

**Obesity Management Program**

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DNP Quality Improvement Project

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## Abstract

Obesity has been a growing epidemic over the last few decades. Obesity and being overweight contribute to numerous chronic health conditions including cardiovascular diseases, cancer, diabetes, and metabolic syndrome. Multifaceted treatments recommended include lifestyle/behavioral therapy, health education, pharmacotherapy, and sometimes bariatric surgery. Due to the variety of complications and patient circumstances, patients need ongoing follow-up, reevaluation, and oftentimes, long-term treatment. This poses adherence issues to treatment plans. This quality improvement project's purpose is to improve therapy adherence and quality of life outcomes for patients with obesity by providing education and support for healthier lifestyle choices within the primary care clinic setting.

Fourteen patients were followed weekly for four weeks by their primary care provider who guided each patient with weekly weight loss goals. Evidence-based interventions were implemented using clinical practice guideline recommendations and a literature review of current studies available on the topic. Interventions included a Paleolithic-inspired diet with a protein shake meal replacement recipe, cardiorespiratory and strength training exercises suitable for the patient's current capabilities, and pharmacotherapy if appropriate. The healthcare provider guided the patient using motivational interviewing techniques to assist in achieving their weekly goals. Seven of the 14 patients were able to complete the four-week project. These patients all reflected an increase in understanding of effective lifestyle changes for weight loss. They successfully saw a decrease in their BMI and waist circumference measurements and also reported an increase in confidence in their ability to lose weight in the future.

## **Obesity Management Program**

Obesity is a growing health issue nationwide. The United States-Mexico border is no exception. According to the Pan American Health Organization (2005), it is estimated that out of the 7.5 million adults along the U.S.- Mexico border region, 5.3 million adults are overweight or obese. In most ethnicities, overweight is an elevated body mass index (BMI) of 25-29.9kg/m<sup>2</sup>, and obesity is  $\geq 30$  kg/m<sup>2</sup>. The American Association of Clinical Endocrinologist (AACE) and the American College of Endocrinology (ACE) (2016) describes obesity as a “complex, adiposity-based chronic disease, where management targets both weight-related complications and adiposity to improve overall health and quality of life” (p. 4).

According to the clinical practice guidelines (CPG) for obesity, the severity of this chronic condition is classified into stages. Stage 0—no complications, stage 1—one or more mild-to-moderate complications that may be treated with moderate weight loss, stage 2—at least one severe complication or requires significant weight loss for effective treatment. Prevention and treatment goals include primary—prevention of overweight/obesity; secondary—prevent progressive weight gain or achieve weight loss to prevent complications; and tertiary measures—achieve weight loss sufficient to ameliorate the complications to prevent further deterioration. Interventions include lifestyle/behavioral therapy, and when applicable, pharmacotherapy or bariatric surgery.

### **Problem Description**

The chronicity of the disease requires ongoing follow-up, re-evaluation, and long-term treatment which can become challenging for the patients to keep up with. Most essential components of treatment are lifestyle changes including daily dietary and exercise habits. The behavioral component of lifestyle changes is crucial to the success of compliance. There are many limitations that might prevent the patient from being able to follow through with the treatment plan. For example, associated comorbidities, such as joint arthritis may keep the patient from exercising for the recommended time. Environmental settings, such as an unsafe

neighborhood, a neighborhood without sidewalks, and certain weather conditions may also keep a patient from being able to go out and complete their exercise. The patient may also have limited knowledge or availability of the types of foods to eat that promote weight loss.

**Figure 1.**

*Lifestyle Therapy (AACE, 2016)*

LIFESTYLE THERAPY		
Evidence-based lifestyle therapy for treatment of obesity should include three components		
MEAL PLAN	PHYSICAL ACTIVITY	BEHAVIOR
<ul style="list-style-type: none"> <li>• Reduced-calorie healthy meal plan</li> <li>• ~500–750 kcal daily deficit</li> <li>• Individualize based on personal and cultural preferences</li> <li>• Meal plans can include: Mediterranean, DASH, low-carb, low-fat, volumetric, high protein, vegetarian</li> <li>• Meal replacements</li> <li>• Very low-calorie diet is an option for selected patients and requires medical supervision</li> </ul> <p>Team member or expertise: dietitian, health educator</p>	<ul style="list-style-type: none"> <li>• Voluntary aerobic physical activity progressing to &gt;150 minutes/week performed on 3–5 separate days per week</li> <li>• Resistance exercise: single-set repetitions involving major muscle groups, 2–3 times per week</li> <li>• Reduce sedentary behavior</li> <li>• Individualize program based on preferences and take into account physical limitations</li> </ul> <p>Team member or expertise: exercise trainer, physical activity coach, physical/occupational therapist</p>	<p>An interventional package that includes any number of the following:</p> <ul style="list-style-type: none"> <li>• Self-monitoring (food intake, exercise, weight)</li> <li>• Goal setting</li> <li>• Education (face-to-face meetings, group sessions, remote technologies)</li> <li>• Problem-solving strategies</li> <li>• Stimulus control</li> <li>• Behavioral contracting</li> <li>• Stress reduction</li> <li>• Psychologic evaluation, counseling, and treatment when needed</li> <li>• Cognitive restructuring</li> <li>• Motivational interviewing</li> <li>• Mobilization of social support structures</li> </ul> <p>Team member or expertise: health educator, behaviorist, clinical psychologist, psychiatrist</p>

Primary care clinics rarely have a team member with weight loss expertise as recommended by the CPG such as a dietitian, health educator, exercise trainer, behaviorist, or clinical psychologist. Depending on the size of the practice, many primary health care providers must refer out of the clinic for these specialized services, which causes delays in care. Lack of insurance coverage for these specialties is another barrier to carrying out CPG recommendations for successful obesity management.

A 10-day practice assessment was conducted at San Jose Wellness Center to assess the most frequently seen and treated conditions in that clinic. This assessment was logged from the end of August into September 2022. San Jose Wellness Center is a small nurse practitioner

owned and operated primary care clinic in Santa Teresa, New Mexico. This town sits on the opposite side of the Texas-New Mexico border to the neighboring city of El Paso, Texas. The entire area is located along the U.S.-Mexico Border and is predominantly rural outside of the El Paso city limits. The patient population seen in the clinic is mostly of Hispanic descent and live in the surrounding towns or are Mexican nationals. They are typically either Medicaid insured or uninsured.

The results of the 10-day Practice Assessment Log (PAL) revealed that the majority of the adult patients seen were struggling with multiple vascular chronic health conditions including type II diabetes mellitus, hypertension, hyperlipidemia, metabolic syndrome, and nonalcoholic fatty liver disease. Other frequently seen conditions during the 10-day period were respiratory conditions such as allergic rhinitis, asthma, COVID-19, and upper respiratory infections. Among most of these patients, despite the primary problem for the visit, was an overweight/obesity diagnosis. Treatment for mentioned vascular chronic conditions includes weight loss and dietary changes.

The current practice for the health care provider at the time of assessment for obesity management was to include patient education during the visit. Counseling was typically five-10 minutes of a verbal conversation with the patient giving him/her a recommendation of increasing their exercise to at least 30 minutes three times a week and stop-and-go activities during work shifts do not count toward this time. Dietary recommendations include following a low glycemic and Dietary Approaches to Stop Hypertension (DASH) diet. A few examples of foods on these diets and foods to avoid were verbally reviewed with the patient and any questions regarding the information provided were answered. Next, the patient was given a follow-up appointment based on their other chronic conditions outside of obesity. Follow-ups were typically two to four weeks after a medication adjustment or in three months if only lifestyle changes were suggested for the treatment plan. The outcome of this current practice resulted in less than two pounds of weight loss. It was clear after the 10-Day PAL, a practice improvement was needed in obesity

management to assist the majority of the patient population in managing their co-morbidities and other associated chronic conditions.

### **Available Knowledge**

The next step in implementing an evidence-based, effective intervention was a literature review. Database searches in Cumulative Index to Nursing & Allied Health Literature (CINAHL) and Pub Med National Library of Medicine were used from the University of Texas at El Paso (UTEP) online library. Keyword searches used were “adult obesity management”, “adult obesity prevention”, and “adult obesity treatment”. Hundreds of articles resulted, therefore add-on word combinations such as and “pharmacotherapy”, “guidelines”, and “systematic review”, “meta-analysis”, or “random control trial” were also used to narrow down the results. Search limits included a publish date of 2016 until current and linked full text. Once more specificity to the search criteria was included, the results narrowed to less than 20 articles, therefore combinations of the terminology were used.

About 10 systematic reviews and meta-analyses, two integrative reviews, an experimental study, a meta-analysis of correlational studies, and a qualitative study were included to guide the new interventions. Article results showed compliance with lifestyle changes specific to culturally tolerated activities and diets, pharmacotherapy interventions when applicable, and also addressed the behavioral accountability component. The research points to better interventions that include increased adherence to recommendations by the CPG for obesity management.

### **Rationale and Specific Aims**

All articles reviewed implemented CPG recommendations that were culturally specific and attainable within the patient population settings. For example, a systematic review and meta-analysis by Buffey, et. al. (2022) discussed frequent short interruptions of standing or light intensity walking significantly attenuated postprandial glucose compared to prolonged sitting. A systematic review by Hassan, et. al. (2016) highlighted that participants receiving lifestyle

interventions of combined diet and exercise components achieved the greatest weight loss, compared to minimal or standard care. A randomized controlled trial by Mirkarimi, et. al. (2017) studied motivational interviewing as a technique to address the behavioral component of obesity management. Their study showed motivational interviewing appeared to be effective in increasing weight efficacy lifestyle among women with overweight and obesity compared with the control group. According to Gibbie and Lubman (2012), motivational interviewing is “a counseling method that involves enhancing a patient’s motivation to change by means of four guiding principles represented by the acronym RULE: Resist the righting reflex, understanding the patient’s own motivations, listen with empathy, and empower the patient” (p. 660). The righting reflex is the tendency of healthcare professionals to tell the patient what the path is for good health rather than exploring what the patient’s individualized motivation for change is.

A meta-analysis conducted by de Menezes, et. al. (2019) discussed the influence of the Paleolithic diet on weight loss. Currently, widely accepted evidenced-based diets include the Mediterranean and the DASH diet for healthy eating to maintain weight and prevent chronic cardiovascular conditions. However, this article mentions statistically significant results on weight loss, BMI, and waist circumference with the Paleolithic diet and its satietogenic effect possibly due to “concentrations of glucagon like peptide-1 (GLP-1) and Peptide YY (PYY) peptides were significantly increased over 180 mins with the use of the different formulations of the Paleolithic diet compared to the guideline-based diets” (p. 10). The article clarified that “although diets differed in the composition of macronutrients and the proportion of food of animal and vegetable origin, there was a relatively common point in the relation to exclusions, such as dietary products, salt, alcohol, sugar, cereals, and processed products” (p. 2).

The resulting articles from the review of literature reiterated CPG recommendations of adding pharmacological intervention to the treatment when the patient has a BMI  $\geq 27$  and is in stage one or two of overweight/obesity. Pharmacological interventions such as phentermine and topiramate combination have considerable benefits in reducing body weight (Lei, et. al., 2021).

The benefits must outweigh the risks of implementing pharmacological interventions for obesity management.

The evidence discovered in the literature review shows increasing adherence to CPG recommendations through patient education on lifestyle modifications and counseling which equips the patient with more effective information on obesity management. Evidence also shows implementing a newer, yet still evidence-based diet, such as the Paleolithic diet is a potentially better intervention than current recommended diet plans such as the DASH diet or Mediterranean diet. The interventions are more intensive and time consuming for the healthcare provider and patient, however it empowers the patient to make healthier everyday lifestyle decisions. The patients feel more confident because they have a road map for their journey toward weight loss and management of their chronic conditions.

## Methods

### Context

#### Figure 2.

*RE-AIM Translating Research into Action Framework (RE-AIM, 2023)*



The change in practice was accomplished through using the evidence-based RE-AIM theory framework of translating research into action. The targeted population in the “Reach” component is adult patients ages 22-64 years old with a BMI  $\geq 30$  with one or more



overweight/obesity related complications seen at San Jose Wellness Center. The patients are with a normal EKG and non-pregnant. Patients with controlled blood pressure were started on a pharmacological intervention such as phentermine and topiramate. The evidence discovered in the literature review verified the effectiveness of the chosen interventions.

The plan of implementation was coordinated with the office staff. Initially, meetings were held between the nurse practitioner and the office manager. Then, a meeting was conducted with the office staff, topics included when the quality improvement project would start, which patients it would apply to, and a review of all the patient handouts. Once the project was implemented, the maintenance component of the framework included subsequent staff meetings were held weekly and as needed to trouble shoot and ensure project interventions were being carried out appropriately.

### **Interventions**

Interventions put into place is implementing the obesity management CPG within the primary care setting through patient education. All adult patients seen within the clinic between ages 22-64 years old with a BMI  $\geq$  30, at least one complication of obesity, and non-pregnant were given an Obesity Management Program Pre-Assessment questionnaire. Please refer to Appendix A. All patients were started on lifestyle modifications including a specific diet plan, physical activity regimen, and behavioral modification counseling inspired by motivational interviewing questions.

Each patient was monitored on a weekly basis over four weeks. To prevent patients from feeling overwhelmed, the nurse practitioner and the patient created a weekly plan with specific activities and short-term goals consisting of a focus on each of the three lifestyle modification categories. During the weekly check-ins, the nurse practitioner also engaged in motivational interviewing and inspired discussions with the patient to tackle obstacles with obesity management the patient was dealing with at the time. Please refer to Appendix B for weekly check-in questionnaire.

The diet plan given to the patients was a Paleolithic inspired diet that cut out processed foods and increased more natural foods such as fruits, vegetables, lean meats, and foods rich in omega-3s such as fish. The patients also were given a protein shake recipe used to replace their breakfast and dinner for four weeks to decrease their daily caloric intake. They were given suggested supplements such as probiotics, coq-10, turmeric, and a daily multivitamin. Please refer to Appendix C.

Physical activity recommended followed the CPG and included working up to a minimum of 150 minutes of cardio-based exercising per week of the patient's choice on three to five separate days. They could include activities such as walking, jogging, cycling, swimming, or dancing. Recommendations for types of activities from the Centers for Disease Control and Prevention (CDC) website were offered to the patient. Target heart rates were calculated based on the CDC (2023) recommendations. For moderate-intensity physical activity, a target of 64-76% of the maximum heart rate, and for vigorous-intensity physical activity 77-93% of the maximum heart rate was the target. The Rate of Perceived Exertion Scale (2023) was also reviewed with the patient for additional safety and specific parameters for effective exercising. Please refer to Appendix D.

Additional two to three days a week of weight training was also part of the exercise regimen. "The Beginner Body Weight Workout: 20-Minute Routine to Do at Home or Anywhere!" from [www.nerdfitness.com](http://www.nerdfitness.com) was the suggested workout given to the patient. This workout was a circuit of 20 bodyweight squats, 10 push-ups, 10 walking lunges, 10 dumbbell rows, 15-second plank holds, and 30 jumping jacks repeated three times. This strength training exercise was suggested to the patient at least two to three times per week with at least one day rest in between and was to be completed in addition to the 150 minutes of cardio weekly. This website was chosen as it gives modifications and videos on proper technique. It also gave examples of warm-up and cool-down activities for injury prevention. Please refer to Appendix D for the physical activity patient handout.

When appropriate, pharmacological interventions were also added to the treatment regimen. The nurse practitioner discussed with each patient the risks and benefits of adding a pharmacological intervention, and patients who agreed were started on therapy. Those with an acceptable electrocardiogram (EKG) and controlled blood pressure were started on phentermine and topiramate. Patients with type II diabetes mellitus were prescribed a GLP-1 covered by their individual insurance.

### **Measures**

The Plan-Do-Study-Act (PDSA) method of carrying out change was implemented during the quality improvement project. After the literature review was completed, it was clear an improved patient education program on obesity management based on implementing CPG recommendations within the primary care setting was needed. A qualitative questionnaire was designed to evaluate the effectiveness of the four-week project.

A pre-assessment and post-assessment questionnaire was handed out and completed by each patient. This questionnaire included meals eaten over the prior four weeks, the amount and type of physical activity over the prior four weeks, how many minutes spent on daily continuous sitting, and a rating of the patient's current confidence level in his/her ability to lose weight. The staff also collected a pre and post-assessment set of vital signs, BMI, and waist circumference. Please refer to Appendix E for the post-assessment questionnaire.

### **Analysis**

The questionnaire answer changes from pre versus post-assessment was compared and analyzed. Overall positive results were seen across the board with all patients who completed the four-week project. Qualitative questions were completed by the patient at the start, then again at the end of the four weeks. Questions such as types of foods they ate within the last four weeks for breakfast, lunch, and dinner, types and amount of time spent weekly on physical activity they engaged in within the last four weeks, how important losing weight was and how confident they were at achieving losing weight. Quantitative data was also collected at

the start, then repeated after the completion of the project. This includes vital signs, height, weight, BMI, and waist circumference. No ethical issues arose during the project.

## Results

Out of the 14 adult patients who started the program, seven were able to complete the entire four-week duration and attend their weekly check-in visits. The new interventions implemented positively changed the outcomes and resulted in a decrease in BMI and waist circumference in all the patients who completed the project. An increase in minutes spent on weekly physical activity and exercise and a decrease in the duration of sitting were seen. All patients had an increase in their confidence level in losing weight.

**Table 1.**

### *Project Results for Patient Measurements*

Age Sex	BMI - Pre	BMI - Post	Difference	Waist Circumference in Inches - Pre	Waist Circumference in Inches - Post	Difference
28 F	38.04	37.33	-0.71	44.5	43	-1.5
49 M	33.66	32.5	-1.16	50	44	-6
28 M	37.6	35.13	-2.47	46	44	-2
38 F	36.5	36	-0.5	44	43	-1
38 F	34	31.3	-2.7	36	34	-2
55 M	34.55	34.09	-0.46	47	46	-1
52 F	35.66	32.8	-2.86	42.75	39.5	-3.25

**Table 2.**

### *Project Results for Patient Physical Activity*

Age Sex	Exercise Quality - Pre	Exercise Quality - Post	Weekly Minutes Spent Exercising - Pre	Weekly Minutes Spent Exercising - Post	Difference	Continuous Time in Minutes Spent Sitting - Pre	Continuous Time in Minutes Spent Sitting - Post	Difference
28 F	household activities	stationary bike, Nerd Fitness workout, Grow with Jo workout	0	280	280	180	45	-135
49 M	jumping, running	walking	30	30	0	0	0	0
28 M	weight lifting, flag football	weight lifting in the gym, jogging, flag football	360	525	165	180	120	-60
38 F	household activities	weights, walking	120	250	130	480	30	-450
38 F	none	Peleton, cycling, weights	0	150	150	300	60	-240
55 M	none	walking	0	60	60	360	240	-120
52 F	walking with weights	walking with weights, Nerd Fitness workout, Grow with Jo workouts	120	200	80	120	30	-90

**Table 3.***Project Results for Patient Quality of Food Intake*

Age Sex	Breakfast - Pre	Breakfast - Post	Lunch - Pre	Lunch - Post	Dinner - Pre	Dinner-Post
28 F	skip	protein shake, blueberries	soup, rice, beans, soda	soup, chicken salad, vegetables	rice, beans, ground beef, tortilla, chips	protein shake
49 M	potato, bacon, eggs, soda	eggs, cookies, shake	chili relleno, soda	chicken, corn, potato	coffee, sweet bread	protein shake
28 M	fruits	protein shake, apple, banana	fast food	chicken, pork, vegetables	noodles, chicken, steak	protein shake
38 F	boiled eggs, tater tots	boiled egg, fruits, oats	none	baked salmon, baked chicken, quinoa, veggies	veggies, potatoes, cheese	turkey, pepperoni, boiled eggs, avocado, veggies
38 F	ice cream, candy, McDonald's	protein shake	Wendy's	chicken, fish, salad	mac and cheese, diet soda, steak	protein shake
55 M	eggs, ham burrito	eggs, ham burrito	turkey sandwich, soda	steak	nachos with beef	protein shake
52 F	eggs and bread	protein shake	steak, rice, chicken soup, soda, cookies, chocolate	fruits, green salad, chicken	none	protein shake

**Table 4.***Project Results for Patient Confidence Level in Ability to Lose Weight*

Age Sex	Confidence - Pre	Confidence - Post	Difference
28 F	6	8	2
49 M	7	8	1
28 M	3	8	5
38 F	3	8	5
38 F	5	9	4
55 M	3	4	1
52 F	4	8	4

## Discussion

The patients also verbally reported other positive changes. All reported increased energy and strength. Some also noticed their clothing fit differently, and they felt they looked better in their clothes, and also fit in clothing they were not able to before. The 28-year-old female was recently diagnosed with type 2 diabetes mellitus within the last year. With just the lifestyle changes suggested by this project, she was able to control her blood glucose with diet and exercise and was taken off of her metformin.

Of the 14 individuals who started with the plan, only seven of them were able to successfully attend the weekly check-ins with their primary care provider. The other seven individuals were unable to complete the check-ins for various reasons. One patient was hospitalized due to an unrelated health condition. Another reported traveling out of town as their reason for not attending their scheduled appointments, and three others cited a conflict in their work schedule, and two family emergencies. These individuals essentially reported they were unable to follow the diet and exercise plan and therefore canceled their appointments.

## Summary

The most important success of this project was that the patients felt more confident in losing weight. They felt they understood better how to go about being healthier. They have struggled with weight issues for years, and they finally were able to see some results. It served as a boost to continuing a healthy lifestyle. The primary care clinic has control over the quality of education provided to the patient. This is a strength, especially when the clinic does not have access to specialists such as mental health experts, exercise coaches, and dieticians.

A challenge, however, is time management and ensuring the patient shows up to his/her appointments. A discussion was had with each patient during their pre-assessment appointment that a weekly check-in over the next four weeks was part of the program, and all agreed.

Despite this discussion, about half of the patients were unable to attend each check-in. If the patient did attend, time management was an issue, especially on busy clinic days. Each obesity

management appointment took close to an hour due to the motivational interviewing style discussion with the patient, creating weekly short-term goals with the patient, and educating him/her with the new material such as diet or exercise plan.

### **Interpretation**

Regular implementation of this quality improvement project has potential in a primary care setting. The cost of implementing the project was reasonable as the intervention was patient education. Paper copies of all the questionnaires and handouts in English and Spanish were a necessary expense. The other resource used was employee time. Creating and confirming patient appointments, ensuring the patients were given the questionnaires shortly after checking in and assisting them in answering appropriately, and finally reviewing all the patient handouts and ensuring the patient understands the weekly plan and goals were the most time-consuming tasks.

Primary care clinics that resort to referring out to specialists for weight loss can cause delays in patient care. The waiting time for consultations with mental health providers can be weeks out. There are also insurance coverage issues for dietician/ nutrition counseling services and exercise coaches. This project allows the primary care clinic to provide an effective plan for weight loss for their patients, during this waiting period or in place of referring out.

### **Limitations**

There were limitations encountered. Seven of the 14 patients who started were unable to complete the entire program. One was hospitalized due to urosepsis and nephrolithiasis, others were unable to attend their weekly check-ins due to conflicting work schedules, or traveling out of town. When a patient was contacted to confirm his/her appointment and was unable to attend, the staff scheduled the patient as routine, about two to three weeks later. These patients ended up missing their weekly check-in.

Extending the time between check-in appointments to a greater period of time, such as two weeks resulted in a decrease in momentum that had been built during the initial

appointment. During their subsequent check-in visit, some of the patients were unable to complete discussed goals due to stressors such as busy work schedules or family life. With the weekly check-in, especially with motivational interviewing style discussions, the patient was able to work with the healthcare provider and troubleshoot how to overcome current challenges to achieve their desired short-term goal.

Some of the patients also had difficulty answering the questions on the questionnaire as they did not understand how to answer. The staff and the provider took the time and sat with each patient to assist, however, some had difficulty giving examples, especially when asked motivational interviewing inspired questions such as, "When have you made a significant change in your life before? How did you do it?" Please refer to Appendix A. Post-Assessment long-term goals were also difficult for the patient to answer. Patients needing extra assistance caused extended visit times, making time management an issue within the clinic.

## **Conclusions**

Overall, the quality improvement project was successful as it served its purpose of addressing the practice need for an effective treatment plan for obesity management. This could potentially be useful in similar primary care settings. It was a low-cost intervention, however, does have its own limitations. A longer duration could be implemented for added support for the patients. The qualitative questionnaire could also use modification for improved ease for patients to answer. Some patients with mental health comorbidities such as anxiety or depression who needed to be referred out to a specialist had more limited results due to compliance issues.

Of all the individuals who started the weight loss program, half were able to complete the entire process from beginning to end. The half that did complete the program all reported successful weight loss and other positive effects. Future quality improvement projects could be tailored to address the other half of the participants who were unable to complete the program. Possibly predicting and addressing potential issues individuals may face personally which limit



their ability to achieve their health goals could be beneficial in increasing the success of a larger population of adults in the management of their obesity. Additional interventions including phone or telehealth check-ins and other managed communication could also potentially increase the success of individuals who have less of an ability to do in-person appointments weekly.

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## Appendices

### Appendix A.

#### *Pre-Assessment Questionnaire*

##### Obesity Management Program: Pre-Assessment

Date: \_\_\_\_\_

Initials: \_\_\_\_\_ Age: \_\_\_\_\_ M/F \_\_\_\_\_ If female, risk for pregnancy: yes/no

Height: \_\_\_\_ ft. \_\_\_\_ in. Weight: \_\_\_\_\_ lbs/\_\_\_\_ kgs BMI: \_\_\_\_\_

Blood pressure: \_\_\_\_\_ Pulse: \_\_\_\_\_ EKG date done: \_\_\_\_\_

Waist circumference: \_\_\_\_\_ in.

#### **Typical Meals over the last 4 weeks:**

- Breakfast food: \_\_\_\_\_  
 \_\_\_\_\_  
 ○ Beverages & quantity: \_\_\_\_\_
- Lunch food: \_\_\_\_\_  
 \_\_\_\_\_  
 ○ Beverages & quantity: \_\_\_\_\_
- Dinner food: \_\_\_\_\_  
 \_\_\_\_\_  
 ○ Beverages & quantity: \_\_\_\_\_
- Typical snacks: \_\_\_\_\_  
 \_\_\_\_\_

#### **Current Physical Activity over the last 4 weeks:**

- Type of activities: \_\_\_\_\_
- Minutes per session: \_\_\_\_\_
- Days per week: \_\_\_\_\_
- How many minutes/hrs a day spent sitting continuously: \_\_\_\_\_

**Health Goals:**

On a scale from 0 to 10, how **IMPORTANT** is it for you to lose weight? Zero is not important at all and 10 is extremely important. Where would you be on this scale? \_\_\_\_\_

- Where do you **WANT** to be on this scale? \_\_\_\_\_

On a scale from 0 to 10, how **CONFIDENT** are you that you can lose weight? Zero is not confident at all and 10 is extremely confident. Where would you be on this scale? \_\_\_\_\_

- Where do you **WANT** to be on this scale? \_\_\_\_\_

In what ways does your weight concern you? \_\_\_\_\_

\_\_\_\_\_

How would you like your health to be in 5 years' time? \_\_\_\_\_

\_\_\_\_\_

What are the advantages of reducing your weight? \_\_\_\_\_

\_\_\_\_\_

**Lifestyle Goals:**

What would be different in your life if you were at a healthier weight? \_\_\_\_\_

\_\_\_\_\_

When have you made significant change in your life before? How did you do it? \_\_\_\_\_

\_\_\_\_\_

What strengths do you have that would help you make a change? \_\_\_\_\_

\_\_\_\_\_

In what ways do you want your life to be different in 5 years? \_\_\_\_\_

\_\_\_\_\_

----- *Complete below with provider* -----

**Weekly Changes:**

Diet: \_\_\_\_\_

\_\_\_\_\_

Activity: \_\_\_\_\_

\_\_\_\_\_

Behavior: \_\_\_\_\_

\_\_\_\_\_

**Appendix B.***Weekly Reassessment Questionnaire*

Initials: \_\_\_\_\_ Age: \_\_\_\_\_ M/F \_\_\_\_\_ Date: \_\_\_\_\_

**Obesity Management Program: Week 2 Reassessment****All Meals over the last 7 days:**

- Breakfast food type & amount: \_\_\_\_\_  
 \_\_\_\_\_  
 ○ Beverages & quantity: \_\_\_\_\_
- Lunch food type & amount: \_\_\_\_\_  
 \_\_\_\_\_  
 ○ Beverages & quantity: \_\_\_\_\_
- Dinner food type & amount: \_\_\_\_\_  
 \_\_\_\_\_  
 ○ Beverages & quantity: \_\_\_\_\_
- Snacks type & amount: \_\_\_\_\_  
 \_\_\_\_\_

**Current Physical Activity over the last 7 days:**

- Type of activities: \_\_\_\_\_
- Minutes per session: \_\_\_\_\_
- Number of days: \_\_\_\_\_
- How many minutes/hrs a day spent sitting continuously: \_\_\_\_\_

**Weekly Changes: (Completed with healthcare provider)**

Diet: \_\_\_\_\_  
 \_\_\_\_\_

Activity: \_\_\_\_\_  
 \_\_\_\_\_

Behavior: \_\_\_\_\_  
 \_\_\_\_\_

## Appendix C.

### Recommended Diet Plan

HEALTHY FOOD CHOICES	TIPS
All vegetables (Plenty) seaweed	Fresh preferred, may be frozen
All protein: chicken, fish, seafood, pork, red meat limit	Grass Fed preferred
Almond Milk (Unsweetened- 30 Calorie only) Not 60 or 90	Almond/ Coconut combination 35 calories good too
Almond Butter	Organic preferred
Bacon, Ham, Cold cuts or Cured meat	No Nitrites (Hormel Naturals)
Butter..... No Margarine!	Brand: Kerrygold
Chia Seed/Flax seed. Sprouts and Whole Foods has the ground combination of both	Good idea to take with one glass of water 15 mins before 2 biggest meals
Cocoa Powder (no sugar)	Can be found in Sprouts
Coconut Oil, Avocado Oil Ghee	Organic
Eggs-Organic only	Eggland's Best is a good cage free brand
Green or Black Teas	No Sugar!
Fruit	<b>1 fruit per day:</b> apple, berries the best
Half & Half or heavy whipping cream for coffee	1 cup per day only
Pecans, Pistachios, Almonds, Macadamias, Cashews	All nuts, no peanuts (not a true nut)
Quinoa	½ cup per week only
Raw organic honey for coffee	1-2 tsp per cup
Shredded coconut (no sugar added) or fresh coconut, Jicama is great	Can make "cereal" almonds, fruit, coconut, pecans with almond milk. Eat like cereal.
Sweet Potatoes	1 sweet potato per week
Stevia Sweetener: use sparingly (only sweetener allowed)	1 packet per cup
Almond flour, coconut flour Cheese (not low fat), Avocado, Beef Jerky, pork rinds	Buy Baken-Ets brand when craving chips (sparingly)

### Foods to Avoid

(May eat on cheat days)

No Flour (Tortillas, breads, cookies, crackers, etc)	No peanuts or peanut butter
No Wheat or wheat products	No sweets
No cereals of ANY kind	No juices/Gatorade/No alcohol
No oatmeal, no cream of wheat, No granola, No corn or corn products	No vegetable oil or Canola oils
No potatoes	No yogurts (of any kind, including greek)
No rice	Healthy Restaurant ideas: Rudys', Healthy Pizza Company (order Paleo crust), Barbeque places, Nonas pizza has cauliflower crust, Aloha barbeque (protein plate)
No pastas	Supplements: Probiotics daily, Vitamin ADK, Turmeric, Curcumin, Omega 3's, CoQ10
No beans (soy, pinto, garbanzo, black, red, etc..)	No lentils

### Never Foods

No Cokes or Sodas	No Milk
No Donuts	No processed foods (canned, boxed)
<b>NO</b> "Sugar Free" or "Fat Free" foods, low fat, etc..	Minimize fruits with a lot of sugar: Watermelon, Mango, Pineapples, Grapes
No Margarine	

### SHAKE RECIPE

INGREDIENTS	MEASUREMENTS
Fruit	1 fruit (will meet the 1 fruit per day portion)
Almonds / Almond butter	One handful of almonds or 1 tbs of almond butter
Almond Milk (Unsweetened- 30 Calorie only)	As much as you want for thickness of shake
Chia Seed (or flax)	1 tbsp
Protein Powder	One Scoop Protein powder: Optimal Nutrition Gold Standard- Can be found at Costco or Supplement Express
Cinnamon/ Ice *May add spinach and/or kale as well	One tbsp of cinnamon



## Appendix D.

### Physical Activity Patient Handout

#### Obesity Management: Physical Activity

**Target Heart Rates:**  $220 - \text{age} = \text{Max heart rate}$  bpm (Max heart rate)

64% - 76% of max heart rate = \_\_\_\_\_ - \_\_\_\_\_ bpm for Moderate Intensity

77% - 93% of max heart rate = \_\_\_\_\_ - \_\_\_\_\_ bpm for Vigorous Intensity

Example 1	Example 2	Example 3
		
Moderate-intensity aerobic activity	Vigorous-intensity aerobic activity	An equivalent mix of moderate- and vigorous-intensity aerobic activity
(such as brisk walking) for 150 minutes every week (for example, 30 minutes a day, 5 days a week)	(such as jogging or running) for 75 minutes (1 hour and 15 minutes) every week	(such as jogging or running) for 75 minutes (1 hour and 15 minutes) every week
AND	AND	AND
		
Muscle-strengthening activities	Muscle-strengthening activities	Muscle-strengthening activities
on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms)	on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms)	on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms)

Moderate Activity Examples	Vigorous Activity Examples
Walking briskly (at least 3 mph but not race-walking)	Race walking, jogging, or running
Water aerobics	Swimming laps
Bicycling slower than 10 mph	Bicycling faster than 10 mph
Tennis (doubles)	Tennis (singles)
Ballroom dancing	Aerobic dancing
General gardening	Hiking uphill or with a heavy pack

(CDC, 2022) <https://www.cdc.gov/physicalactivity/basics/adults/index.htm>

RPE Scale (Rate of Perceived Exertion)	
1	<b>Very Light Activity</b> Hardly any exertion, but more than sleeping, watching TV, etc.
2-3	<b>Light Activity</b> Feels like you can maintain for hours, easy to breathe and carry on a conversation.
4-6	<b>Moderate Activity</b> Breathing heavily but you can still hold a short conversation, still somewhat comfortable, but becoming noticeable more challenging.
7-8	<b>Vigorous Activity</b> Borderline uncomfortable, short of breath, can speak a sentence.
9	<b>Very Hard Activity</b> Very difficult to maintain exercise intensity, can barely breathe and speak only a few words.
10	<b>Maximal Effort</b> Feels almost impossible to keep going, completely out of breathe, unable to talk, cannot maintain for more than a very short amount of time.

**Target Perceived Exertion:**

Moderate intensity = 4-7

Vigorous Intensity = 7-9

### 15-30 mins Warm – Up Activity Examples

- March in place & swing arms/ Jog in place
- Walking Jacks/ Jumping jacks
- March in place & pull down arms
- Lateral step
- Opposite hand-toe touch
- Lateral butt kicks
- Mountain climbers
- Jump rope
- Jump up/down, side to side

<https://www.youtube.com/watch?v=qQ96oXp5RTU&t=1s>

### 20 min Workout

Complete 3 times/ week on non-consecutive days

- 20 body weight squats
- 10 push-ups
- 10 walking lunges each side
- 10 bent over rows (dumbbells/milk/water jugs)
- 15 second planks
- 30 jumping jacks/ walking jacks

Repeat 2 more times, for a total of 3 circuits

<https://www.nerdfitness.com/blog/beginner-body-weight-workout-burn-fat-build-muscle/>



### Cool Down – Stretches

**#1) TOE TOUCH**



**#2) BACK SCRATCH**



**#3) BUTTERFLY STRETCH**



<https://www.nerdfitness.com/blog/the-3-best-flexibility-exercises-the-ultimate-guide-for-improving-flexibility-in-30-days/#1>



Initials: \_\_\_\_\_ Age: \_\_\_\_\_ M/F Date: \_\_\_\_\_

**Health Goals:**

On a scale from 0 to 10, how IMPORTANT is it for you to lose weight? Zero is not important at all and 10 is extremely important. Where would you be on this scale? \_\_\_\_\_

- Where do you WANT to be on this scale? \_\_\_\_\_

On a scale from 0 to 10, how CONFIDENT are you that you can lose weight? Zero is not confident at all and 10 is extremely confident. Where would you be on this scale? \_\_\_\_\_

- Where do you WANT to be on this scale? \_\_\_\_\_

What is working for you around diet and exercise? \_\_\_\_\_

\_\_\_\_\_

How do you feel about your health now compared to 4 weeks ago? \_\_\_\_\_

\_\_\_\_\_

What are the advantages of reducing your weight? \_\_\_\_\_

\_\_\_\_\_

**Lifestyle Goals:**

What is different in your life now that you are making healthier choices? \_\_\_\_\_

\_\_\_\_\_

What strengths do you have that would help you continue this change? \_\_\_\_\_

\_\_\_\_\_

What may get in the way of your plans to continue change? \_\_\_\_\_

\_\_\_\_\_

**Long-Term goals:**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

What small steps do you feel confident taking now, to go towards achieving your desired goals?

**Short-term diet changes:**

1. \_\_\_\_\_

2. \_\_\_\_\_

**Short term daily activity changes:**

1. \_\_\_\_\_

2. \_\_\_\_\_

**Short Term behavior changes:**

1. \_\_\_\_\_

2. \_\_\_\_\_