ilant HEALTH

Value-Based
Obesity Management
& Cardiometabolic Health

# Obesity Exclusive Insights

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# Obesity Trends

**Obesity is a metabolic disorder characterized by excess weight–particularly the gain of adipose (also known as fat) tissue in the stomach area. Obesity is not a matter of appearance or a negative view of large bodies, nor is it the result simply of poor lifestyle choices or a one-size-fits-all issue with a single ready-made solution.**

Instead, obesity is a chronic health condition that drives a wide range of over 200+ conditions and a leading–and rapidly growing–public health challenge [Figure 1]. More than 40% of the US adult population currently has obesity[1] and that rate is expected to reach above 50% by 2030.[2] Worldwide, the increasing prevalence of obesity has corresponded with epidemic rise in hypertension[3,4] diabetes[5,6] and the emergence of diseases in previously unaffected populations such as diabetes in adolescence, chronic kidney disease (CKD) in middle age, and the well-publicized increase in cancer in young adults.[7]

Obesity places a serious burden of diseases on individuals and society. This burden manifests itself in poorer health outcomes and increased mortality, e.g.,[2,6] as well as high and rising healthcare costs due to worsening diseases, estimated to exceed $1.72 trillion annually.[6] It is also driving significant interest in obesity treatments: in the past 3 years, the use of anti-obesity medications have tripled[8] and the amount of money spent on GLP-1s (a class of drug for treating diabetes and obesity) increased nearly 10x between 2020 and 2024;[9] in 2022 Medicare expenditures for GLP-1s were more than $10.8 billion (pre-rebate), occupying the 2nd and 6th place highest cost medications.[10]

The cost of obesity extends beyond healthcare. It is transforming the face of society in the US. At work, obesity-related health issues decrease productivity through limitations in physical function and mobility, higher rates of disability, through symptoms (e.g., malaise, fatigue) creating barriers to focus on job-related duties (known as presenteeism), and through higher rates of absenteeism—at an estimated cost of at $11.7B in lost productivity a year. People with obesity suffer from bias in employment and educational opportunities; for example, there is a large–and growing–pay differential for individuals with obesity.[11] For a middle-aged woman losing 60 lbs is the economic equivalent of achieving a Masters degree.[12]

## THE COST OF OBESITY IN THE US

**$1.72 TRILLION**
annual cost due to obesity-related conditions

**10X**
increased spend on GLP-1s between 2020 and 2024

**$10.8+ BILLION**
Medicare expenditures (pre-rebate) for GLP-1s, occupying the 2nd and 6th highest cost medications

**$11.7 BILLION**
lost worker productivity each year

Source: 6-10

Individuals with obesity suffer derogatory stereotypes and discrimination that can contribute to feelings of shame, low self-esteem and social isolation—including in healthcare settings [See Member Journey white paper]. A survey of physicians found that 40% reported a negative reaction towards a member with obesity and half of primary care providers report regarding members with obesity as "awkward, unattractive, ugly, and non-compliant."[13] It may be no surprise then that members with obesity often receive shorter visits with primary care providers—despite having greater prevalence of chronic conditions to care for.[14] Consequently, these discriminatory experiences may dissuade individuals affected by obesity from seeking essential healthcare services and reduce their access to preventative care.

Last, obesity is the foundational issue of health equity. It is more prevalent among underrepresented communities and black and brown individuals,[1] individuals with lower socioeconomic status,[15] and lower levels of educational attainment.[15,16] Implicit bias against people with obesity may exacerbate all other equity issues,[17] and even perpetuate them as obesity can be passed from generation to generation based on hereditary, epigenetic, and lifestyle factors.[18] All of these burdens are caused by obesity; however, perhaps the most important point to take away about obesity is that it does

not have the same impact on everyone: it is a disease and like other diseases it has stages or levels of acuity. Studies that discuss the health impacts or increase in cost of obesity often rely on averages; e.g. [6] however, these averages collapse across a wide range of diversity and fail to capture the real story. The true story is that the health consequences and healthcare costs driven by obesity increase dramatically—often nonlinearly—with greater levels of obesity. For example, lower levels of obesity—body mass index (BMI) of 30-35, often referred to as "Class 1" obesity—increases average healthcare costs by 35% whereas a higher level of obesity—known as "Class 3" and corresponding to BMI of 40 or above—more than doubles healthcare costs (our reanalysis of data in [19], See Financial White Paper for more detail). Unfortunately, this higher level of obesity is also the fastest-growing segment of the US population [Figure 2]. Without mitigation, demographics suggest that the costs of obesity to the healthcare system and society will continue growing substantially over time. In this white paper we review the medical and financial costs of obesity, the options for addressing this crisis, and the right approach to drive value from obesity treatment.

## Medical Impact and Healthcare Costs of Obesity

Why does obesity worsen health outcomes while increasing the cost of healthcare? Obesity causes the development of new diseases, accelerates the progression of existing conditions (often referred to as a comorbidity) and interferes with their treatment. Obesity can cause high blood pressure (hypertension) and associated cardiovascular disease—the leading cause of death in the US.[20] Obesity may drive the development and progression of metabolic diseases in part because adipose tissue (i.e. belly fat) itself is metabolically active and secretes pro-inflammatory chemicals; e.g.,[21] gaining belly fat actually alters the body's metabolism and leads to metabolic disbalances such as insulin resistance. As a result, obesity drives metabolic conditions such as high LDL or "bad" cholesterol (dyslipidemia), diabetes, chronic kidney disease and metabolic dysfunction—associated steatotic liver disease (MASLD).[3-6] Obesity places additional strain on bones, nerves, cartilage, joints and tendons, and the resulting stress can cause or exacerbate mechanical conditions. For example, obesity increases the rate of osteoarthritis by 2-10x.[22] Further, obesity complicates the mechanism of breathing by restricting the chest wall, diaphragm and lung capacity[23] which can lead to asthma and obstructive sleep apnea (OSA). Obesity is also associated with reduced fertility for both men and women,[24-26] and may complicate pregnancy including a heightened risk of preeclampsia.[27] Even mental health conditions are exacerbated by obesity—especially depression and anxiety disorders.[28-29] Last, obesity is linked with at least 13 different cancers.[7, 23, 30; See Link to Obesity Medicine Impacts for review] This increased burden of disease reduces health and adds permanent recurring costs that will follow individuals throughout their lifetime.

### BMI

**BODY MASS INDEX**

**Body Mass Index (BMI) is a commonly used metric for assessing an individual's weight in a manner that respects the wide differences in height among humans.**

To calculate BMI, take the ratio of an individual's weight (in kilograms) to the square of their height (in meters—when calculating BMI using the Imperial units—inches and pounds–multiply the weight by 703). Higher measurements of BMI typically correspond to higher levels of body fat, which can indicate metabolic disorders like obesity.

BMI is often used when discussing obesity because it is a convenient, readily available metric and can be measured with common household items such as measuring tape and scale. However, as one might imagine this simple to calculate number does not accurately or holistically capture a person's metabolic health, because it does not account for the diversity of human body shapes and sizes (e.g. shoulder and hip width) or compositions (such as the size of muscles or the density of bone).

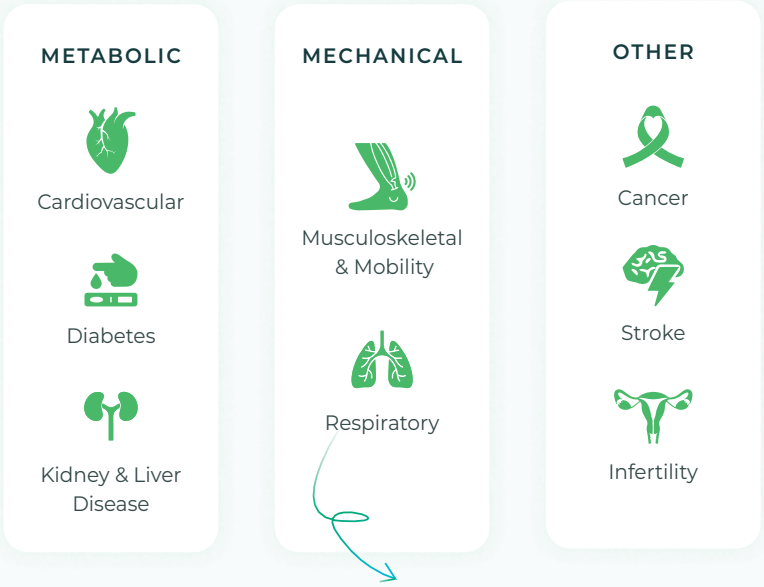
As a result, BMI has been criticized because it does not provide a particularly deep or accurate picture of the health of an individual, yet is broadly used as a shorthand for health. Better measures include waist circumference or percent adipose tissue in body composition—although this requires medical imaging. We agree that there has been over-reliance on BMI: clinical diagnosis of obesity must rely on other measurements like metabolic panels from lab work.

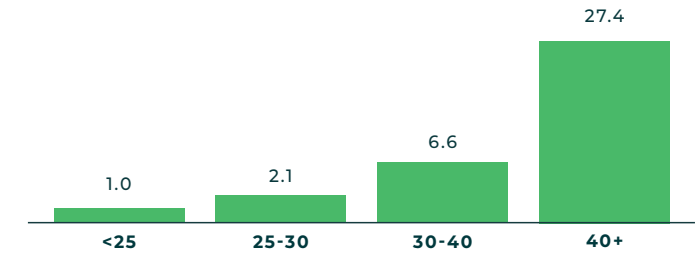
At Ilant, we use BMI primarily as an organizational tool—it gives us a method to categorize and organize and compare data on individuals that may have been collected from many different sources (clinicians, the individual themselves, historical health system data in EMRs, or published academic papers).

These adverse trends are magnified for individuals with higher levels of obesity. Individuals with higher levels of BMI have a substantially higher likelihood of developing new diseases and a higher rate of progression to higher levels of severity. For example, the risk of OSA triples from Class 1 (2x) to Class 3 (7x).[33; for review see also 34] We see similar patterns in many other diseases as well: CKD is twice as likely in individuals with Class 2 obesity as in individuals with overweight or Class 1 obesity[35] and is more likely to progress to higher levels of severity and even end-stage renal disease.[36]

In addition to increasing the likelihood of developing conditions, obesity acts as a force multiplier for comorbid conditions because it increases their severity and limits options for treatment. For example, Class 1 obesity increases the costs of individuals with diabetes by approximately 50% (relative to someone who has diabetes but is at optimal weight), and increasing levels of obesity drives accelerated cost growth for individuals with diabetes compared to those without.[37,38] For members with knee pain, obesity has a substantive cost impact because it limits treatment options; those with BMI over 40 are often unable to receive knee replacements to alleviate their

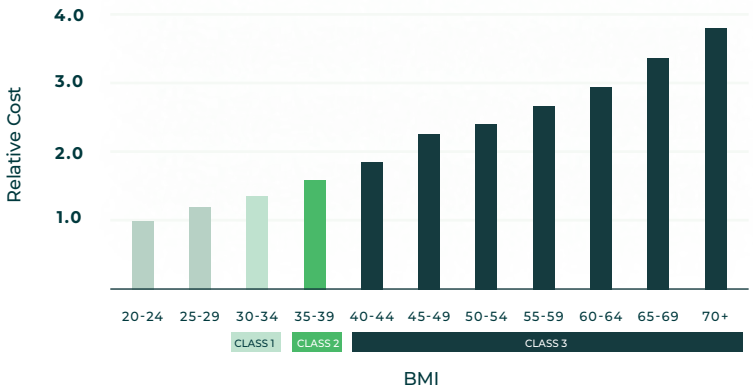
**Figure 1**: Costs Driven by Obesity Related Conditions



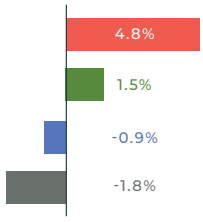




Source: 80

**Figure 2**: The Costs and Prevalence of Obesity



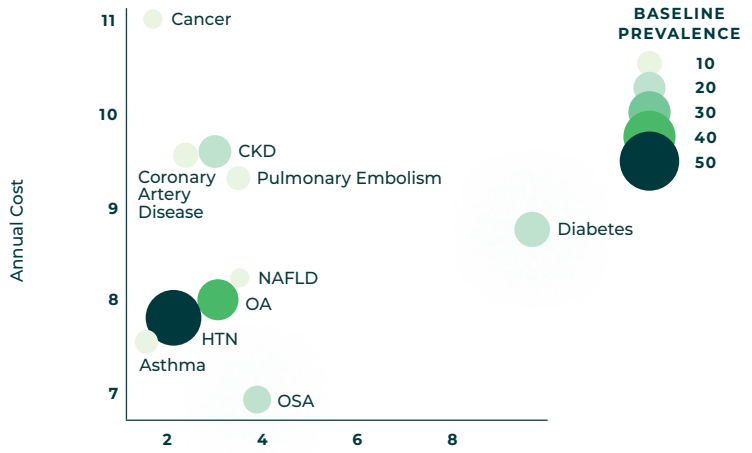

| | 2000 | 2010 | 2018 |
|---|---|---|---|
| SEVERE OBESITY (40+ BMI) | 5.0% | 6.6% | 9.6% |
| OBESITY (30-39.9 BMI) | 25.9% | 29.5% | 33.2% |
| OVERWEIGHT (25-29.9 BMI) | 33.6% | 32.7% | 30.3% |
| NON-OVERWEIGHT (<24.9 BMI) | 35.5% | 31.2% | 26.9% |




Source: 19, 81

pain due to high complication rates. And for members with CKD, obesity leads to poorer outcomes from dialysis and post-renal transplantation.[39-41] Taken together, obesity drives poorer health outcomes and places significant financial cost on the healthcare system, and both of these burdens scale up with increasing levels of obesity. Fortunately, there is growing evidence that obesity treatment can reduce the impact of existing diseases, support disease improvement and reduction, and reduce new disease onset (the latter may be referred to as the population health impact of obesity treatment–see Obesity Medical Impacts White Paper for review).

**Figure 3**: Increased Prevalence of Comorbidities with Obesity vs. Annual Cost




Source: 82, additional data from 33, 83, and the CDC

## Obesity Treatment Options

The good news is that the past decade has seen a revolution of more effective treatment options for obesity—such as GLP-1 receptor agonists and laparoscopic bariatric surgery—with yet more promising innovations in the pipeline and on the horizon [see our Obesity Treatments White Paper]. As a result, the arsenal for treating obesity now includes a wide range of options suited for different levels of acuity.

**Figure 4:** Types of Treatment for Obesity

### Behavioral Therapy

High-touch behavioral coaching intended to improve behaviors and address environmental challenges

2-5% WEIGHT LOSS

- High value for individuals who may not have attempted (structured) weight loss programs previously
- Most likely to drive desired outcomes for individuals close to normal BMI and without significant obesity-related comorbidties

### Pharmacotherapy

Medication adjunct to behavioral therapy supporting reductions in hunger and/or increase in metabolism

5-20% WEIGHT LOSS

- High value for individuals with moderate levels of obesity
- Certain medications have been shown to have particularly high-response in different patient populations
- Evidence of cardiometabolic (diabetes, heart disease) impact; emerging other indications

### Bariatric Surgery

Surgical procedure to change hormones, reducing hunger, constrict stomach size, and reduce nutrient absorption

25 - 35% WEIGHT LOSS

- Most impactful for individuals with high levels of obesity (Class 3) and those with more progressed cardiometabolic disease (high A1C/ on insulin diabetes)
- Evidence of remission of diabetes and obstructive sleep apnea
- Evidence of reduction in cancer and non-alcoholic fatty liver disease incidence

## Intensive Behavioral Therapy (IBT)

For individuals with lower levels of obesity and without significant comorbidities, Intensive Behavioral Therapy (IBT) is clinically validated coaching to improve behaviors and address environmental challenges that produces 2%-5% weight loss.[42]

## Anti-Obesity Medication

For individuals for whom IBT is not effective or for higher levels of obesity-related acuity, there are a number of treatment options for medication paired with behavior modification. Non-GLP anti-obesity medications such as Contrave and Qysmia can produce 7%-11% weight loss and are appropriate for individuals with moderate levels of acuity. For individuals with high levels of obesity and significant comorbidities, GLP-1 receptor agonists can produce 15%-20% weight loss [see Figure 5] and simultaneously address some of the most serious comorbidities associated with obesity. For example, GLP-1s are already indicated for treating diabetes, and the FDA recently approved Wegovy (a GLP-1) for reducing the risk of major cardiovascular events;[43] in addition, GLP-1s are currently under investigation for their ability to treat chronic kidney disease,[44, see also 45] and obstructive sleep apnea.[46]

## WHAT IS

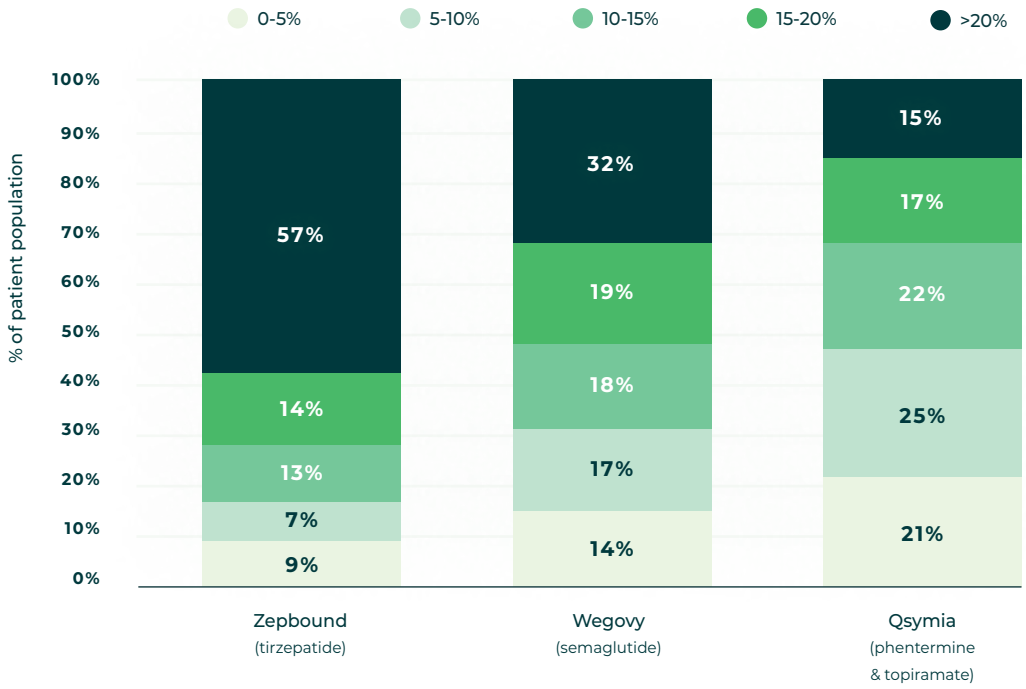
### A GLP-1 RECEPTOR AGONIST?

A GLP-1 receptor agonist is a drug designed to mimic glucagon-like peptide 1 (commonly abbreviated as GLP-1), a naturally occurring hormone produced in the small intestine that helps regulate blood sugar by triggering insulin release and also slows the movement of food from the stomach to the intestine.[47]

That is, these drugs imitate the natural signals of the body and allow physicians to turn those signals up.

The practical effects of these drugs is that (1) blood sugar will be better controlled due to improved insulin regulation—which is why GLP-1s are prescribed for managing diabetes and individuals taking GLPs often see reductions in the hbA1c—and (2) the stomach is full for longer and so fewer nutrients (i.e. calories, fat) will be absorbed by the small intestine at a slower rate.

**Figure 5:** Weight Reduction by Anti-obesity Medication




Source: 84-86

**Figure 6:** AOM Treatments

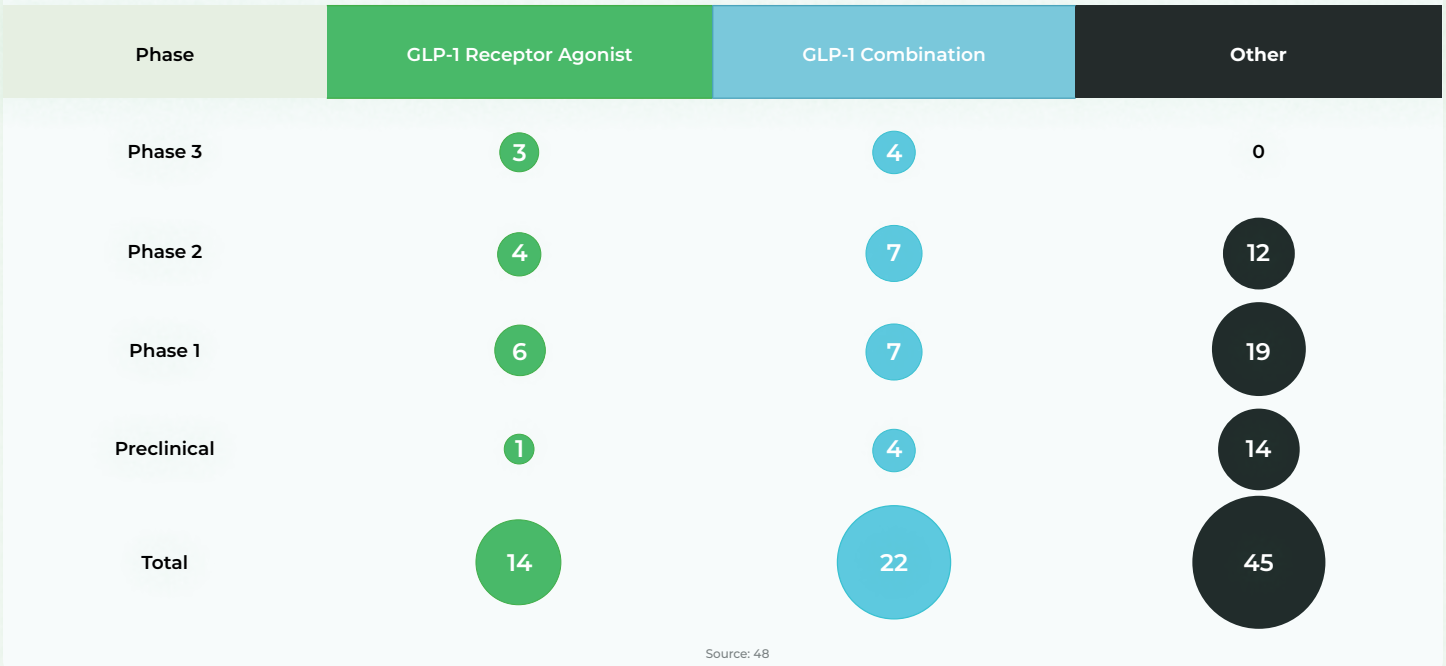
| Name | Cost | Weight Loss & Discontinuation rate due to adverse events<br>● Discontinuation rate ● Weight Loss |
|---|---|---|
| Metformin | $ | N/A<br>Not approved for obesity for discontinuation rate.<br>3% |
| Phentermine (Adipex) | $ | 6-10%<br>5% |
| Orlistat (Xenical, Alli OTC) | $ | 8%<br>9% |
| CONTRAVE (naltrexone ER/bupropion ER) | $ | 20%<br>7% |
| QSYMIA (phentermine /topiramate ER) | $ | 17%<br>11% |
| SAXENDA (liraglutide) | $$$$ | 9%<br>7% |
| WEGOVY (semaglutide) | $$$$ | 8 - 12%<br>15% |
| ZEPBOUND (tirzepatide) | $$$$ | <5%<br>21% |

Source: 84-86

## THE INNOVATION PIPELINE

Although GLP-1s have taken the space over by storm, the speed of innovation has not slowed and 86 new drugs are on the horizon.[48] Seven of these drugs are currently in Phase 3 trials which means that if safety and efficacy benchmarks are met there may soon be many more treatment options available. Perhaps the most exciting aspect of these new treatments is that many are innovating on novel methods of action. Zepbound—the most recently of the GLP-1 receptor agonists—also has a second mechanism of action by acting as a glucose-dependent insulinotropic polypeptide (GIP) agonist, mimicking a chemical that increases sensitivity to insulin so that the same amount of insulin has a greater effect and reduces the amount of acid produced by the stomach further slowing digestion.[49] Eight of the upcoming drugs will use this same combination of dual GLP-1/GIP agonism, and other exciting mechanisms of action are being explored such as myostatin inhibitors which may preserve a greater amount muscle during weight loss, microRNA-22 inhibitors and leptin sensitization. Expanding the availability of obesity treatments with different mechanisms of action is exciting because it holds out the promise that a non-responder on one medication can find successful treatment on another.

**Figure 7:** R&D Pipeline for New AOMS




Source: 48

Anti-obesity medications can have significant side effects including nausea, vomiting, diarrhea and constipation, dyspepsia as well as a small risk on GLP-1s of developing thyroid cancer;[50] in addition, anyone on a GLP-1 must be monitored for hypoglycemia. Left unmanaged, these side effects can surprise members and lead to early cessation or escalate into adverse events such as trips to the emergency room.

Beyond the specific impacts and side-effects of treatments as a whole, a key insight into understanding anti-obesity medications and obesity treatment more generally is that the averages do not tell the whole story. For example, a subset of people who try a GLP-1 have no significant weight reduction–these individuals are known as "non–responders," and even among responders the amount of weight loss can vary widely (See Figure 5). This individual variability means that it is crucial to **de-average care** when considering an obesity treatment approach. Simply trying a step-based treatment approach can and will fail because it assumes that everyone is the same person—the hypothetical person represented by the average effectiveness of the drug—an assumption that will lead to suboptimal outcomes.

## Bariatric Surgery

For individuals with higher levels of obesity or diabetes, bariatric procedures are a treatment option that can produce substantial weight loss and health benefits. Bariatric surgery is a minimally invasive procedure in which the surgeon reduces stomach size and in some cases rearranges the intestines. These procedures cause the stomach to feel full upon consuming smaller amounts of food and alter production of hormones in the stomach related to hunger. Bariatric procedures deliver total weight loss of 25%-35% and have been observed to achieve remission of obesity-related comorbidities, including diabetes[51,52] and hypertension,[53] and to dramatically reduce the incidence of major adverse cardiovascular events (50-80%).[54-56] Bariatric procedures are safer than most other common surgeries, such as knee replacement, and their mortality rate is <0.1%—equivalent to the risk of drowning in the US, and a major complication rate less than 5%.[57-59]

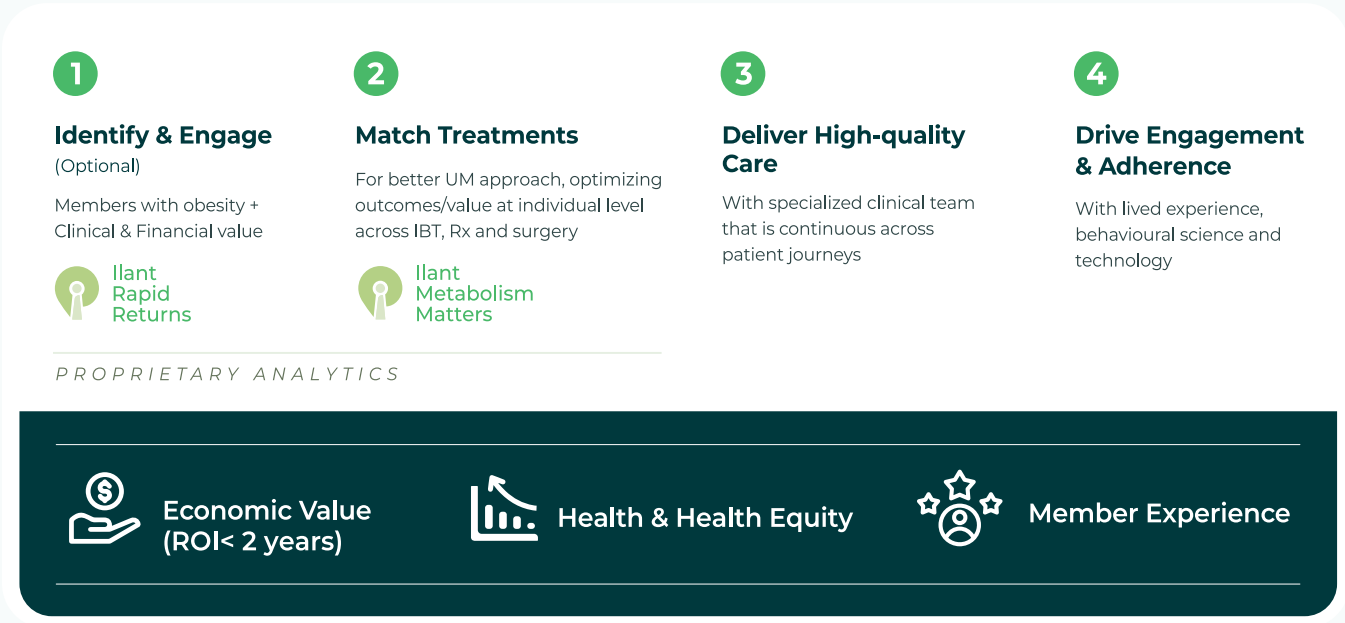
# Driving Maximum Value From Obesity Treatments

What is the right strategy to determine who will benefit from an obesity treatment? A "simple" approach would be to match an individual's desired weight loss to the average effectiveness of the treatment - or to try to adopt a one-size fits all solution, whether it's a diet like keto or a medication like a GLP-1. (This corresponds to many diet and now treatment approach that are focused on "goal weight.") However, as is often the case, the simplest approach is misguided, delivering suboptimal health benefits, potentially increasing risk and adverse events (such as hypoglycemia or an exacerbated eating disorder), and placing an enormous strain on healthcare resources.

Instead, the right strategy for managing treatment is to focus on matching treatment to individual acuity, including specific health conditions, and optimizing the care model to the individual's specific needs and personal journey—with particular focus on the populations with the highest burden of disease (often—but not always—the highest BMI) and higher healthcare costs. This approach both optimizes risk-reward trade-offs and drives high value care across the population. Focusing on those who are highest acuity also drives near-term improvements in health—and results in near-term reductions in healthcare expenditures.

At Ilant, we achieve this focus with a four step approach to drive member experience, health and health equity, and financial outcomes. Our approach starts with *1) identifying and engaging members with highest clinical and financial value from treatment, 2) matching treatments to each member to optimize outcomes and value—providing a better, more individualized and holistic approach to utilization management, 3) delivering high-quality clinical care, and 4) driving ongoing engagement and adherence.*

**Figure 8:** How it Works



## Step 1: Identifying Members With The Highest Value From Treatment

At Ilant, we have devoted substantial thought and energy to developing machine learning tools that go beyond the average approach to identify individuals who will benefit from obesity treatment [for a more in depth look at our Ilant Rapid Returns (IRR) modeling, see our Financial White paper]. The specifics of each individual's health matter enormously in understanding how treatment will impact them. For example, 10% weight loss for someone with a BMI of 35-40 drives very different reductions in cost (cost being a reasonable proxy for how often and how intensely one has to interact with the healthcare system) based on the conditions they have: someone with diabetes would see 43% cost savings, whereas someone with hypertension would see only 25%.[60] This is further evidence that we must de-average care: the ideal approach is to determine which mechanism of action is most likely to improve the individual's health—will it directly treat the individual's comorbid conditions? And will it produce the right level of weight loss needed to reduce their severity or put them into remission?

We have used unsupervised machine learning on claims data from employers and health plans to answer questions like "what are common patterns of comorbidities" and "who is already receiving treatment?" When we apply these techniques, we broadly see 4 distinct types of sub-population or "persona" (although the exact grouping and numbers can differ by client, geography, and product line) which we term "high-risk," "undertreated," "rising risk," and "GLP misalignment." High-risk members have high levels of obesity related acuity, high healthcare expenditures, and high levels of anti-obesity treatment—though with potentially sub-optimized treatment approach. Undertreated members look like high-risk members, but with far lower levels of treatment—representing a substantial opportunity for treatment that would drive health and financial improvements. Many times those in the underrated population have factors that may be driving this outcome—for example, we have seen men with largely mechanical issues (e.g., MSK, OSA) and women with high anxiety and depression comorbidities fall into this category in different populations. Rising risk is a population with obesity-related diseases but low levels of cost and treatment; that is, these individuals are on a trajectory where their health will likely decline and their costs grow as their obesity-related disease progresses. In the near term, rising risk populations offer only modest cost savings potential; however, treating rising risk affords heading off highly probable and likely exponential cost growth over the medium term. Last, we often observe a cluster of members with low acuity and low cost who are nevertheless being treated with GLP-1s (see Side Box: Adverse Selection); this GLP misalignment group represents a potential mismatch of treatment to acuity, and switching to lower potency medications might provide roughly equivalent support at dramatically lower cost–specifically, non-GLP anti-obesity medications achieve about half the weight reduction of GLP-1s but can cost 10-20 times less.[see also 61]

We have also developed bespoke models to estimate cost-savings potential for each individual in these populations; here, we use financial outcomes as a proxy for health outcomes because costs are often directly related and are far better represented in claims

### ADVERSE SELECTION

At Ilant, we have spent significant effort to develop models for identifying from claims data who might benefit most from treatment interventions (see Financial White Paper). This has been necessary because, as in other disease states with high levels of stigma and bias, we often see "adverse selection" in the treated population and treatment approach where the individuals most likely to get obesity treatment often are those with the lowest acuity and least immediate need.[19] For example, individuals with Class 1 obesity make up the largest segment (40%) the population who receive treatment by both health systems and direct to consumer offerings.[19, 62] Even randomized clinical trials–meant to set the benchmark for the efficacy and safety of a drug–often underrepresent Class 3 obesity as well as older (and often higher-acuity) individual (n.b., in addition to adverse selection on acuity, they also underrepresent males and , which might further limit how broadly their findings apply to the real-world).[63]

In our own analysis of clients' data, we often observe that individuals treated with GLP-1s actually have a lower number of comorbidities on record than those treated for other oral anti-obesity medications intended for individuals at lower levels of acuity. In addition, when we apply unsupervised machine learning techniques as part of our IRR modeling to understand a client's population we often see a recurring cluster of members who have low levels of obesity-related diseases and among the lowest expenditures of the population with obesity who are nevertheless being treated with GLP-1s.

Adverse selection in obesity treatment is an incredibly serious issue. It is unfair, unsafe, and perpetuates a fundamentally misguided approach to obesity treatment that may be more focused on appearance than health. Beyond health and health equity concerns, it can be financially unsustainable because low acuity members will not generate cost savings sufficient to offset the high costs of GLP-1s.

than health status. Our models take into account (1) the acuity of the individual, (2) the likelihood of different treatments (and associated weight loss) being used for a member with that level of acuity and (3) the specific comorbid diseases of the individual. In terms of acuity, the financial impact of treatment tends to increase with greater levels of obesity; for example a 10% reduction in BMI for someone 30-35 BMI generates 17% reduction while the exact same reduction for someone 40+ BMI generates twice as much reduction—33%.[reanalysis of data from 60] Thus, the individual's starting BMI is a major predictor of cost reduction—but, by far, not the only consideration. Second, we probabilistically model which treatments are likely at that starting acuity—this is useful to determine the likely amount of weight loss as well as the likely cost of treatment (as the model can never be sure, we represent this as a probability distribution over all possible treatments—for a toy example, one individual estimate might be a 45% chance of treatment with Zepbound and a 55% probability of Qysimia). This step is necessary because the amount of cost reduction scales with the amount of weight loss; for example, a 10% reduction in BMI for someone 35-40 BMI generates 23% reduction in cost while a 20% reduction drives 42%.[reanalysis of data from 60] (Again illustrating how easy it is to be misled by an average such as "the cost savings associated with treating obesity"). Last, we tally the average monthly healthcare expenditure that person has incurred over the last few years, and we use predictive models that tell us how much of that cost would be saved based on how the likely levels of weight loss would impact that person's disease state; these models are based on deep research we've conducted over the past two years into the primary literature an our own data to understand how much each condition reacts to different levels of weight loss. We do this three-stage modeling for everyone individually in the entire population, and then roll it up to summarize the total value of cost reduction driven by treatment.

These estimates give us insights into the value of health improvement that an individual may receive from obesity treatment, as the dollars saved reflect less time in doctors offices and hospitals and less reliance on medications and durable medical equipment). Of course, when we consider these values in the context of financial value, we also must include the expected cost of treatment on the other side of the equation. When we subtract out the costs of treatment, we find that treatment programs aimed at high acuity members and focused on aligning treatment to acuity often provide a ~2-5x return on investment.

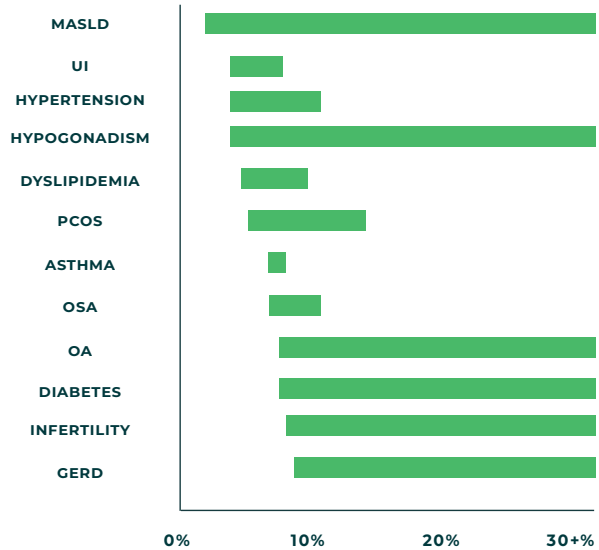
To fully reap the potential benefits of treatment identified through the IRR and to most appropriately support individuals who are interested in treatment, we must match an individual to the treatment regime that will be optimal for them.

## Step 2: Matching Members To Treatment to Optimize Value

We cannot achieve these outcomes by looking at averages or applying one-size-fits all solutions, including a monotonous step-therapy approach. Looking at average weight loss by treatment type does not accomplish these goals - not only because different disease states require different levels of weight reduction to drive impact,[e.g. [64], see Figure 8] but also because certain mechanisms of action are more/less impactful on specific diseases and because the presence of disease also impacts outcomes achieved. For example, clinical studies of GLP-1s have generally shown lower weight loss among those with diabetes and cardiovascular disease than among those being treated for obesity.[65] Instead, we need to select treatments that aptly account for each individual's metabolic disease burden, taking into account acuity, specific health conditions, obesity progression, and prior experience with treatment.

The specific treatment type that is most relevant for each individual is not the only factor in driving success. Mental health considerations as well as the ability and readiness to make lifestyle changes is a critical component of success. One's overall mental and emotional well-being greatly impacts their engagement in treatment and can impede progress, and, in certain cases, can pose a risk. In addition, prescribed weight-inducing psychotropic medications can compound the complexity of an individual's obesity treatment. Thus, it is vital to address mental health

**Figure 9:** Estimated Minimum Weight Loss Needed to Drive Health Improvements




Source: 64

concerns when treating obesity given their bi-directional relationship. In addition, individuals must be ready and able to make lifestyle changes—the ability to make this change may be impeded by lack of knowledge (e.g., limited understanding of nutritional priorities that may be associated with health and socio-economic inequity), lack of physical ability (e.g., mobility challenges that may prevent engagement in standard fitness options, a job that prevents eating at specific intervals or experiencing specific side effects), and lack of economic ability (e.g., low access to healthy foods). This whole person view, accounting for mental and physical readiness as well as social determinants of health is imperative to creating a treatment plan for that person *as an individual*. As part of the treatment plan, the specific interventions that are relevant to that member need to be incorporated, whether that is an assessment of risk ahead of treatment, or specific support (e.g., a tailored exercise plan, incremental mental support, structured nutritional suggestions) that increase the likelihood of success and well-being.

At Ilant, we developed a proprietary clinical decision-assistance algorithm, the Ilant Metabolism Matters, that considers whole-person factors to decide which course of treatment will serve an individual person best. We pair this analytics-driven treatment recommendation with highly trained obesity medicine clinicians to personalize each person's treatment to their needs–de-averaging their care and treating the individual rather than the aggregate. Together, this paired process of decision support algorithm and expertly trained and accredited physicians drives consistent treatment optimization across many individual needs.
This type of individualized care—in addition to robust clinical and non-clinical support—will optimize not just success on treatment


## ILANT METABOLISM MATTER DECISION SUPPORT ALGORITHM

We created the Ilant Metabolism Matters (IMM) decision support algorithm to ensure our members receive consistent, equitable obesity treatment that adheres to best-in-class clinical practices for obesity medicine. The IMM consolidates available information for a given member, calculates an acuity score to characterize overall member risk, and provides an output "IMM Recommendation" which supports clinicians' decision making—crucially, the IMM is not the ultimate decider but a decision-support tool meant to work in concert with skilled obesity medicine and mental health professionals and a broader care team.

To achieve this, the IMM performs acuity weighting is based on a combination of disease severity and strength of evidence suggesting obesity treatment can ameliorate the condition; major factors in acuity scoring include BMI, the presence of diabetes and current level of management, blood pressure thresholds and additional cardiovascular risk factors, the presence of cardiometabolic diseases, and presence of OSA and whether it is unmanaged or being treated by a CPAP.

In its recommendations based on this acuity score, the IMM takes a whole-person perspective on health and does not aim merely for weight loss or "thinness", but recognizes the importance of weight loss to drive resolution and prevention of obesity-related conditions. Drawing from member intake forms, labs, currently prescribed medications, medical records, and the members' history with weight loss treatment, the IMM optimizes care at an individual level—taking into account the members's health status (BMI, obesity-related comorbidities), potential side effects and the risk of adverse events, and the individual's mental health and, preferred treatment program and program readiness to make appropriate trade-offs across treatment benefits and risks. For example, the IMM is tuned to balance whether to target reducing the severity of a particular comorbidity versus targeting higher levels of weight loss. The guiding principle is to focus on safety matching each person to the least intensive treatment likely to deliver the greatest health improvement given their acuity.

Utilizing validated screeners—including SCOFF for eating disorders, PHQ, GAD, and UCLA Loneliness for mental health, and the HSRN and PRAPARE for SDOH, the IMM also screens individuals to understand support needed and flag concerns for screening. This structured approach to understanding mental health, nutrition, physical activity, and SDOH needs, enables care team and program adjustments that optimize each individual's likelihood of success.

but the likelihood of treatment consideration. In recent months, there has been a growing focus on the lack of adherence to GLPs. This persistence challenge is not unique to GLPs—or to obesity treatment. We strongly believe and have shown that individualization and high-touch care (more on this below) increases adherence to treatment, which is important to individual member outcomes, population health outcomes, and financial returns.

## Step 3: Delivering High-Quality Clinical Care

We rely on the IMM algorithm to ensure we can provide optimal, personalized treatment matching at scale. However, at Ilant we believe—and the data shows—that simply assigning an individual to a medication or program is not enough to drive successful obesity treatment that generates real value in terms of either cost savings or health outcomes. Treatment must be paired with the right care model for delivering that treatment to drive outcomes. While a lot of the debate today is between "medical" and "lifestyle" treatments—or between medication and "food is medicine"—we believe in both.

We have found that the key elements of the care model are an integrated clinical team led by a licensed obesity medicine physician, a mental health clinician who is able to assess and address the behavioral needs of the member, and a registered dietitian able to support nutritional changes relevant to that individual–taking into account specific condition requirements (e.g., low sodium for members with hypertension) and personal preference (e.g., vegetarian). In addition, member-specific resources to support physical activity, nutritional change, and stress management are critical.

The right treatment also accounts for individual readiness for change and their knowledge around needed lifestyle change—as well as the social determinants of health that may make those changes difficult to execute or to maintain. This is why we at Ilant provide members with detailed education on what to expect when adapting to a new treatment regime, regular clinical contact with ongoing screening to catch side effects early on, and a call line staffed by experienced RNs to give members access to timely help and head off unpleasant adverse events.

### DEPRESCRIBING

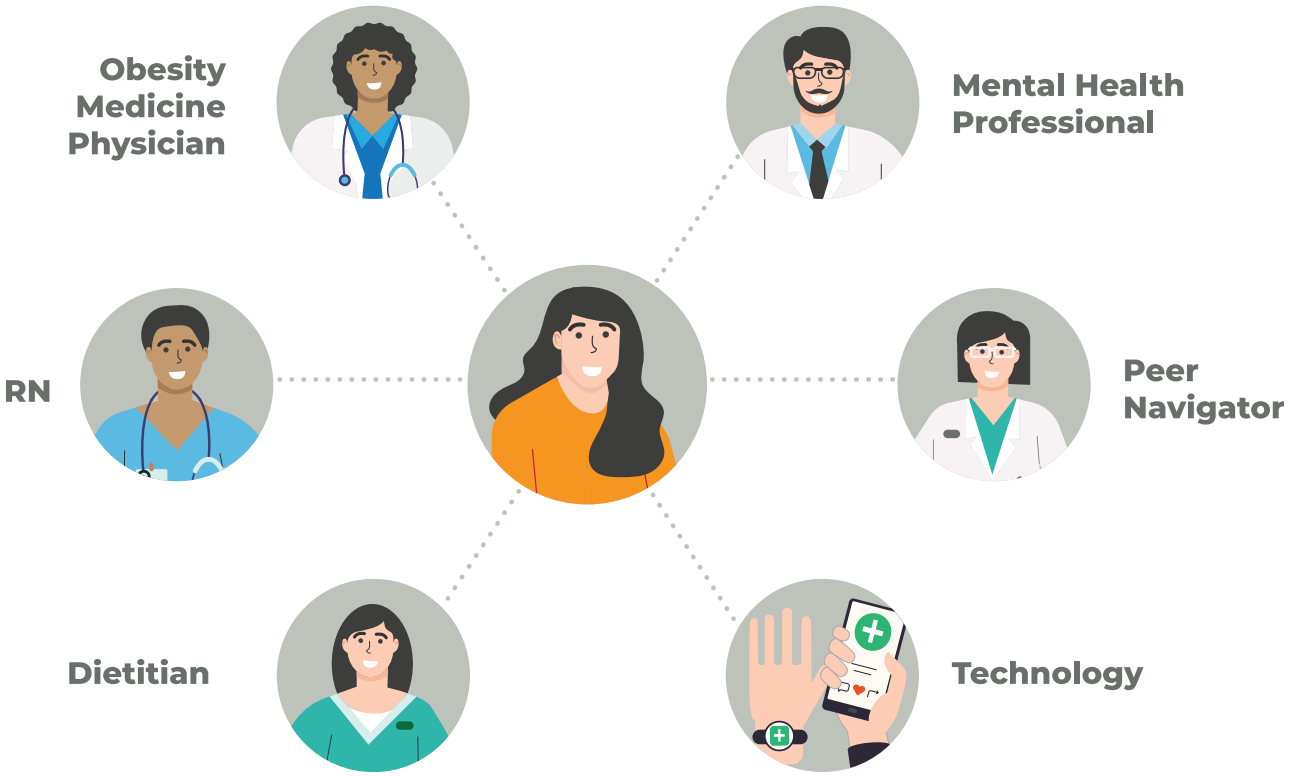
How and when can a care team remove a medication that a member previously depended on? This is a critical, thorny issue for care management–but an issue that raises itself in many aspects of managing obesity treatment.

One of the primary goals of obesity treatment is to reduce the impact of disease, which may enable individuals to come off existing medication. For example, medications for hypertension can be removed when put into remission by weight loss after bariatric surgery.[53]

At the same time, the cost of GLP-1 medications, their use among individuals who are young (and could therefore conceptually be on medications for 50+ years with particular challenges for that both from cost and adherence concerns), as well as expectations around weight loss "curing" obesity have led to wide-spread discussion on the potential to "de-prescribe" GLP-1s or stop treatment once a certain level of weight loss has been reached. To-date, there have been two key studies on deprescribing GLP-1s. One, a randomized control trial, showed that majority [80%] of people regained most the weight.[66] Another based on observational data from prescribers on Epic showed that as many as 50% may maintain weight loss.[67] A recent talk at the European Congress on Obesity observed that titrating doses of GLP-1s down prior to stopping resulted in less weight loss than an abrupt stop.[68]

Ultimately—as with determining when and what time of obesity treatment should be provided—the path on de-prescribing needs to be individualized. As we learn more—both from studies and from personal preferences and needs (e.g., a woman who comes off medication as part of pregnancy preparations)—we will be able to more accurately predict who may need to stay on medication for life, who may be able to change dose or type of medication, and who may be able to come off the medication entirely. Identifying the individualized path for weight maintenance will be important not just in supporting cost management but also in managing adherence and long-term results.[see also 69 for discussion]

## COMPREHENSIVE CARE TEAM




### Step 4: Driving Ongoing Engagement And Adherence

Driving this value requires not only engaging individuals who need care the most and matching them to the most appropriate treatment, but also enabling sustained engagement with and success on treatment. Individuals need to remain on treatment long enough both to accrue health benefits and financial returns.

Maintaining a long-term treatment program is harder than it seems; even the blockbuster GLP-1s have low long-term adherence rates with two-thirds of individuals stopping treatment within a year,[70, see also, 71-72, although see 73] for higher estimate of overall adherence rate—and some studies showing even earlier (3 month) treatment cessation. Further, adherence rates are even lower for black and brown individuals, individuals who live in areas with lower levels of socioeconomic status and higher levels of unmet social needs, and when the individual bears more of the burden of the cost of treatment (although older members are more likely to adhere).[73]

These numbers are dramatically lower than the typically high (80%+) adherence rates in randomized control trials demonstrating the weight loss potential of GLP-1s;[e.g.,74] this gap between controlled trials and the real world means that an obesity treatment program without a dedicated focus on adherence will likely fail to achieve both the adherence rates and the benefits observed in the trials (see Figure 6). Real-world pharmacy claims data has suggested that treatment requirements and treatment motivation may impact adherence. In particular, weekly medication doses appear to do better than daily and people appear to show higher adherence to Ozempic than Wegovy—47.1% to 36.0%—which are the same drug (semaglutide) prescribed for diabetes or weight-loss.[70]

To be sure, the challenge of medication adherence is not specific to obesity treatments; however, the crux of the challenge related to obesity is that many people who stop treatment will regain

some of all of the weight,[OT66, 67] reversing any health improvements they had achieved (n.b. weight gain after treatment occurs for IBT[75] and bariatric surgery[76] as well; see Obesity Treatment White Paper for more detail). Early and unmanaged treatment cessation can make health worse—driving weight cycling that makes subsequent weight loss and health improvement harder. We employ a combination of technology and human engagement to support robust early engagement and ongoing adherence.

We believe that building trust, particularly with a population that has experienced shame and stigma and been blamed for previous treatment "failures" is critical to supporting ongoing adherence. This is one of the reasons why, in addition to the clinical team, we employ peer navigators with lived experience with obesity and obesity medicine treatments. We find that engaging early with someone who is relatable and understands the journey is important to building early engagement and ongoing adherence—especially in the moments that may feel tough of less successful (e.g., weight regain or plateau).

We also note that motivation is important—the same perspectives that have framed obesity as a lifestyle choice may make individuals perceive treatment need as less important. For that reason, we do not believe in focusing on "goal weight"—rather, we were to understand and support the broader motivations that drive an personal interest in treatment, from a desire to address current diseases to a goal to be able to participate in meaningful activity with family and friends to a desire to be around for children and grandchildren.

In addition, we recognize that success on treatment is enhanced through regular engagement and habit building—we support both of these with our purpose-built member portal that not only provides both broad educational content and personalized information, but also enables habit building through tailored check-ins and progress tracking and will shortly support peer-based and affinity-driven community engagement. All of these features have been shown to increase ongoing adherence and long-term success in weight loss programs.[77-79] This type of ongoing engagement also helps us identify when a member may be struggling—and intervene at that crucible moment.

> *Everyone at Ilant has been super supportive in my goals and holding me accountable. Since starting the program, I have officially lost over 32lbs, and I could not be happier! I have not reached my target yet, but I am heading in the right direction with my team's guidance and support. I would highly recommend anyone struggling with obesity to use Ilant because of all the tools they equip you with.*
>
> ***ILANT MEMBER***
> ***Taylor B.* || *26 years***
> ***Starting weight 218***

# New Strategies for Obesity Management

At Ilant, we are pioneering a new approach to obesity management. We offer a personalized approach to match an individual to the treatment that will maximize their health improvements rather than pursuing a weight loss number for its own sake. We ensure consistent and equitable patterns of treatment using our Ilant Metabolism Matters clinical decision-support algorithm to ensure that everyone receives the same high quality care.

Our integrated care teams support members on their treatment programs in a non-judgemental and culturally inclusive manner; help them manage the side effects (which can lead to ER visits and discontinuation of treatment–e.g.[73]) and inevitable weight fluctuations that accompany any obesity management journey; and provide the behavioral support necessary to address the mental health challenges that accompany obesity and the profound bodily changes that accompany treatment and build the habits around nutrition and physical activity necessary to support the treatment program. Last, we have invested deeply in research and analytics to ensure that we drive the best outcomes by identifying populations who need treatment most and partner with health plans and employers to identify opportunities to add treatment services which will generate a 2-5x ROI within two years.

> *My experience with Ilant has been life-changing, to say the least. I genuinely have not felt this supported ever before, by anyone in my life. I feel like I'm treated like a human being and am seen as an actual person, rather than a problem to be dealt with. I don't feel the need to hide myself, which is something I haven't felt in many, many years.*
>
> ***ILANT MEMBER***
> ***Taylor Q.* || *28 years***
> ***Starting weight 475.6***

**WANT TO LEARN MORE?**

## Contact partners@ilanthealth.com to learn more and set up a demo.

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