



Analysis of Glucagon-Like Peptide-1 Agonist Trends Within An Integrated Health System Specialty Pharmacy

KEY CONCEPTS

- Type 2 diabetes and obesity are major drivers of healthcare costs.
- Glucagon-like peptide-1 (GLP-1) and GLP-1/gastric inhibitory polypeptide (GIP) agonists have become first-line therapies for type 2 diabetes and the benefits of these drugs are well established. However, adherence and persistence to these medications are ongoing concerns.
- A specialty pharmacy care model utilizing ambulatory care pharmacists (ACPs) and pharmacy liaisons has demonstrated benefits for adherence and keeping out-of-pocket costs affordable



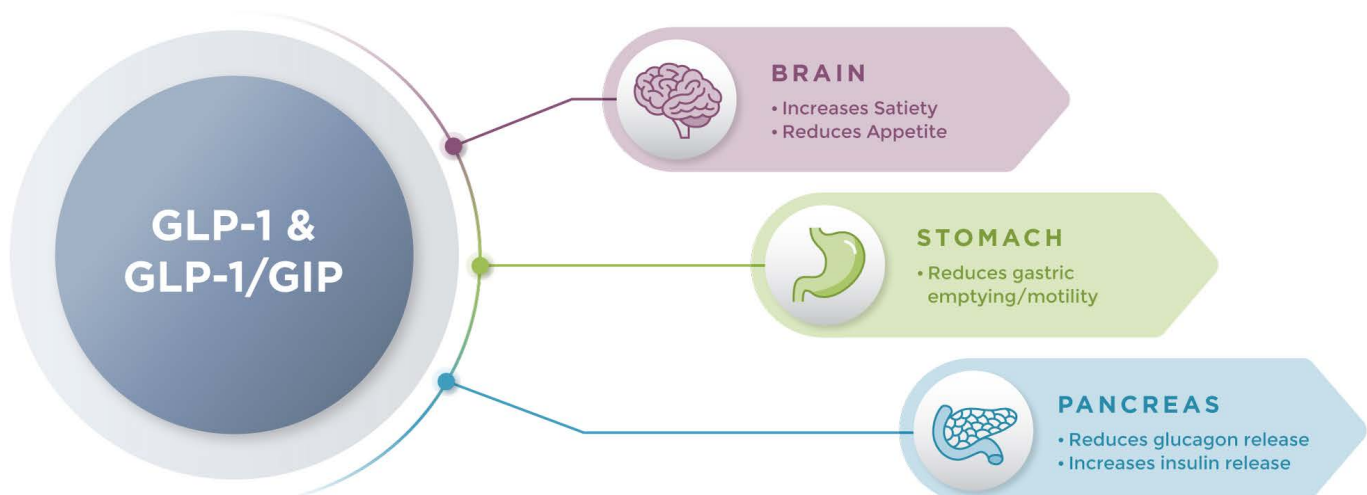
Per person, average annual medical costs for adults with obesity were **\$1,861 higher** than medical costs for people with a healthy weight in 2019

BACKGROUND AND INTRODUCTION

According to the CDC, approximately 38 million Americans have diabetes (about 1 in 10) and approximately 90-95% of those have type 2 diabetes.¹ In addition, more than 2 in 5 of all adults in the United States have obesity. Considering the two conditions together, almost 80-90% of patients with type 2 diabetes (T2D) are also overweight or obese.^{1,2}

Resulting healthcare costs are high. The estimated costs attributed to diagnosed diabetes alone were \$413 billion in the United States in 2022,¹ and the estimated annual medical costs of obesity were nearly \$173 billion in 2019.² Per person, average annual medical costs for adults with obesity were \$1,861 higher than medical costs for people with a healthy weight.²

Glucagon-Like Peptide-1 agonists (GLP-1) and the novel GLP-1/glucose-dependent insulintropic polypeptide (GIP) agonists are considered first-line therapies for T2D due to their administration schedule as well as their weight loss profile. Through their actions in the pancreas, stomach, and brain, GLP-1/GIPs effectively lower blood sugar by reducing glucagon release and increasing insulin release, in addition to promoting weight loss by increasing satiety and reducing gastric emptying.³



Currently, FDA-approved GLP-1 and GLP-1/GIP agonist injectables for T2D include Byetta (exenatide), Trulicity (dulaglutide), Ozempic (semaglutide), Victoza (liraglutide), and Mounjaro (tirzepatide). Agents currently approved for obesity include Saxenda (liraglutide), Wegovy (semaglutide), and Zepbound (tirzepatide). While these therapies have been highly advertised in the media and are in high demand, their adherence rates remain a topic of interest as factors such as adverse events (e.g. nausea, vomiting, diarrhea, constipation) and cost (i.e. lack of formulary coverage, formulary restrictions, high copay/out-of-pocket costs) often lead to medication discontinuations. A study assessing out-of-pocket costs of GLP-1s in patients with T2D and cardiovascular disease demonstrated a mean estimated cost of \$69.20 with a standard deviation of \$38.30 for a 30-day supply.⁴ Another study evaluating retrospective outcomes of GLP-1s in children with an average age of 15 found insurance denied prescriptions in 64% of patients with obesity and 32% of patients with type 2 diabetes.⁵

A widely accepted measure of adherence is the proportion of days covered (PDC), which calculates the percentage of time a patient has access to a medication over a given period.⁶ The threshold for adequate adherence is generally 80%.

An analysis of pharmacy and medical claims data showed that persistence (the amount of time a patient has been on therapy from initiation to discontinuation) and adherence to GLP-1 therapy at 1 year were 32% and 27%, respectively, for patients being treated for obesity without diabetes, and the average PDC during the 1-year assessment was 51%.⁷ Another retrospective study found that more than half of T2D patients initiating GLP-1s were non-adherent and the majority (70.1%) discontinued therapy by 24 months.⁸



Adherence rates for GLP-1 and GLP-1/GIP agonist injectables are low, with significant discontinuation due to adverse events and high costs.

HEALTHCARE COSTS RELATED TO GLP-1 AND GLP-1/GIP

While the benefits of using GLP-1 and GLP-1/GIP agonists have been well established, they have also demonstrated unfavorable side effects, potentially leading to increased healthcare costs and discontinuations. According to the FDA Adverse Event Reporting System (FAERS), there has been a 13-fold increase in the number of patient and provider reported adverse events related to semaglutide (Ozempic®, Wegovy®, Rybelsus®) alone between 2018 and 2024, with the most common adverse events being nausea, vomiting, and diarrhea.⁹ Since the approval of GLP-1/GIP agonist Mounjaro® (tirzepatide), in May 2022, for T2D and Zepbound® (tirzepatide), in December 2023, for obesity, reported adverse events of tirzepatide have risen from 3,126 cases in 2022 to 28,709 cases in 2024.

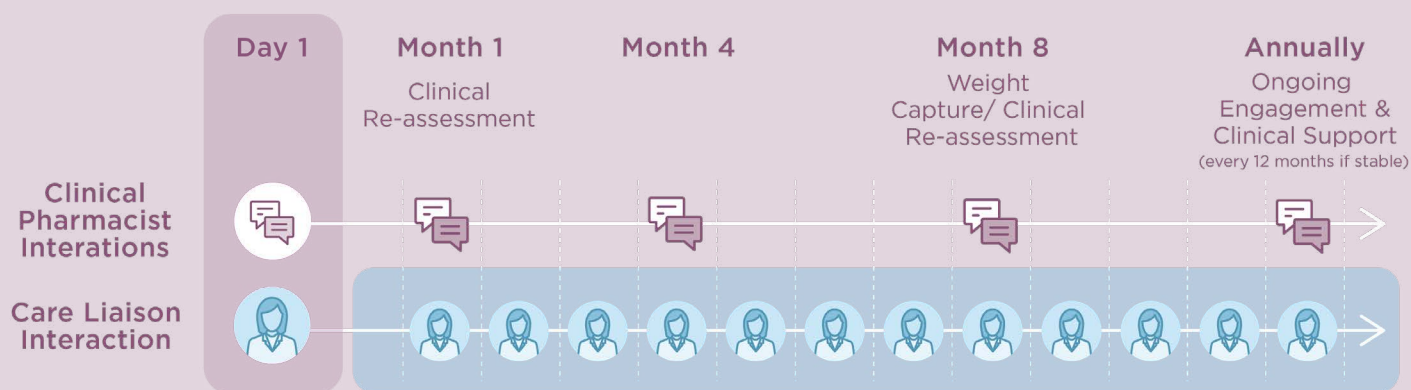
THE SHIELDS ACP MODEL FOR DIABETES AND OBESITY

The Shields Health Solutions specialty pharmacy care model provides high-quality care by utilizing clinical pharmacists who provide comprehensive drug therapy education to patients who are initiating or refilling

medications within the health system. Through these interactions, the clinical pharmacists can have a collaborative role in each patient's care to ensure optimal adherence, improve patient outcomes, and provide side effect mitigation strategies related to their specialty medications. Pharmacy liaisons are also embedded within the health system clinics to promptly assist with prior authorizations, financial assistance, and monthly refills, to avoid delays in therapy and ensure affordability.

The impact of our ACP model can be highlighted through recent data demonstrating that 48.6% of patients on GLP-1 and GLP-1/GIP agonists for obesity achieved > 5% weight loss and 55.3% of patients diagnosed with T2D achieved an A1c <7%.

ACP Model Workflow



CASE STUDY:

Impact of Clinical Pharmacist services on adherence and discontinuation of GLP-1 and GLP-1/GIP Therapy within an integrated health system specialty pharmacy.

In 2022, an ambulatory clinical pharmacist (ACP) model was established within a health system that had an existing health system specialty pharmacy (HSSP). Within the ACP model, eligible patients on GLP-1 and GLP-1/GIP agonists are enrolled into our ACP services, which include ongoing monitoring and follow up, along with access to a 24/7 phone line for clinical support. Since launching, our model has successfully enrolled more than 6,000 patients in four therapeutic areas (diabetes, obesity, congestive heart failure, and chronic kidney disease), and enrollment continues to grow at a tremendous rate. With the ongoing concerns of GLP-1 and GLP-1/GIP agonist non-adherence, we aim to assess the adherence rates via PDC, discontinuation trends, and out-of-pocket expenses at this HSSP for patients utilizing the integrated ACP care model.

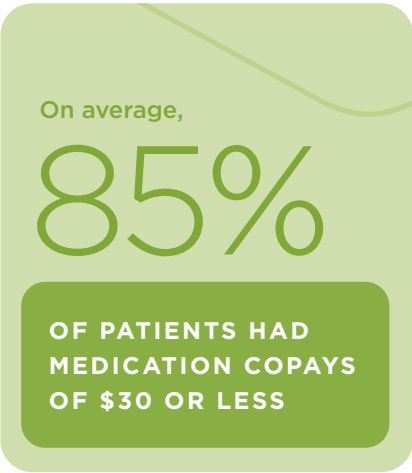


Our model has successfully enrolled **more than 6,000 patients** in four therapeutic areas

- Diabetes
- Obesity
- Congestive Heart Failure
- Chronic Kidney Disease

Enrollment continues to grow at a tremendous rate.

Data from December 2022 to November 2024 were analyzed for average adjusted PDC and number of discontinuations for patients enrolled in the integrated ACP services and prescribed any of the following medications: Byetta (exenatide), Trulicity (dulaglutide), Ozempic (semaglutide), Victoza (liraglutide), Mounjaro (tirzepatide), Saxenda (liraglutide), Wegovy (semaglutide), and Zepbound (tirzepatide). A total of 35,586 medication fills for 4,545 patients were identified. The average adjusted PDC was 93%; this is further broken down by medication in Table 1.



There were a total of 1,439 discontinuations within the specified timeframe. The main reasons for discontinuations were related to patient and prescriber decisions, at 33% and 20%, respectively. Interestingly, only 11% of discontinuations were due to adverse events, which is relatively low compared to data reported in FAERS. The remaining discontinuations were due to drug/insurance lockout, unable to contact patient, drug not covered by insurance, and unable to afford medication (Table 2).

Table 3 provides a breakdown of the out-of-pocket costs for patients prescribed GLP-1s and GLP-1/GIP during the period assessed. On average, 85% of patients paid only \$30 for their copay for these medications.

TABLE 1
Average adjusted
Proportion of days
covered (PDC) by
medication

Drug	# of Fills	% PDC
Bydureon	33	98%
Ozempic	15,183	94%
Mounjaro	8,117	93%
Wegovy	12,334	93%
Zepbound	5,449	93%
Trulicity	2,234	92%
Saxenda	273	88%
Victoza	80	88%

TABLE 2
Discontinuation
by reason

Discontinuation Reason Selected	% Discontinued
Patient Decision	33%
Prescriber Decision	20%
Drug Lockout / Insurance Lockout	13%
Unable to Contact Patient	11%
Adverse Events	11%
Drug not covered by insurance plan	8%
Unable to afford copay	4%

TABLE 3

Average Out-of-Pocket Cost
(85th percentile) for GLP-1 and GLP-1/GIP

	2022	2023	2024	Total
Number of Fills	313	11,183	28,316	39,818
Patients	283	2,414	5,837	6,604
Copay (85th Percentile)	\$25.00	\$25.00	\$30.00	\$30.00



Our integrated ACP model has been pivotal in combating nonadherence as demonstrated by the average adjusted PDC, which is well **above the recommended threshold of 80%**, and low overall discontinuations of GLP-1 and GLP-1/GIP agonists in the HSSP.

CONCLUSION

Several studies have identified issues with adherence and subsequent discontinuations in patients taking GLP-1 and GLP-1/GIP agonists, with the most common reasons being adverse effects and costs. Our integrated ACP model has been pivotal in combating nonadherence as demonstrated by the average adjusted PDC, which is well above the recommended threshold of 80%, and low overall discontinuations of GLP-1 and GLP-1/GIP agonists in the HSSP. These results emphasize the value of adding clinical pharmacists into the collaborative care model within a health system. Additionally, our embedded pharmacy liaisons have played a vital role in ensuring out-of-pocket costs are kept low and affordable, as demonstrated by the low average out-of-pocket cost of \$30, less than half of what has been reported in similar studies.

Implementation of the ACP model within a health system has demonstrated significant benefits to patients in just over 2 years, based on the data above, and Shields continues to enhance the services provided to ensure that patients receive the high-quality care that they deserve.

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ABOUT SHIELDS HEALTH SOLUTIONS

Shields Health Solutions (Shields) is the premier specialty pharmacy accelerator in the country. The Shields Performance Platform, an integrated set of solutions, services and technology, is intentionally designed to elevate payer and drug access for specialty pharmacies, elevate health outcomes for complex patients, and elevate growth throughout the entire health system. As the foremost experts in the health system specialty pharmacy industry, Shields has a proven track record of success including access to over 90 percent of all limited distribution drugs (LDDs) and most (health insurance) payers in the nation; and a clinical model proven to lower total cost of care by 13%. In partnership with more than 80 health systems across the country through national-scale collaboration, Shields has a vested interest in delivering measurable clinical and financial results for health systems.



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