescription Drug Advertisements: Presentation of the Major Statement in a Clear, Conspicuous, and Neutral Manner in Advertisements in Television and Radio Format Final Rule Questions and Answers," Federal Drug Administration, https://www.fda.gov/regulatory-information/search-fda-guidance-documents/direct-consumer-prescription-drug-advertisements-presentation-major-statement-clear-conspicuous-and.

[573] "Advertising and Promotion Guidances," accessed November 15, 2025, https://www.fda.gov/animal-veterinary/guidance-industry/advertising-and-promotion-guidances.

c. Minimum duration of 2-3 seconds, appearing in the first-half of the video.

3. Platform-agnostic requirements, ensuring the disclosure cannot be sped up or obscured by edits, music, or creator captions.

The FDA's implementation of uniform tobacco warning requirements provides a clear policy precedent for establishing standardized federal health-risk disclosures. Under the Family Smoking Prevention and Tobacco Control Act of 2009, the FDA mandated all cigarette packaging and advertising to include standardized warning statements, including warning label statements, across "packaging and advertising."[574] Klein et al. reinforce the benefits of a standardized approach to health warnings, claiming that "attention paid to health warning labels[...]may influence behavioral intent to quit smoking."[575]

Through a series of studies, Klein et al. find "empirical support for the proposition that graphic warning labels occupying at least 20% of advertising space attract significantly greater attention than smaller text only warnings."[576] Interestingly enough, graphic health warnings are also shown as more effective "at influencing consumer attention and/or desirable tobacco reduction behaviors than text-only messages." Such findings, furthermore, illustrate the role of federally standardized warning formats, whether defined by size, placement, or graphic content, in reducing variability across industries, ensuring that risk information is consistently communicated, regardless of the design choices made by advertisers.

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[574] "What do tobacco advertising restrictions look like today?" Truth Initiative, February 6, 2017, https://truthinitiative.org/research-resources/tobacco-industry-marketing/what-do-tobacco-advertising-restrictions-look-today#:~:text=New%20rules%20included%20bans%20on,been%20on%20the%20federal%20level.

[575] Elizabeth Klein et al., "Does Size Impact Attention and Recall of Graphic Health Warnings?" *Tobacco Regulatory Science* 1, no. 2 (2015): 175-185.

[576] Klein et al., "Does Size Impact Attention and Recall of Graphic Health Warnings?"

In this way, the tobacco-warning framework further highlights the role of uniform disclosure requirements in shaping industry behavior, thereby promoting public-health objectives. Applying this model to short-form pharmaceutical advertising would similarly ensure that essential information is not obscured by brevity, nor design constraints of platforms such as TikTok. Through an FDA-defined disclosure format, regulators could create a consistent baseline for risk communication, closing current gaps in digital pharmaceutical promotion.