



# Semaglutide: An option for obese patients motivated to losing weight



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## INTRODUCTION

Obesity is characterized by abnormal or excess fat accumulation, calculated based on height and weight ratio and classified by the World Health Organization as overweight with a BMI greater than or equal to 25, and obesity greater than or equal to 30 (Obesity and weight, 2021). Obesity is a serious chronic disease with increasing prevalence throughout the United States. Obesity is also a growing global health crisis that has resulted in a substantial burden on health care systems worldwide (Friedrichsen, 2021). This condition not only has a significant effect on overall health and health care costs, but it also has a tremendous impact on individual productivity and military readiness (United States [U.S.] Centers for Disease Control and Prevention [CDC], 2021). Approximately one in five children and two in five adults in the U.S. currently struggle with obesity (U.S. Department of Health and Human Services, 2013); one in four adults are too heavy to serve in the military (U.S. Department of Health and Human Services, 2013). From 2017 to 2018, the prevalence of obesity in the U.S. had grown from 30.5% reported between 1999 and 2000 to its current level of 42.4% (CDC, 2021). Health care costs associated with obesity are currently ~\$147 billion per year in the U.S. alone; this can be compared to healthcare costs of \$1,429 for each person that maintains a healthy weight (CDC, 2021). The 2013-2016 update from the Healthy People 2020 initiative reported that 38.6% of adults >20 years of age in the U.S. were obese (U.S. Department of Health and Human Services, 2013). Obesity rates will increase over the next decade; linear trends predict that 51% of the population will be obese by the year 2030 (Finkelstein et al., 2012).

## PROBLEM DESCRIPTION

In evaluating my practice at the Clinic with Dr. Michael Annabi, I was using phentermine to assist with weight loss. However, phentermine is indicated for short-term use up to 12 weeks. Although it does help stimulate the central nervous system and helps chemicals in the brain think that you are full, it is a stimulant and should be used with caution to avoid addiction, dependence, and withdrawal issues. Phentermine helps promote about up to 5% weight loss and should be used with caution in patients with hypertension or cardiovascular disorders (Yanovski & Yanovski, 2014). So, in evaluating my patients, the majority have hypertension and rather than risk increasing complications with phentermine, I was curious to find an alternative treatment plan.

## PURPOSE

Strategies to address weight loss management and behavior are integral to patient-centered care; these are among the six aims of healthcare defined by the Institute of Medicine (Agency for Healthcare Research and Quality [AHRQ], 2018). Health care professionals should address obesity as a chronic disease during its earliest stages and should not wait until other complications develop. The impact of obesity might be minimized by incorporating efforts to provide patient-centered care via an evaluation of an individual's weight and BMI and early discussions of various treatment options. Thus, this QI project aimed to offer a treatment option in which semaglutide was provided as an option for obese individuals who were not losing weight in response to short-term treatment with phentermine and were able to continue long-term treatment to sustain weight loss.

## LITERATURE REVIEW

After reviewing my 10-day Reflective Practice Log that documented a clinical needs assessment of patients in my practice, I documented, reviewed, and reflected at length on my findings. Among my findings, I discovered that some of my phentermine treatment interventions did not result in effective weight loss. I identified three opportunities based on population/patient, intervention/indicator, comparison/control, outcome, and time (PICOT) questions that might be addressed to improve the care I currently provide to my patients. I met with my Doctor of Nursing Practice (DNP) chairperson and together we selected one QI project. Once the chairperson approved the project, I initiated a literature review and collected several sources.

The results from the literature review provide a clear understanding of how semaglutide might be used to treat obese patients with a BMI >27 kg/m<sup>2</sup>. The knowledge gained from these clinical trials will provide insight into new ways to treat obesity and reduce its associated complications, including type 2 diabetes (T2DM), heart disease, hypercholesterolemia, asthma, anxiety, depression, and some cancers. It may also reduce health care costs and promote an overall healthier lifestyle.

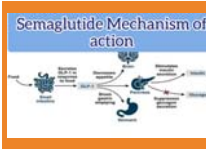
Upon completion of my literature review, I gained approval to proceed from my worksite supervisor. I sent all the necessary information to the Institutional Review Board at the University of Texas at El Paso for their consideration and approval. Once I received my letter of approval FWA No. 00001224, I initiated the QI project.

## SEMAGLUTIDE

- ❖ GLP-1
- ❖ HELPS CONTROL FOOD INTAKE, CONTRIBUTING TO WEIGHT LOSS WITHOUT CHANGES IN ENERGY EXPENDITURE OR GASTRIC EMPTYING
- ❖ RCT WITH BMI >30 OR BMI 27 AND ONE COMORBIDITY TITRATED UP TO 2.4MG WEEKLY INJECTION SQ FOR 48-68 WEEKS WITHOUT SAFETY CONCERN
- ❖ ADVERSE EFFECTS GI SYMPTOMS, NAUSEA
- ❖ IMPROVED BODY WEIGHT, BMI, INCREASED FULLNESS, REDUCED HUNGER, IMPROVED CARDIOMETABOLIC RISK FACTORS, IMPROVED HEPATOMEGALY, LIVER BIOCHEMICAL MARKERS, REDUCTION IN VISCERAL FAT, REDUCED CRAVINGS.

## PROJECT GOALS

- ❖ IMPROVE:
  - ❖ BMI, WEIGHT
  - ❖ EXERCISE
  - ❖ LIFESTYLE
  - ❖ DIET
- ❖ FIND A LONGER TREATMENT PLAN



**RCT SHOW STUDIES TITRATION SEMAGLUTIDE UP TO 2.4MG WITH WEIGHT LOSS UP TO 16%**



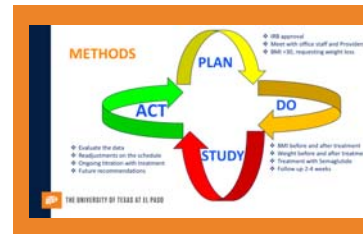
## METHOD

**❖ PLAN**  
MEET WITH OFFICE MANAGER, STAFF DR. MICHAEL ANNABI TO DISCUSS PROJECT PLAN AND FOCUS  
BMI >27 REQUESTING WEIGHT LOSS  
CHAIR APPROVAL, IRB APPROVAL



**❖ DO**  
WEIGHT IN POUNDS CALCULATED  
CALCULATE BMI PRE-POST TREATMENT  
PROVIDE EDUCATION  
PAPERWORK COMPLETED  
COUNT CALORIES  
DOCUMENT EXERCISE  
SIDE EFFECTS IMPROVEMENTS  
FOLLOW UP & TITRATE

**❖ STUDY**  
RE-EVALUATE READINESS TO CHANGE  
KURT LEWIN MODEL  
MAKE ADJUSTMENTS



**❖ ACT**  
TREATMENT WORKED  
ADJUSTMENT TO OFFICE SCHEDULING  
ONGOING MANAGEMENT/RE-EVALUATION TREATMENT MONTHLY

## RESULTS



Reductions in BMI and weight loss in response to our intervention are shown in Figure 1. We found that three of the patients enrolled in our study lost three pounds, three patients lost four pounds, two patients lost five pounds, two patients lost six pounds, two patients lost seven pounds, one patient lost nine pounds, one patient lost 10 pounds, and two patients lost 11 pounds. Body mass indices (BMIs) also improved post-treatment showed for all patients that continued with the study. Among these improvements, five patients responded with reductions in BMI of 0.5-0.8 kg/m<sup>2</sup> while another seven and four patients exhibited reductions of 0.9-1.5 and 1.6-2.7 kg/m<sup>2</sup>, respectively. Patients enrolled in our study reported improvements in sleep, quality of life, and overall mood. They reported that they felt healthier with improved appetite control. Overall, all patients experienced some weight within 2 to 4 weeks of initiating therapy with semaglutide.

## SUMMARY

This project aimed to identify a longer-term treatment option that can be used to promote weight loss, most notably in patients already diagnosed with hypertension. While phentermine has been used to promote weight loss, it must be discontinued after 12 weeks of use. The findings from our study revealed that administration of semaglutide results in long-term efficacy and promoted an average weight loss of 16% compared to results typically obtained in response to phentermine or other GLP-1 agonists. The project not only provided much-needed assistance to patients motivated to lose weight, but it also led to improvements in overall health and lifestyle. The survey was an important aspect of this study as it provided us with patient feedback that was used to assist them in formulating an evaluation of their overall progress and management of ongoing weight loss progress. The project also helped patients to determine key factors that might be affecting their weight. Completion of the feedback form was among the most challenging aspects for patients enrolled in our study. Over the course of the QI project, team participation increased to ~90% and correlated with changes in the long-term treatment plan.

Patients were evaluated two to four weeks after the clinic visit depending on the exact time that the medication trial was initiated. Several patients averaged their caloric intake, while others kept more accurate track of their intake. Likewise, some patients participated in physical exercise, while others did not engage in any significant activity. Side effects reported included headache, nausea, constipation, dizziness, and continuous hunger and typically persisted from one day to a full week, albeit with continuous improvement. Overall, patients reported improvements in mood and that they felt healthier. They also reported improved appetite control, sleep, and blood pressure. Of the 18 patients evaluated, all lost weight except for one patient who needed to withdraw from the study because of an urgent surgical procedure that unfortunately led to further complications. Two patients failed to return for follow-up because of relocation out of the area.