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Streamlining the Specialty Weight Management Clinic Referral Process

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UNIVERSITY OF
ARKANSAS

College of Education and Health Professions
Eleanor Mann School of Nursing

Streamlining the Specialty Weight Management Clinic Referral Process

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Abstract

Obesity affects a vast amount of the population within the state of Arkansas and has a high prevalence across the US. Weight management is notoriously difficult in the primary care setting. Currently the referral process to a specialty weight management clinic in Northeast Arkansas is incredibly lengthy and inefficient, often leading to missed or inappropriate referrals. As a result of a needs assessment within the health system, this DNP Quality Improvement Project focused on improving the referral process to a specialty weight management clinic. The aim was to create a more efficient referral process to benefit both the clinic, the hospital, and the patient by increasing revenue to the clinic, decreasing readmission rates, and effectively managing weight in the outpatient setting. The implementation process used Lewin's Change Theory as a guide. Data was collected via electronic medical record (EMR) chart reviews and was stored in password-protected excel spreadsheets. This project found that a simple change in an EMR order set helped increase weight management clinic referrals and help set a baseline a data to follow for future studies related to the benefits of utilizing the weight management clinic.

Keywords: Obesity management, Obesity and primary care, specialty referrals, weight management clinic, obesity and readmission rate

Streamlining the Specialty Weight Management Clinic Referral Process

The purpose of the proposal is to detail a DNP quality improvement project focused on creating a more efficient referral process from the inpatient setting (discharge) from the project's healthcare system to their specialty Weight Management Clinic. The project is an effort to more efficiently address weight management in the overweight population being admitted. It is well known that obesity rates along with other co-morbidities such as congestive heart failure are significantly high in Arkansas (ABW, 2016). This proposal aims to address weight management in the at-risk population of overweight patients. It is hypothesized that a more streamlined referral process will allow more of the at-risk population to be introduced to the specialty of the weight management clinic and subsequently improve body weight and health outcomes.

Background and Significance

The Centers for Disease Control and Prevention (CDC) defines obesity through body mass index (BMI); BMIs greater than 30.0 are considered obese. Research reveals that obesity can lead to other serious health conditions including but not limited to heart disease, type 2 diabetes, and certain types of cancers (CDC, 2018). A 2015 study also revealed links between obesity and poor quality of life (Pimenta, 2015). Obesity is known to affect at least 30% of the global population, and has been noted to be a main problem that public health faces in modern society (Pimenteta, 2015). The CDC reported that the prevalence of obesity in the US was 42.4% in 2017-18 and estimated the annual medical costs of obesity was 147 billion dollars in 2008 (CDC, 2020). It was also reported that every state in the US has an adult obesity prevalence of more than 20%, and Arkansas specifically had a prevalence of greater than 35% (CDC, 2018). In Arkansas, more than 2 million dollars have been awarded in grants to help fight obesity, however, the state continues to have a high obesity prevalence, proving more efficient

management is needed (CDC, 2018). Locally, Craighead County falls in line with the state, showing a 34% prevalence of obesity with the county's population (ODN, 2015).

The understanding that obesity can lead to many other health conditions and exacerbate current health conditions, and that effectively managing obesity can also help better manage other health conditions, will lead healthcare providers to help patients manage their weight, ideally with a multifaceted approach (CDC, 2020). As a part of the Centers for Medicare & Medicaid Services Meaningful Use Incentive Program, providers are required to document body mass index and a follow-up treatment plan for adult patients with a BMI of 25 or greater. The CDC notes that obesity management requires a multifaceted approach that includes the patient, their families, healthcare professionals, and other professionals that help manage care (CDC, 2020). Studies have shown that referral to weight management programs show success in both reducing patient's body composition and allowing them better control of their comorbidities (Fitzgerald, 2017). Knowing that CMS requires treatment plans for obese patients and that current research reveals successes of weight management clinics, it should be simple to address the need for a more streamlined referral process to the health system's weight management clinic to benefit the clinic, the hospital, and the patient.

Within a health system located in Northeast Arkansas, weight management has been a persistent problem. The needs assessment for this project revealed staff members felt there was a lack of time for PCPs to evaluate and effectively manage weight and difficulty in the referral process to the specialty weight management clinic. There were two recent revelations within the health system that showed how the current process was failing. One of the issues was that there was no order in the electronic documentation system from the inpatient side to refer to weight management at discharge. The second issue is that greater than 80% of patients that had been admitted 4 times or more in the previous 365 days met criteria for weight management referral. Understanding the devastating effects of obesity on health status and the need to have it more

effectively managed, this DNP quality improvement project has been designed to improve the referral process to the health system's weight management clinic and in turn increase the number of referrals for obese patients to get the specialty care they need to best manage their weight and eventually improve health outcomes.

Problem Statement

The problem statement for this DNP quality improvement project is that the health system is not efficiently referring overweight patients with other co-morbidities to the health system's specialty Weight Management Clinic. The needs assessment noted that obesity was a significant health problem in the project's targeted area. It was also revealed that primary care providers felt there was a gap in care related to managing weight in the primary care setting due to lack of time, lack of patient knowledge, and inefficient referral processes. Streamlining the referral process to the weight management clinic at discharge should help improve body weight and health outcomes in the overweight population.

Purpose Statement

The purpose statement for this DNP quality improvement project is to improve the referral process to the health system's specialty Weight Management Clinic from the inpatient setting by ensuring a referral is in place at discharge. Research has shown that overweight patients with comorbidities often have poor health outcomes. Through the Needs Assessment process, it was discovered that there is a significant gap in care when it comes to managing weight in the primary care setting in our area; problems such as lack of time, patient's lack of knowledge, and inefficient referral process were brought up during the assessment. This project aims to improve the Weight Management referral process by allowing patients who meet the criteria to have the opportunity to thoroughly address their weight management in a specialty clinic that can spend more time addressing their weight and can build a program specific to their health needs. By building a more efficient weight management referral

process, it is hypothesized that the number of referrals will increase by 10% by project conclusion, and subsequently the population referred will experience lower body weight and improved health outcomes as a result of the referral.

PICOT Question

In the (P)overweight population admitted to a health system in Northeast Arkansas, how does (I)a more specific and streamlined referral process, compared to (C) current referral process, (O)affect the number of patients appropriately referred to the specialty clinic over (T) a 3 month period?

Needs Assessment

Objective

The objective of this Needs Assessment is to identify barriers to effective weight management for the obese population in primary care in Northeast Arkansas. Arkansas has one of the highest obesity rates in the nation (ABW, 2016). The project's targeted area has multiple "medical weight loss" clinics, however all but one of them only offers prescriptions and injections for weight loss. The specialty weight management clinic within the project's health system is the only clinic-based program in the area that addresses weight management holistically through nutrition, exercise, face to face visits and other supportive care.

Participants

The participants for this Needs Assessment were identified as key influencers based on their job and potential interaction with patients who are in the most need of weight management. Their duties are diverse, but ultimately have a similar client base which helped identify trends in ideas related to gaps in care at this time. Participant 1 is a local primary care physician who has been practicing for almost 11 years; Participant 2 is a local Nurse Practitioner who has just under 2 years of experience in primary care; Participant 3 is a local Physician's Assistant who has 3

years of experience in Emergency Medicine; Participant 4 is a local Doctor of Physical Therapy who has 13 years of experience; and Participant 5 is a local Nurse Practitioner who has 7 years of experience in primary care.

Each of these identified influencers work in different units under the same entity. Their diverse jobs offered the opportunity to identify gaps across the care spectrum instead of just in primary care offices alone. The health care professionals brought valuable insight as to why obesity is so prevalent in our area and why providers struggle with providing effective weight management.

Purpose of Needs Assessment

Obesity is highly-prevalent across the country and the prevalence is expected to rise. It is imperative that providers identify effective approaches to weight management in the obese population. Not only is obesity detrimental to a patient's health as the majority of the obese population are afflicted with co-morbidities, it is also a costly diagnosis as approximately 25% of obese patients have multi-morbidities that account for 65% of the total healthcare expenditure (Brown & Reynolds, 2019). Implementing effective weight management in the obese population will not only help patients improve their health status but also likely save them on healthcare costs once their weight is managed and they have the opportunity to decrease or discontinue certain medications and other co-morbidities may resolve or be less likely to exacerbate.

The results of the needs assessment were used to identify barriers to and gaps in care related to effective weight management. Understanding these problems will ideally help providers determine, build and implement effective weight management for their patients with obesity.

Data Collection Tools and Interviews

The Needs Assessment was conducted by interviewing five previously identified key influencers in the area using a 10 question script that had open-ended questions to allow the

influencers to elaborate on their answer if they wished. The goal was to gain insight from other providers on their perception of barriers and gaps in care and to search for trends among the answers to identify if providers had similar ideas about the current weight management problem in the area. Each participant works under the health system's entity in their own respective areas/clinics. Each interview varied in length, taking around 20-30 minutes per person. The questions addressed opinions about current gaps; opinions on patient understanding of diagnosis and effects on co-morbidities if present; opinions on patient's quality of life; opinions on clinics willingness to participate in new weight management programs; and ideas for weight management programs. The same ten questions were asked to all five participants and their answers were recorded in a Word Document.

Implementation and Data Analysis

Each interview was conducted in a conference room at each participant's respective clinic. Interviews took place during the afternoon of February 14th, 2020. Explanation of the Needs Assessment goals was provided to each participant, and as previously stated, they were all asked the same 10 open-ended questions.

It was revealed that all five participants agreed that obesity was a prominent problem, obesity affects a patient's quality of life, obesity adversely affects other health problems, and that there is a definite gap in care related to weight management. Participants had varying answers when asked if they felt patients understood the effect of their weight on their overall health status and other health problems, the barriers related to managing weight in primary care, and if providers/clinics would participate in weight management programs. Overall, participants had similar ideas and provided extremely insightful information in identifying gaps in care for effective weight management and ideas for programs moving forward.

With the information gained from this assessment, it is clear that weight management needs to be more effectively addressed. Researchers and providers have the opportunity to work

together to build the most efficient program to allow for the best outcomes in the obese population. The information from this assessment was addressed often as the project moved forward to build an efficient weight management referral process.

Aim and Objectives

The specific aim of this DNP project is to improve the referral process for the obese population to the weight management clinic over the course of 3 months with a goal of improving the efficacy of weight management in the addressed population by evaluating the number of appropriate referrals to the clinic. Objectives to help attain the specific aim are as follows:

1. Identify the at-risk population through weight and co-morbidity screenings during hospital admission.
2. Obtain the weight and co-morbidity screenings from within the health system.
3. Improve patient self-efficacy as it relates to addressing and managing their weight.
4. Train the admitting providers on the weight and co-morbidity screening and the improved referral process to the weight management clinic.

Review of Literature

A review of literature was conducted to reveal current evidence-based research regarding obesity in adults and how obesity is being managed within the healthcare system. An Evidence Table that reviews all literature can be found in Appendix C. A variety of databases were searched including MEDLINE, CINAHL, Google Scholar, and PubMed. Keywords for the searches varied across the databases and included: *obesity, weight management, specialty referrals, obesity in primary care, obesity patient education, specialty weight clinics*. The search results were narrowed by only including articles published from 2015-2020, only including peer-reviewed articles, addressed adult obesity, and written in English. The searches initially resulted

hundreds of results; once completely narrowed, less than 30 articles were found that helped address the topic of obesity management and how it is handled in the healthcare system.

Obesity Overview

Understanding the prevalence of obesity and how it affects co-morbidities is imperative to assist in relaying the need for effective weight management to patients. Recent statistics from the Centers for Disease Control and Prevention (CDC) noted that the adult obesity prevalence was approximately 42.4% and the annual medical costs for obesity is approximately 147 billion USD (CDC, 2018). The CDC clearly notes that obesity can lead to and affect other health problems such as certain cancers, cardiac conditions, and type 2 diabetes (CDC, 2018). Obesity is also a leading cause of preventable death (Bloom, 2018). Regarding increased risk factors in co-morbid conditions, there was a study published by the International Journal of Cardiology that followed 8815 hypertensive patients; that study revealed that the patients who had both hypertension and obesity had an increased prevalence of carotid plaques and increase in prevalent LVH (Mancusi, 2017). A study published by the American Journal of Kidney Disease covered the correlation between obesity and ESRD and found that obese patients had a 3.97-fold higher rate of ESRD risk (Kramer, 2015). In patients who have obesity and other health problems, it is imperative to address their weight just as any other health problem to holistically evaluate and treat their overall health.

Obesity and Primary Care Providers

Literature reveals that the majority of researchers agree that obesity management begins in the primary care setting; however, studies also show that weight management programs ran through primary care alone are sub-optimal (Aboueid, 2018). A 2018 study addressed PCPs knowledge of evidence-based guidelines for the treatment of obesity and the results revealed that PCPs understanding of appropriate clinical care for obesity is inconsistent with current evidence-based recommendations (Turner, 2018). The CDC (2020) recommends a multifaceted approach

to managing obesity; this is understandable as literature referenced primary care providers noting they felt their services alone were not sufficient for weight management (Aboueid, 2018). An article reviewing a small number of studies revealed that primary care providers have attempted weight management programs through telehealth check-ins, however many of those programs had low engagement, furthering the argument for face to face visits within a specialty clinic (Wolin, 2015). The Obesity Society published a study in 2019 that revealed there were 2,577 American Board of Obesity Medicine certified physicians in the United States and that there was at least one ABOM certified adult medicine physician in each state (Gudzune, 2019). This study reveals that there is a lack of access to ABOM-certified physicians and promotion of that training/certification could help address the disparities of weight management care across the country (Gudzune, 2020).

Currently, the Centers for Medicare and Medicaid Services Electronic Health Record Meaningful Use Incentive Program requires providers to document patients' BMI and follow-up treatment for adult patients with a BMI greater than or equal to 25. This requirement allows for an interdisciplinary approach to weight management, which has shown to be effective (Fitzgerald, 2017). The USPSTF recommends that patients with a BMI of 30 or greater will need referral to an intensive, multicomponent intervention (USPSTF, 2018).

Specialty Weight Management Clinics

Studies (Allen, 2015; Atlantis, 2019; Wadden, 2019) have shown that specialty weight management programs are cost-effective interventions that have shown success and allows primary care providers to follow their patient's weight management without building the treatment plan themselves. Specialty weight management clinics typically involve in-person visits, allowing for more patient accountability, which literature suggests helps with the success of the programs (Allen, 2015). A recent study on obesity revealed that with a multi-disciplinary approach, body composition changes and improved health outcomes were noted after a minimum

of 12 months of participation in a specialty program (Atlantis, 2019). A study by Wadden et al. (2020) noted that participants in a face-to-face program with a trained interventionist, lost up to 8% of their weight, experienced improvements in co-morbid risk factors, and reported improved quality of life over a 6 month period (Wadden, 2020). The program participants used in the aforementioned study did not utilize pharmacologic interventions, only lifestyle and behavior modifications (Wadden, 2020). A 2018 study followed 206 patients over the course of a 12-month non-surgical weight loss intervention and a 3 year follow up; the results revealed a successful program with average BMI being reduced by 9 kg/m², reported improved quality of life, and a greater than 10% weight loss being maintained at 3 years for half of the participants (Weimann, 2018). The Journal of Eating Disorders published a study in 2017 that found success with a non-surgical, multi-professional obesity treatment program; the study revealed that a 5% drop in BMI for 41.4% of participants in this program within the first year, the study also found that participants reported a greater quality of life after completing the program (Pjanic, 2017).

The UK has a tiered approach to weight management within the healthcare system; Tiers 1 and 2 are managed with PCPs and the patient, and Tiers 3 and 4 are more severe cases with obesity and co-morbidities that require specialty referral (Zakeri, 2018). Research shows that those Tier 3 and 4 patients had improved health outcomes post-referral (Zakeri, 2018). Another study in the UK followed 149 obese patients who were also diagnosed with DMII who took part in a new weight management program; 46% of participants were able to be completely taken off their DMII medications and had normal A1Cs and 24% had a weight loss of at least 15kg (Lean, 2019). The UK's model shows that specialty referral can equate to success in managing weight in an outpatient setting without surgical intervention (Zakeri, 2018).

Non-Surgical Weight Management

While bariatric surgery has shown great efficacy, not all obese patients wish to go through surgical interventions to lose weight. There is current literature that highlights the

efficacy of weight loss through non-surgical intervention. A common difference between the literature found showed that the amount of time it took to lose the excess weight and see a change in health outcomes was longer than for those who chose a surgical intervention.

A 2019 study followed 206 patients through a non-surgical weight loss intervention; the average BMI was reduced from 49 to 38 with reported improvements with comorbidities and quality of life, it was also noted that a weight loss of greater than 10% was maintained by half of the patients at the 3year mark (Weimann, 2019). A study published in the Journal of Eating Disorders discussed the efficacy of multi-professional, non-surgical obesity treatment program; it revealed that a BMI reduction of at least 5% was found in 20.6% of participants after 3 months (Pjanic, 2017). An article published by Diabetes, Obesity and Metabolism reviewed the effect of non-surgical weight management on weight and glycemic control in obese patients with Type 2 Diabetes; results revealed that weight management intervention may be more effective in glycemic control than pharmacological alternatives (Botha, 2018). Finkelstein and Verghese (2019) discussed the cost-effectiveness of non-surgical weight management compared to bariatric surgery (BS); conclusions revealed that non-surgical interventions, whether they be through lifestyle modifications or new non-invasive procedures came at a lower cost overall to the obese patient. Most recently, a 2020 study in Sydney followed diabetic, obese patients in a multidisciplinary weight management metabolic program for 6 months; the study found that participants had a 0.47% reduction in hbA1c, improvement in glycemic control, and a reduction in insulin dosing (Medveczky, 2020).

Obesity Education for Patients

It is evident that knowledge deficiencies and lack of compliance play a large role in managing weight in the obese population. A survey of 1,509 American adults revealed that 81% considered obesity to be the most serious health problem facing the nation tying cancer and

ahead of diabetes (72%) and HIV/AIDS (46%) (Rosenthal, 2016). In that same survey, 94% of Americans agreed that obesity would increase risk for early death, but were unsure of any treatment modalities (Rosenthal, 2016). Further research is needed to determine more efficient processes for obesity education.

Gaps in Literature

While there have been studies showing the successes of specialty weight management clinics, there is most certainly a noted need for more research to continue to evaluate the effectiveness of the specialty clinics. Many studies found that primary care providers were unable to provide effective weight management and found a need for referral, however, follow-up studies showing body composition or health outcomes after referral were not as readily available through searches. It is hoped that with this project information about the effectiveness of weight management clinics can be better understood and shared. Studies found during the literature review rarely addressed following up on weight loss after starting with a weight management clinic; this type of evidence could be very useful and is a large gap in the literature.

The proposed quality improvement DNP project for developing a new referral process to a health systems Weight Management Clinic has a notably strong foundation of evidence to support its need based on the current evidence-based knowledge revealed during the literature review. The review of literature highlights the barriers primary care providers face when attempting to manage weight in their setting and the need for specialty clinic referrals to help manage patient's weight most effectively. The review of literature also showed how health outcomes and management of chronic diseases are positively affected by effective weight management. The evidence found strongly supports the need for the proposed DNP project.

Theoretical Framework

Lewin's Change Theory

Within Lewin's Change Theory, there are three noted stages of change: unfreezing, change, and refreezing. Along with the three stages of change, there are also three concepts: driving forces, restraining forces, and equilibrium (Pettiprin, 2016). Driving forces are those that help push for change, restraining forces hinder change, and equilibrium is an area without pushing or hindering with no change. The unfreezing process requires finding a method that allows those affected by change to become more accepting and willing for change. The change process involves implementing and evaluating the change. The refreezing process establishes the new practice as standard procedure. These pieces build upon one another to foster change within a system (Petiprin, 2016). Due to the currently inefficient referral process within the health system for this DNP project, the Change Theory will provide a supportive and appropriate theoretical framework to guide this project's implementation of change.

Change Theory Concepts

Driving forces, restraining forces, and equilibrium are the main concepts of the change theory. Unfreezing, change, and refreezing are the key stages within this theory (Petiprin, 2016). This theory proposes the idea that change is accomplished by individuals who are influenced by driving forces that counter restraining forces that focus on maintaining the status quo (Wojciechowski, 2016). Utilizing this theory allows for those wishing to implement change the ability to identify potential barriers and assets for implementation of change. See *Appendix E* for Concept Mapping.

Driving Forces

Forces that push in a direction for and shift the equilibrium toward change are considered driving forces (Pettiprin, 2016). A significant driving force within the system is that the majority of the staff are open to change and have voiced their request for a change prior to the building of

this project. Clinic and hospital staff as well as clinic and hospital leaders acknowledge the need for change and have highlighted their willingness to support a new model for referring patients to the Weight Management Clinic. The Needs Assessment overwhelmingly indicated a perceived need for change; nurses, providers, and secretaries explained the inefficiencies with the current referral process to the weight management center and revealed their desire for change. The health system where this project was implemented prides themselves on continuing to update their knowledge and implement evidence-based protocols; this is an important driving factor as the literature review revealed that current evidence supports the utilization of specialty weight management clinics to best treat obese patients.

Restraining Forces

Forces that hinder change because they push in the opposite direction of driving forces are known as restraining forces (Pettiprin, 2016). The first restraining force that was noted was that many admitting providers within the health system reported a lack of knowledge regarding what the Weight Management Clinic offers or how to order a referral to the clinic. Another notable restraining force is that the providers who would need to learn about the change and add referral to the clinic at discharge to their order set are typically very opposed to change. It will take a few visits with the admitting providers during work hours while they are logged onto their computers to educate them on the new process and guide them through the referral process. It will also likely take a few follow-up visits after implementation to remind providers to continue to utilize the new order set. A large restraining force that has been revealed is that working with corporate IT is commonly a slow process. Corporate IT will play a role in this project as they must approve the new order set and add it into the Epic system once approved. It has been reported that the process of change inside Epic with corporate IT can be a lengthy process.

Equilibrium

The final concept in Lewin's Change Theory is Equilibrium. This is the state where

driving and restraining forces are equal and no change is occurring is the equilibrium. A raising or lowering of the equilibrium can occur with changes between the driving and restraining forces (Pettiprin, 2016). Once the new order set is released in the EMR and providers are properly educated on how to utilize the set, PDSA cycles were completed to address any hindrances to the process of making appropriate referrals are made to the weight management center, ensuring a state of equilibrium.

Change Theory Stages

Stage One: Unfreezing

The first stage in this Lewin's Change process is where there is recognition of the need for change or a desire for change arises. This stage is known as Stage One or "Unfreezing" (Pettiprin, 2016). A Needs Assessment was conducted within the health system to identify any potential needs for change. The provider and other staff at the Weight Management Clinic immediately voiced the need for a more efficient referral process to the clinic. Along with them, outside providers voiced the need for help with managing weight from the outpatient setting and needing a better understanding of what the clinic offers. After reviewing the current order protocol for a referral to the clinic, it was found that there is no discharge order set for referral to the Weight Management Clinic. This means the provider ordering the referral must type out the preferred order into a text box, which often leads to incorrect or missed referrals. It was also uncovered that the admitting physicians had no desire to learn about a new order set or be responsible for adding new orders to the already lengthy discharge order set. The opposition from the admitting providers and the support from the clinic staff pushes for and against the change. Recognizing these assets and barriers were helpful in building the order set for implementation. Staff mediation and education during work hours while they are logged into the computer, staff surveys, review of old and building of new protocols, and development of the new order set for weight management clinic referrals was completed during this unfreezing

stage.

Stage Two: Change

The second stage is known as the change stage and it involves changing thoughts, feelings, and behaviors (Pettiprin, 2016). It has been noted that this is often the most difficult stage as opposition to change is common. Lewin noted that influential factors facilitating change include connecting with powerful leaders who support the change, working to find relevant information that supports the change, and persuading others that the status quo is ineffective (Wagner, 2018). This is the stage in which actual practice change will occur within the health system. The change will include implementing the new order set for referral to the Weight Management Clinic. The order set was added into the list of potential discharge orders that admitting providers utilize. During this stage, admitting providers were educated during their working hours and while providers were in their offices on computers about the new order set, how to find the order set when putting in discharge orders, and what criteria must be met to validate a referral to the Weight Management Clinic. Through PDSA cycles, the order set for referral was continuously reviewed and its use encouraged throughout this stage. The desired outcome that all admitting providers will utilize the referral order set consistently, without push back, was achieved when more referrals were completed to the Weight Management Clinic.

Stage Three: Refreezing

Once the change has been implemented, established in practice, and becomes the new standard procedure of operating, the third stage, or re-freezing occurs (Pettiprin, 2016). Continued utilization of the new referral order set and support from health system leaders are important in this stage to ensure that the change remains the “new normal” or standard procedure. Monitoring the number of new referrals to the number of referrals coming in per month prior to the change was an important piece of data to help understand if the change was effective or ineffective in increasing the number of referrals. There was a pre-implementation

survey and post-implementation survey. The outcome of the data analysis was reported to health system leaders and providers on the inpatient side and the clinic side of the health system to assist in “refreezing” the referral process and continue on a positive pathway.

Summary

The theoretical framework that was utilized and guide this DNP Quality Improvement project is Lewin’s Change Theory. This theoretical framework allowed the best opportunity to implement change by first identifying potential barriers as well as driving factors towards change within the system. The utilization of this framework assisted in building a better referral system to the weight management clinic, with the goal of increasing the number of patients referred, leading to better health outcomes for those patients.

Methodology

Project Design

The proposed DNP quality improvement project was a quasi-experimental study design. The proposed project compared the number of weight management clinic referrals in the 6 months prior to implementation to the number of referrals to the weight management clinic during the three-month implementation phase of utilizing a more streamlined referral process. Quasi-experimental studies do not have a randomized control trial and often evaluate the effectiveness of an intervention by comparing pre-intervention data to post-intervention data (Harris, 2006). Understanding the logistics of quasi-experimental studies, which includes evaluation of pre and post intervention data, makes it clear that the use of this design is appropriate for the proposed project.

Project Description

The project implemented a new, streamlined option for ordering a referral to the Weight Management Clinic when placing discharge orders for an admitted patient at a local healthcare

system. Research has shown that a multi-disciplinary approach to weight management and the utilization of specialty care in the obese population has provided successful results in effectively managing weight and other co-morbidities (CDC, 2018). The project began with a review of the number of new patients referred to the weight management clinic in the previous 6 months, a survey administered to admitting providers to assess their understanding of the weight management clinic and how to order a referral, and an assessment of the current referral process to identify gaps and weaknesses. Once the gaps in the referral system were noted, a new order set was built and a request to change the order set to the new version was submitted to corporate IT at the identified hospital. Once approved, the new referral process was utilized to help admitting providers more easily refer patients to the weight management clinic at discharge. It was expected that the number of new referrals to the weight management clinic would increase by at least 5% during the three-month implementation phase.

Setting

The proposed project took place at a local healthcare system in Northeast Arkansas. The healthcare system is a 230-bed, acute care facility that also houses a 35-bed inpatient rehabilitation facility. The healthcare system employs over 1,800 staff members within their entity, which includes the hospital and clinic staff. The healthcare system cares for patients across a vast number of Arkansas counties and three states (AR, MO, TN). The healthcare system also houses the only specialty weight management clinic in an 80-mile radius. The Weight Management Clinic at the project's health system treats obesity with non-surgical interventions. The Weight Management Clinic starts the treatment process with a consultation, starts lifestyle modification plans, and adds pharmacologic treatment only if necessary; no invasive procedures are ordered from this clinic.

Study Population

The study population included approximately 18 admitting providers at the healthcare system and approximately 9 hospitalist group registered nurses. The included staff was educated during working hours about services the weight management clinic offers, the criteria for being referred to the weight management clinic, and how to utilize the new order set to add in a referral to the weight management clinic at discharge. The included staff are those who are responsible for placing discharge orders. Admitting physicians will either place the discharge orders themselves, or they will ask their assigned nurse to place all the discharge orders for them and then they will review the discharge orders and then sign them. Since both admitting physicians and nurses place the discharge orders, they will all be educated through e-mail and staff meetings about how to place the new weight management clinic referral order in the discharge order set. Adult patients who are admitted to the healthcare system and meet criteria for weight management clinic referral were involved in the project. The sample size included all newly referred weight management clinic patients within the 3 month implementation phase from January 2020 to April 1st, 2021. Exclusion criteria for the study will be patients under the age of 18, patients who were referred inappropriately, and patients who were referred from the outpatient setting.

Implementation

Study Interventions

Throughout the DNP Project implementation there were multiple interventions implemented. First, the new order set for the project was made “live” in the site’s electronic medical record system, Epic and providers and their nurses were made aware of the “go live” date and were educated on the process of using the new order through meetings and print-outs. After implementation began, it was noticed that a particular physician team was not utilizing the order set as much as they could be, a second intervention that was planned was to set up a

meeting with that group and discussed the low utilization rates and barriers to utilization. After the meeting with the physician groups, new printouts were made and placed above physician workstation computers to help serve as reminders to utilize the new order set. A table covering implementation interventions can be found in *Appendix Q*.

Pre-Implementation Phase

The DNP project proposal was reviewed and accepted by the EMSON staff and project committee on October 13th, 2020. The project proposal was then submitted to the Institutional Review Board (IRB) on November 20th, 2020. While awaiting IRB approval, the principal investigator began collaborating with the project site's IT team to prepare for implementation of the project's new order set in the site's electronic medical record system, Epic. During this time, the Principal Investigator (PI) also met with the site's hospitalist physician group to discuss the order set changes that would be coming in once the project was approved for implementation. The PI also provided them with print outs of what the new order set would look like along with written steps on how to place the order in Epic. Other steps taken during this pre-implementation phase included meeting with the site champion and quality team to go over project status and goals, reviewing data collection tools to ensure they were ready for data input, and reviewing similar projects to determine the best options for statistical evaluation and dissemination of results.

Implementation Phase

On January 12th, 2021, the University of Arkansas Institutional Review Board approved the project proposal for implementation. On the following day, the new order set for the project went "live" in Epic. On January 18th, 2021, the principal investigator attended the hospitalist group's evening meeting to discuss the project's implementation and answer any questions that the providers may have had once they were able to access the order set. During the meeting, educational print-outs were provided that gave step by step screenshots of how to order the

referral in Epic as well as helpful phone numbers to the IT department and the specific IT person working with this project if help was needed during a time that the PI was not at the site.

On January 25th, 2021, the first data collection point occurred. The PI went through the recent admissions and discharges of the hospital, screening for patients that met referral criteria and checking to see if those who met criteria were referred at discharge. At the time of the first data collection point, there was a 57% physician utilization rate of the new order set and 7 of 18 eligible patients had referrals placed to the weight management clinic. On Feb 8th, data collection revealed a 60% physician utilization rate and 5 of 8 eligible patients were referred to the weight management clinic. Future data collection points include February 22nd, March 8th, March 15th, and March 22nd. During data collection, a retrospective review of charts of patients who had been admitted and discharged in the previous two weeks. During the review, it was determined if discharged patients met criteria to be referred to the weight management clinic and if they were or were not referred. Patient number, if they met criteria and if there were or were not referred was placed into the excel spreadsheet and saved on the PIs personal, password-protected computer.

Throughout implementation, the PI met with the hospitalist group bi-weekly to review implementation data, answer any questions providers may have, discuss any barriers noticed, and continued to encourage utilization of the referral order set. On February 1st, 2021, the PI met with the hospitalist group at their evening meeting to discuss the importance of utilizing the new order set that had been built. To emphasize how important the weight management referrals are, a PowerPoint was presented that covered current data on how managing weight in obese patients can help improve health outcomes and decrease readmission rates, both of which are end goals for this project. To continue to encourage referrals, a print-out of the order set steps was added to the bulletin boards in all physician computer labs to serve as a reminder and a quick reference.

Plan-Do-Study-Act Cycles

Implementing Change

The objective of this cycle was to begin the DNP Project implementation, with the change idea being satisfactorily beginning the implementation. The plan was to begin the project implementation by January 15th, 2021. What was done was to attend physician meetings and hospital huddle meetings to introduce the new order set and project implementation prior to the beginning of implementation. To study, data collection tools and the project protocols were reviewed to help with a seamless implementation. The action taken was to begin implementation and follow up with providers and nurses about any challenges that were noticed.

Data Collection

The objective for this cycle was to begin collecting data for the DNP Project, with the change idea being to effectively and efficiently collect data related to project implementation. The plan for this cycle was to initially collect data by March 1st, 2021. To be done in this cycle was to meet with weight management clinic staff to review new referrals and to meet with hospitalist physicians to review utilization of the new order set. To study, data collection tools and project protocols were reviewed to help continue implementation and simplify the data collection process. Action taken in this cycle was to continue implementation, collect data with the weight management clinic, and log data in the excel workbook.

Evaluating Successes and Challenges

The objective for this cycle was to continue implementation of the DNP project with the change idea being to continue to effectively and efficiently collect data during project implementation and address barriers with physicians and their nurses. The plan for this cycle was

to evaluate and address implementation barriers. To be done in this cycle was to meet with physicians to address low utilization rates and determine ways to work around those barriers. To study, compliance was reviewed and data was compared to previous changes within the system. Action taken in this cycle was to continue implementation, continue collecting data, and continue to encourage utilization of the new order set.

Addressing Barriers

The objective for this cycle was to address implementation barriers with the change idea being to address implementation barriers and continue with project implementation. The plan for this cycle was to collect data regarding physician compliance with project implementation. To be done in this cycle was to discuss low utilization rates with the order set and identify barriers to compliance by meeting with the physicians during their weekly handoff meetings. To study, previous change implementations were reviewed to look for any trends with low compliance and determine ways to adjust the project to overcome the current barriers. Action taken during this cycle included continuing implementation, collecting data with the weight management clinic staff, and logging collected data into the excel workbook.

Post-Implementation Phase

The implementation phase ended on April 1st, 2021 which is when the post-implementation phase began. Data collection ceased at 11:59pm on April 1st. All data from each week of collection was reviewed and re-evaluated to ensure the numbers were correct before building data tables for result dissemination. Each week's results were reviewed and placed into the data collection charts. Once all data was placed into the collection charts, data tables were built to efficiently show the project results. After the data tables were complete, they were added to the final project paper and the project dissemination presentation was created. All steps taken

during implementation to encourage usage of the new order set were continued throughout the site, as the project's order set will remain live in their EMR.

Study Measures

Conceptual Definitions

The order set that was implemented during this project was placed into the electronic health record at the site. It can be located through search and selection of “referral to weight management clinic” or under the “discharge referrals” tab. For the purpose of this study, “appropriate weight management referral” was defined as utilizing the newly implemented order set to refer a patient who meets criteria to be seen in the weight management clinic .

Operational Definitions

Criteria to be referred to the Weight Management Clinic includes the following: Have a BMI of 28 or greater, or have a BMI of 25 and one or more co-morbidities such as HTN, DMII, COPD, or CHF. Obesity and overweight will retain their standard definitions based upon a patient's BMI; overweight is having a BMI between 25 to 30 and obese is a BMI of 30 or greater. Appropriate referrals to the weight management clinic were evaluated through weekly chart reviews that revealed recently discharged patients and their discharge orders. The weekly chart review also revealed compliance, or lack thereof with the new order set at discharge.

Outcome Measures

Outcome measures for this project were to increase the number of newly referred patients to the health system's Weight Management Clinic by at least 5% over a three-month project implementation period. Outcome measure data was collected weekly by utilizing the electronic medical records to review recently discharged patients and their discharge referral orders. A chart review that covered the 6 months prior to the implementation phase was

conducted to obtain the data for comparison at the end of the implementation phase. Parameters included patients that were at least 18 years of age and were referred from the inpatient setting to the Weight Management Clinic at discharge. The chart review results were used to reveal the differences in number of referrals from prior to the implementation to post-implementation. It was expected that the number of newly referred Weight Management Clinic patients would increase.

A second outcome measure was to assess staff and provider satisfaction with the new order set in comparison to the previous protocol. This outcome was measured by a post-intervention survey that inquired about the ordering persons' satisfaction with the new order set. The post-implementation survey results was compared to the Needs Assessment survey results to validate or invalidate the satisfaction with the new order set. To best understand and compare results the needs assessment survey and the post-implementation survey had the same questions.

A third outcome measure was to follow the readmission rates of a sample size of the obese patients admitted to the hospital. For this project, the sample consisted of patients who were both overweight and had a diagnosis of CHF. It was expected that with more efficient weight management, the patients studied would have a lower readmission rate. It has been previously noted that over 80% of readmitted patients at the site were overweight and large number of those patients also had a diagnosis of CHF. It was hoped that with allowing more an easier referral process, the patient sample size would be able to have their weight effectively managed in the outpatient setting.

Process Measures

The percentage of admitted patients that are referred to the weight management clinic at discharge was one of the process measures to studied. The data was collected from the health system's electronic medical record every week and evaluated the total number of patients referred to the weight management clinic at discharge. To find the percentage of appropriate

referrals, the number referred was divided by the total number of patients discharged during that time frame. At the time of implementation, patients were not routinely being referred to the weight management center at discharge and the goal was to make the new order set a standard procedure and increase the number of patients being referred to the weight management clinic.

Another process measure was to monitor provider compliance in utilizing the new order set. Without compliance, the patients will not get properly referred, which misses the opportunity to treat the patient in the outpatient setting and may lead to more readmissions, which does not benefit the patient. Compliance data was obtained through chart reviews that noted how consistently the order set was being used. This data was collected every week along with previously mentioned data within a codebook to maintain data organization throughout implementation. The expected compliance rate is 100%, the goal compliance rate is 80%. It was expected that if providers could meet the 80% compliance rate, the site would be able to reach the 5% increase in referrals goal.

Balancing Measures

Balancing measures included the number of patients who maintain follow up with the weight management clinic, readmission rates for the obese patients, and medication changes that reflect better control of disease processes. It is hoped that all patients who are referred to the weight management clinic will maintain their follow-ups, however that is an unrealistic expectation. Monthly chart reviews will reveal how often the patient is following up at the clinic or if they have not followed up at all. It is also hoped that with a weight management referral, the patient will see improvement of other health problems as their weight becomes better controlled. Chart reviews will also show data related to the patient's readmission rates and any medication or diagnosis changes that may occur.

Benefits and Risks

There is the potential for emotional strain when discussing weight management with patients, especially those who may be embarrassed by their weight or those who may deny their weight is an issue. This strain was attempted to be minimized by ensuring discussions about weight management are done in private and patients are educated based on their level of learning about the benefits of effectively managing their weight. There is no expected economic risk or risk of confidentiality breach within this study.

Benefits related to this study include appropriate referral to effectively manage weight at the clinic, better health outcomes for the patient through adequate weight management, less severe co-morbid conditions, decrease in the amount of medication needed to control other health problems, and increased quality of life. The overall physical benefit is better health outcomes for the overweight population through effective weight management. Economic benefits of more effectively managed overweight patients could include a decrease in hospital readmission rate related to weight and associated co-morbidities. There is also the opportunity to lower medication costs if dosages can be lowered or discontinued once the patient adequately controls their weight and co-morbid conditions.

Subject Recruitment

Study participants included 15 admitting providers, 6 hospitalist nurses, and 5 floor charge nurses that are involved with the discharge process. Staff members involved were recruited prior to project implementation and education participation. Each participant was educated through paper printouts and verbal instruction about the project and its goals.

Consent Procedures

Consent forms were determined by IRB to be unnecessary. Since the data being collected was unidentifiable to each patient studied, IRB noted that an informed consent was not needed. Hospital and WMC staff as well as discharged patients being referred were all educated through paper printouts and verbal instruction about the project and its goals.

Subject Costs and Compensation

There were no costs or any compensation provided to subjects at any point throughout this project.

Project Timeline

The project timeline ranged from November 2020 to April 2021. See *Appendices* for Gantt chart.

Resources Needed and Economic Considerations

Resources needed for this project include hospital owned computer systems for educational purposes and for the use of chart reviews during data collection points. Surveys will be administered on paper and was kept in a 3 ring binder with other printed project information. There is no expected additional cost to the facility for this project. The education sessions occurred during already scheduled work times, which allows for no additional monies to be spent on hourly wages to bring staff in for the purpose of education within this project.

Evaluation Plan

Data Maintenance and Security

Data for this Quality Improvement DNP project was collected using the healthcare system's electronic healthcare records. The data collected from this system included information related to each patient's body composition and whether or not the patient was referred to the Weight Management Clinic at discharge. Data obtained was de-identified. It was stored in the codebook Excel sheet (see *Appendices*) on the investigator's password protected MacBook. No other persons had access to the investigator's data without the knowledge of and permission from the investigator. There was no personal or other identifying data retained in the codebook. The numbers reflected the number of discharged patients, their BMI, if they met criteria for referral and if they were referred.

Data Analysis

The success of the objectives and measures of the project's implementation was determined through data analysis throughout and at the end of the project. Data was extracted from the hospital's electronic medical record system to determine the total number of patients referred and total number of patients discharged. This data was collected weekly and at the conclusion of the implementation period. The number of patients referred to the weight management clinic divided by the total number of patients discharged will provide the percentage of referred patients. Compliance with utilization of the new order set was measured by analyzing the percentage of staff ordering the referrals through the order set through weekly chart audits as compared to ordering outside of the set, or not ordering the referrals. Descriptive statistical analyses were used for this project. The University of Arkansas SMSS Staff helped appropriately evaluate and analyze the collected data. The pre and post implementation surveys had the same questions about satisfaction with the previous and current order set and responses were logged and compared to determine if providers preferred the change.

The objectives of this project included increasing the number of weight management clinic referrals, decreasing readmission rates for obese patients, and providers consistently using the new order set for referral. Analyzing this data will allow the investigator and the health system to best understand if the new order set was successful.

In the six-months prior to project implementation, it was determined that 26 patients had been referred to the site's Weight Management Clinic. Through three months of implementation, 162 patients that were admitted to the site were found to have met criteria to be referral to the Weight Management Clinic. Of the 162 patients that met criteria, 77 patients had the referral for the Weight Management Clinic placed at the time of their discharge from the hospital. Of the 77 patients that were referred 68 of them had their

referral placed through the new order set that was implemented with this project, the other 9 had “free-text” orders for the referral. Five of the 77 referred patients were flagged as “previously admitted” patients in the site’s EMR and during the three-month implementation, only one of those five was re-admitted. One of the project’s goals was to have 80% compliance with the order set meaning providers utilized the new order set at least 80% of the time with referral-eligible patients, the final number for project data was 47.5%; however when the referral was ordered, the order set utilization was at 88%. A second goal was to have 80% of eligible patients appropriately referred to the Weight Management Clinic, the final number for this project was 47.5%. A third goal was to increase the number of Weight Management Clinic referrals by 5% from the previous 6 months. There were 51 more patients referred to the Weight Management Clinic during the project, which showed a 35% increase in referrals. While not all goals were met, there is a clear clinical significance revealing the order set utilization can help ease the referral process and get new patients into the Weight Management Clinic. The tables revealing the received data can be found in *Appendices*.

Recommendations and Discussion

Economic and Cost Benefits

The CDC estimates the yearly health cost of obesity to be approximately 147 billion dollars in the United States. The CDC goes on to state that the cost continues to rise once other co-morbidities are factored in that are affected by obesity (CDC, 2020). Providing specialized intervention with weight management should allow the patients and hospitals lower annual costs as their health outcomes are expected to improve in the outpatient setting with effective control of their weight.

Healthcare Quality Impact

By identifying patients who meet criteria for weight management during admission, the admitting staff can implement the weight management clinic referral prior to discharge, advocating for the patient to gain control of their weight and ultimately their health outcomes. The CDC and WHO promote screenings for obesity and recommend primary care providers address weight within their clinic, or provide a referral (CDC, 2020). Without appropriate intervention, obese patients are likely to incur higher medical costs, frequent readmissions, and a shorter life expectancy (CDC, 2020). Admitting providers have the opportunity to advocate for better health outcomes for these patients while lowering hospital costs and readmission rates by referring appropriate patients to the weight management clinic at discharge.

Policy Implications

Currently, the only noted policy related to weight management is through the Centers for Medicare and Medicaid Services' Meaningful Use Program. As a part of this program, providers are required to document body mass index and a follow-up treatment plan for adult patients with a BMI of 25 or greater. Failure to comply with this requirement can result in loss of incentives and future reimbursement from CMS (CMS, 2020). It is hoped that with proven success of specialty weight management clinics, future policies at both the local and national level can be developed to continue to push for effective weight management.

Translation

This project was conducted so it could be translated into any health system that provides a specialty weight management clinic, or any specialty area that required a referral. This new order set is specific to the identified healthcare system but could be easily modified. While the specific orders could not be translated outside of health system in which the study is being performed, it would not take much modification to implement a similar order set within any health system that wished to streamline a referral process to a specialty clinic.

Sustainability

Administrative support within the hospital is imperative for a change to be sustained. Through the development and implementation of this new order set, it is expected that patients will experience a greater control over their weight and greater health outcomes which will likely reduce hospital readmissions and hospital costs. It is hoped that with successful implementation of the new order set, hospital administration will continue their support of the new referral process. Admitting providers and their staff must be consistent with their use of the order set and continuing staff education may be needed to retain compliance. Administrative and staff support of the change will greatly affect the sustainability of this project.

Dissemination

Program development and result evaluation of this quality improvement DNP project was disseminated to the University of Arkansas Eleanor Mann School of Nursing for the Doctor of Nursing Practice project presentation. Results were also disseminated to the identified healthcare system's Hospitalist group staff, Weight Management Clinic staff, and hospital administration. The final dissemination presentation was given through power-point presentation to the Obesity Support Group at their monthly meeting. The dissemination was conducted in person between the investigator and the different audiences through written paper and power-point presentations. The results were also submitted to the *Journal of Obesity Management* for publication.

Professional Reporting

The project results were shared with the EMSON DNP instructors and the administration at NEA Baptist Hospital. A power point presentation and/or a poster presentation was utilized to present the results. These results were also presented to the *Journal of Obesity Management* for professional publication. The results are planned to be submitted to the American Nurses Association when they announce their next nursing forum or

conference so that those that may be interested in the results and their impact within the healthcare provider community was to be exposed to the project results.

Conclusion

This proposed Quality Improvement Project can provide many health systems with insight on how to streamline the referral process to a specialty clinic. Education of the staff involved with this change will provide a greater opportunity for success and sustainability. The review of literature revealed a variety of sources noting the successes of specialty weight management programs as well as the improved health outcomes of those who are diagnosed with obesity and other co-morbid conditions who effectively manage their weight.

The project goals were not all met, but there was a positive clinical significance noted with the results. There was a 47.5% utilization compliance rate, 47.5% of eligible patients were referred to the Weight Management Clinic, and there was a 35% increase in the number of referrals to the Weight Management Clinic from the previous six months. The project results show a positive trend for weight management referrals and the new order set is projected to double the number of referrals from the previous year within one year of its implementation.

Further/future research could be implemented to evaluate body composition rates, cost savings, and other related information for the continuation of use of a specialty weight management program. Research related to implementing a referral process to a weight Management clinic could also be another area of further research. Sustained use of the streamlined referral process is imperative to improve hospital costs, readmission rates, and overall health outcome of the overweight population.

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Appendices

- A. Global Aims Assignment
- B. Process Flowchart
- C. Evidence Table
- D. Theoretical Framework
- E. Conceptual Model
- F. Gantt Chart
- G. Statement of Mutual Agreement for DNP Guidance
- H. Data Collection Sheets
- I. Copy of Educational Materials
- J. Copy of Questionnaires
- K. Copy of Surveys
- L. Recruitment Script
- M. Consent Form
- N. Copy of Approval Letters, if applicable
- O. HIPAA Completion Forms
- P. Copy of Site's IRB Approval, if applicable

Appendix A: Global Aims

Write a Theme for Improvement: We will improve the referral process from primary care clinics to the weight management clinic over the course of 3 months to help more efficiently address the obese with co-morbid conditions weight in our area.

Global Aim Statement

Create an aim statement that will help keep your focus clear and your work productive:

We aim to improve: referral process to the NEA Baptist Weight Management Clinic
(Name the process)

In: the obese with co-morbidities population at NEA Baptist Clinics and NEA Baptist Memorial Hospital

(Clinical location in which process is embedded)

The process begins with: identifying at risk patients who meet criteria for referral to weight management.
(Name where the process begins)

The process ends with: evaluating the number of at risk primary care and admitted patients that were able to be referred to the weight management clinic by March 30th, 2021.
(Name the ending point of the process)

By working on the process, we expect: more efficient weight management referrals and increased number of appropriate referrals to the weight management clinic.
(List benefits)

It is important to work on this now because: Our state has one of the highest obesity rates and the cost of managing obese patients with co-morbidities is ever increasing (ABW, 2016) (Brown & Reynolds, 2019). It was revealed in the Needs Assessment that effective weight management is a significant issue within primary care right now and that the referral process has been a part of the problem with getting patients to the weight management clinic.
(List imperatives)

Create Flowchart

Specific Aim Statement

We will: **X improve** **X increase** decrease

The: **X quality of** number of percentage of the referral process (improve quality of) to the weight management center which (increases the number of) appropriate referrals to the Weight Management Clinic in comparison to the current, confusing referral process.
(process)

By: increasing the amount of referrals to the weight management clinic by 10% in 12 weeks.
(percentage)

OR

From:

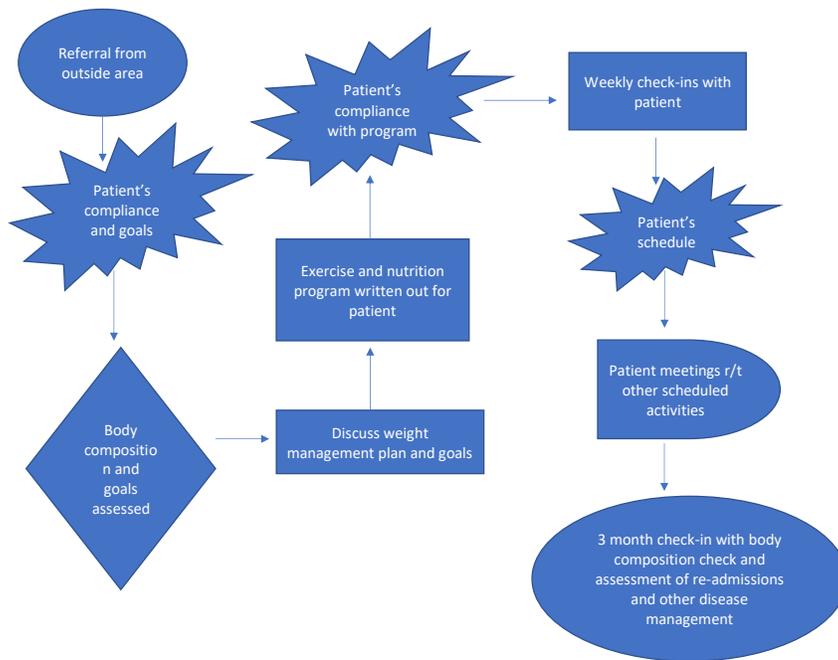
(baseline state/number/amount/percentage)

To/By: by 3 months of program implementation.
(describe the change in quality or state the number/amount/percentage)

By: 3 months after program start

(date)

Appendix B: Process Flowchart



Appendix C: Evidence Table


 College of Education and Health Professions
 Eleanor Mann School of Nursing

Appendix: EMSON Evidence Table

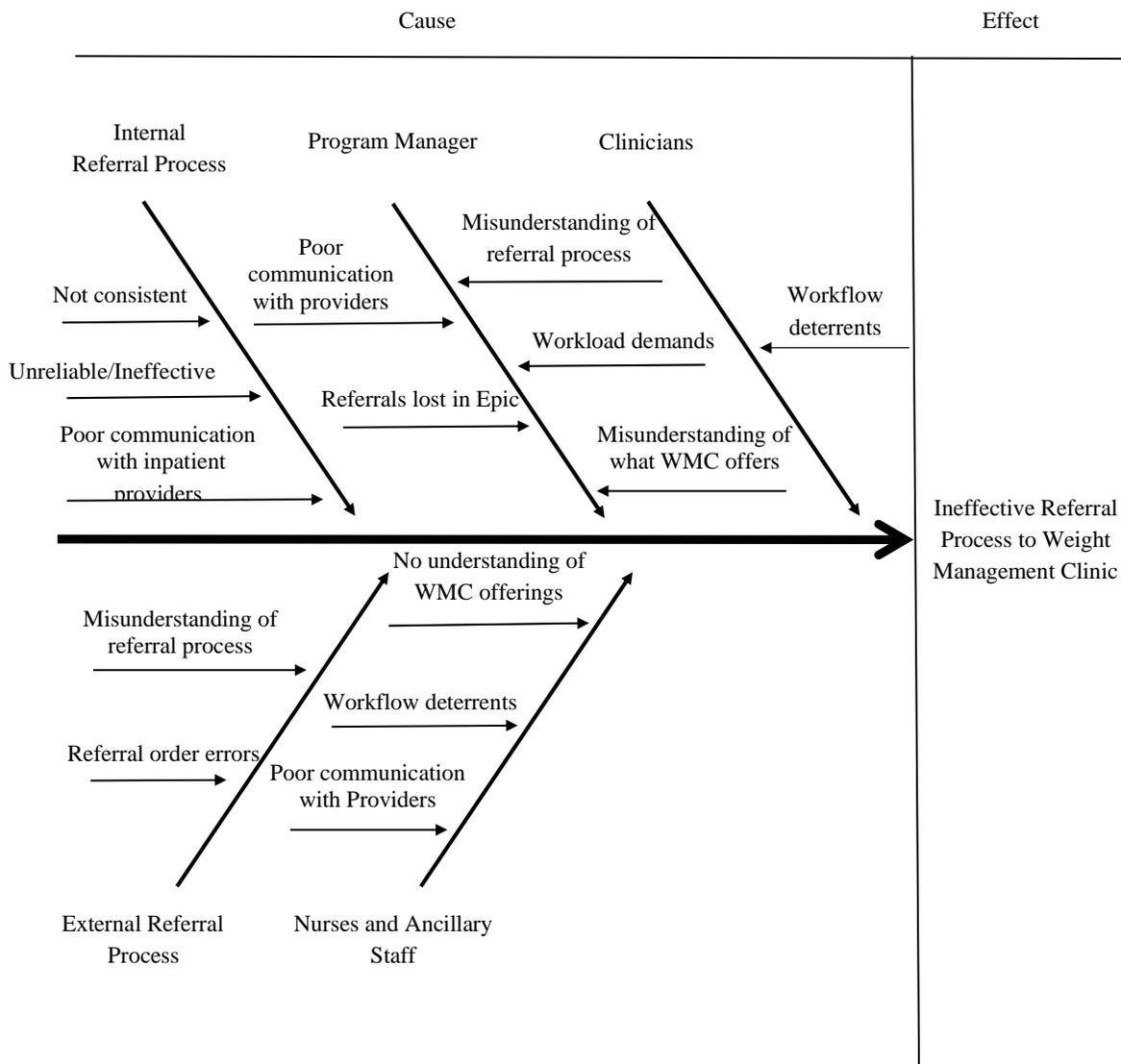
Authors	Year	Country where research conducted	Theory guiding the study and identification of variables	Independent or Treatment Variable(s)	Dependent or Outcome Variable(s)	Design type	Sample (N =) Method	Data Collection tools	Brief Summary of Results	Strength of evidence
A Laidlaw, C. Napier, F. Neaville, A. Collinson, J.E. Cecil	2019	Scotland	None identified	Interview and assessment of patient weight and concerns	Improved weight management for patients in the primary care setting	A cross-sectional questionnaire assessed PCP perceived knowledge, self-reported practice, attitudes towards overweight/obesity and actual knowledge regarding overweight and obesity management	N=107 707 practitioners were invited to participate, the final sample for the study was comprised of 93 GPs and 14 PNs.	Questionnaire	The aim of this study was to examine current knowledge alongside attitudes and reported practice of GPs and practice nurses (PNs) towards patient weight management, to gain insight into current primary care practice for patient weight management. 16.8% were aware of the 3 components recommended in a weight management program which shows GPs need more education/training on treating weight or how to refer to a specialty clinic.	4
L. Haynes	2019	USA	None Identified	PCP assessment and identification of weight problems	Effective weight management within primary care patients	Retrospective records review; Using a pre-test/post-test design, this quality improvement project targeted providers to increase knowledge, self-efficacy,	Convenience sample of 5 providers; second convenience sample of 212 patient records to review outcome	Questionnaire, interview	Despite an increase in obesity-related knowledge and management, health-related outcomes did not substantially improve. Results suggest the need to reduce barriers and implement interventions that can assist	3

						and practices related to the identification, diagnosis, management, and documentation of obesity.	es.		PCP's in translating evidence to practice to reduce rates of adult obesity in the primary care setting.	
Joseph, Pamela L. ; Bonsignore, Alis ; Kunkel, Gail E. ; Grace, Sherry L. ; Sockalingam, Sanjeev ; Oh, Paul	2019	Canada	None Identified	Sedentary factors in the obese population	Determining and overcoming barriers to exercise in the obese population	This was a cross-sectional study at a tertiary care center. Adults with class III obesity referred to the Bariatric Program completed the exercise benefits/barriers scale, the International Physical Activity Questionnaire Short-Form, and the Sedentary Behavior Questionnaire. Participants were asked to list additional exercise barriers	333 initial participants presented, 80 participants met inclusion criteria and finished study	Questionnaire, interview	Individuals with class III obesity engage in remarkably low levels of moderate-to-vigorous intensity physical activity, and are sedentary at least 10 hours per day. The key barriers to exercise reported were perceptions of physical exertion, embarrassment, pain, and musculoskeletal comorbidities; patients readily recognized the many benefits of exercise. This study identifies the importance of thoughtful exercise design with attention to exercise barriers for individuals with class III obesity. Exercise programs for this population should focus on minimizing pain during exercise, such as potentially through use of recumbent bicycles or cross trainers.	2
Carmen Sayón-Orea, MD; Cristina Razquin, PhD; Mónica Bulló, PhD; Dolores Corella, PhD; Montserrat Fitó, MD; Dora Romaguera, PhD; Jesús Vioque, MD; Ángel M. Alonso-Gómez, MD; Julia Wärnberg, PhD; J. Alfredo Martínez, MD; Luis Serra-Majem, MD; Ramón Estruch, MD; Francisco J. Tinahones, MD; José Lapetra, MD; Xavier Pintó, MD; Josep A. Tur, PhD; José López-Miranda, MD; Aurora Bueno-Cavanillas, MD;	2019	Spain	None identified	Dietary choices in the obese population	Effective weight management through dietary changes	Multicenter, parallel-group, randomized, single-blind clinical trial is evaluating the long-term effects	6874 participants initially presented a total of 6583 completed the	Questionnaire, physical assessment, body composition measurement	An intervention that encouraged an energy-reduced Mediterranean diet and physical activity, compared with advice to	

Miguel Delgado-Rodríguez, MD; Pilar Matía-Martín, MD; Lidia Daimiel, PhD; Vicente Martín Sánchez, MD; Josep Vidal, MD; Clotilde Vázquez, MD; Emilio Ros, MD; Miguel Ruiz-Canela, PhD; José V. Sorlí, MD; Olga Castañer, MD; Miquel Fiol, MD; Eva M. Navarrete-Muñoz, PhD; Fernando Arós, MD; Enrique Gómez-Gracia, MD; M. Angeles Zulet, PhD; Almudena Sánchez-Villegas, PhD; Rosa Casas, PhD; Rosa Bernal-López, PhD; José M. Santos-Lozano, MD; Emili Corbella, PhD; Cristina Bouzas, PhD; Ana García-Arellano, MD; Josep Basora, MD; Eva M. Asensio, PhD; Helmut Schröder, PhD; Manuel Moñino, PhD; Manoli García de la Herra, MD; Lucas Tojal-Sierra, MD; Estefanía Toledo, MD; Andrés Díaz-López, PhD; Albert Goday, MD; Jordi Salas-Salvadó, MD; Miguel A. Martínez-González, MD					of a lifestyle intervention including an energy-reduced Mediterranean diet, promotion of physical activity, and behavioral support for weight loss (intervention group) vs a control group following a traditional Mediterranean diet without any caloric restriction on cardiovascular events.	study		follow an energy-unrestricted Mediterranean diet, resulted in a significantly greater increase in diet adherence after 12 months. Further evaluation of long-term cardiovascular effects is needed		
John D. Omura, MD1 ; Emily N. Ussery, PhD1 ; Fleetwood Lousalot, PhD2 ; Janet E. Fulton, PhD1 ; Susan A. Carlson, PhD1	2019	United States		CVD + Obese population	Walking to reduce CVD risk factors	Continuous, cross-sectional survey of US households representative of the civilian, noninstitutionalized population and is administered by inperson interviews (19). NHIS consists of a core questionnaire that collects basic health and demographic information for all family members in a sampled household and periodic questionnaire supplements that address special topics.	N=29,742	Questionnaire, interview	Prevalence of any walking decreased with increasing CVD risk (no CVD/not at risk, 66.6%; at risk: overweight or has obesity with 1 risk factor, 63.0%; with 2 risk factors, 59.5%; with 3 risk factors, 53.6%; has CVD, 50.2%). After adjusting for respondent characteristics, the odds of any walking and leisure walking decreased with increasing CVD risk.	3

American Diabetes association	2020	United States	None CPG	Diabetic +Obese Population	Effective weight management to help lower medication need, A1C, and improve glycemic control	Practice guideline			<p>Recommendations 8.4 Diet, physical activity, and behavioral therapy designed to achieve and maintain 5% weight loss is recommended for patients with type 2 diabetes who have overweight or obesity and are ready to achieve weight loss. Greater benefits in control of diabetes and cardiovascular risk factors may be gained from even greater weight loss. B 8.5 Such interventions should be high intensity (\$16 sessions in 6 months) and focus on dietary changes, physical activity, and behavioral strategies to achieve a 500–750 kcal/dayenergy deficit. A 8.6 Individual’s motivation, life circumstances, and willingness to make lifestyle changes to achieve weight loss should be assessed along with medical status when weight loss interventions are undertaken. C 8.7 As all energy-deficit food intake will result in weight loss, eating plans should be individualized to meet the patient’s protein, fat, and carbohydrate needs while still promoting weight loss. A 8.8 Food availability should be queried, as well as other cultural circumstances that could affect dietary patterns. C 8.9 For patients who achieve short-term weight-loss goals, long-term (\$1 year) weight maintenance programs are recommended when available. Such programs should at minimum provide monthly contact, as well as encourage ongoing monitoring of body weight (weekly or more frequently) and other self-monitoring strategies, including high levels of physical activity (200–300 min/week). A 8.10 To achieve weight loss of .5%, short-term (3-month) interventions that use very low-calorie diets (#800 kcal/day) and meal replacements may be prescribed for carefully selected patients by trained practitioners in medical care settings with close medical monitoring. To maintain weight loss, such programs must incorporate long-term comprehensive weight-maintenance counseling. B</p>	

Appendix D: Theoretical Framework

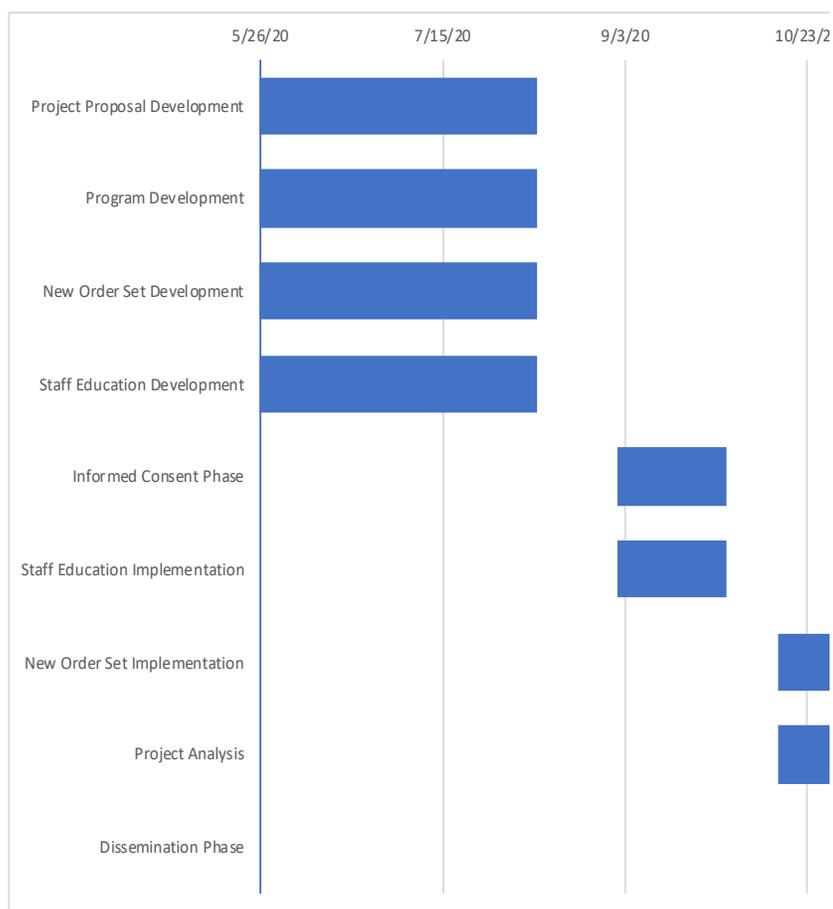


Appendix E: Concept Map



Appendix F: Gantt Chart

Task	Start Date	End Date	Duration
Project Proposal Development	5/26/20	8/10/20	76
Program Development	5/26/20	8/10/20	76
New Order Set Development	5/26/20	8/10/20	76
Staff Education Development	5/26/20	8/10/20	76
Informed Consent Phase	9/1/20	9/30/20	30
Staff Education Implementation	9/1/20	9/30/20	30
New Order Set Implementation	10/15/20	1/14/21	91
Project Analysis	10/15/20	2/14/21	120
Dissemination Phase	3/15/20	4/15/21	30



Appendix H: Data Collection Sheets

Measure of Interest	Time Period for Measure (Annual, quarterly, monthly, weekly)	Type of Measure (Process, Outcome, Balancing)	Operational Definition-Denominator	Denominator Exclusions	Operational Definition-Numerator	Numerator Exclusions	Data elements needed to operationalize the measure (list each data element separately, using multiple rows)	Location of data (clinical system, survey, quality department)
Patients referred to the weight management clinic	Bi-weekly	Outcome	Number of patients who meet criteria for weight management clinic at discharge	Patients under the age of 18. Patients who do not meet criteria.	Number of patients referred to the weight management clinic at discharge	Patients who do not keep their WMC appointment	If the patient met criteria and was referred the code will be Y=1. If the patient met criteria and was not referred the code will be N=2. If the patient did not meet criteria, the code will be I=3.	Bi-weekly EMR system chart review
Compliance with utilization of new order set	Monthly	Process	Number of admitting providers					
Pre and Post implementation survey	Pre and Post Implementation	Balancing	Providers who completed the pre-implementation survey	Providers who did not complete the pre-implementation survey	Providers who complete the post-implementation survey.	None	If the provider completes the survey, then the code will be Y=1. If the provider does not complete the survey, then the code will be N=2.	

Appendix I: Copy of Educational Materials

Appendix J: Copy of Questionnaires

There are no questionnaires for this study

Appendix K: Copy of Surveys

Pre-Implementation Survey

Job Title:

1. Are you aware of the Weight Management Center referral criteria?
 - a. Yes
 - b. No
2. In the past 6 months, how many times have you ordered a WMC referral?
 - a. None
 - b. 1-5 times
 - c. 6-10 times
 - d. Greater than 10 times
3. On a scale of 0-10 how would you rate your satisfaction related to ease of use of the current WMC referral ordering process? (0 being completely unsatisfied and 10 being extremely satisfied)
1 2 3 4 5 6 7 8 9 10

Appendix K: Copy of Surveys

Post-Implementation Survey

Job Title:

1. Are you aware of the Weight Management Center referral criteria?
 - a. Yes
 - b. No
2. In the past 3 months, how many times have you ordered a WMC referral?
 - a. None
 - b. 1-5 times
 - c. 6-10 times
 - d. Greater than 10 times
3. On a scale of 0-10 how would you rate your satisfaction related to ease of use of the new WMC referral ordering process? (0 being completely unsatisfied and 10 being extremely satisfied)
1 2 3 4 5 6 7 8 9 10

Appendix L: Recruitment Script

Hello. My name is Callie Talley. We are conducting a weight management referral screening project with a student from the University of Arkansas. The purpose of this research is to improve the referral process to the Weight Management Clinic. Your participation would include a quick interview to see if you meet criteria for referral. This interview should take less than 5 minutes to complete, and if you do not want to interview face to face, consent for a chart review will suffice for finding the information we need. If your interview reveals you meet criteria, your admitting provider will order the referral prior to discharge and your appointment will be set. Participation is voluntary. Refusing to participate will not adversely affect any other relationship with this health system, the University or the researchers.

Will you participate in this interview?

Contact Information:

Principle Investigator:

Callie Ann Talley
University of Arkansas Eleanor Mann School of Nursing
606 N. Razorback Rd.
cawagner@uark.edu

Co-Investigator/Faculty Chair:

Kelly Young, DNP
University of Arkansas Eleanor Mann School of Nursing
606 N. Razorback Rd.
1-479-575-3904
Kmy009@uark.edu

If you have questions or concerns about your rights as a research participant, please contact Ro Windwalker, the University's Human Subjects Compliance Coordinator, at 479-575-2208 or irb@uark.edu

Appendix M: Consent Form

Streamlining Referrals to the Weight Management Clinic

PRINCIPAL INVESTIGATOR

Callie Ann Talley
University of Arkansas Eleanor Mann School of Nursing
606 N. Razorback Rd.
1-479-575-3904
cawagner@uark.edu

FACULTY ADVISOR

Dr. Kelly Young
University of Arkansas Eleanor Mann School of Nursing
606 N. Razorback Rd.
479-575-4914
Kmy006@uark.edu

PURPOSE OF PROJECT

You are being asked to take part in a DNP project. Before you decide to participate in this project, it is important that you understand why the project is being done and what it will involve. Please read the following information carefully. Please ask the principal investigator if there is anything that is not clear or if you need more information.

The purpose of this project is to streamline the referral process to the NEA Baptist Weight Management Clinic from the inpatient setting.

This project's aim is to improve the referral process for the obese population being admitted to NEA Baptist Hospital to the weight management center over the course of 3 months in an effort to improve the efficacy of weight management in the addressed population by evaluating the number of appropriate referrals to the weight management clinic.

PROJECT PROCEDURES

Participation in staff education, implementation of the new order set for Weight Management Clinic referrals.

RISKS

There is the potential for emotional strain when discussing weight management with patients, especially those who may be embarrassed by their weight or those who may deny their weight is an issue. This strain will be attempted to be minimized by ensuring discussions about weight management are done in private and patients are educated based on their level of learning about the benefits of effectively managing their weight. There is no expected economic risk or risk of confidentiality breach within this study.

BENEFITS

Benefits related to this study include appropriate referral to effectively manage weight at the clinic, better health outcomes for the patient through adequate weight management, less severe co-morbid conditions, decrease in the amount of medication needed to control other health problems, and increased quality of life. The overall physical benefit is better health outcomes for the overweight population through effective weight management. Economic benefits could include a decreased readmission rate with the overweight patients effectively managing their weight which could help decrease the impact of other health conditions causing hospital admissions. There is also the opportunity to lower medication costs if dosages can be lowered or discontinued once the patient adequately controls their weight and co-morbid conditions.

Benefits to participating in this project include

CONFIDENTIALITY

Your responses to the surveys will be anonymous. Please do not write any identifying information on your surveys.

To assure patient confidentiality, it is requested that data is de-identified when provided to the principal investigator. The principal investigator will keep data in a computer that is password protected. Notes, interview transcriptions, and any other identifying participant information will be secured in a locked file cabinet in the personal possession of the principal investigator.

Participant data will be kept confidential to the extent allowed by law and University policy. The researcher is legally obligated to report specific incidents which include, but may not be limited to, incidents of abuse and suicide risk.

CONTACT INFORMATION

If you have questions at any time about this project, or you experience adverse effects as the result of participating in this project, you may contact the principal investigator, whose contact information is provided on the first page. If you have questions regarding your rights as a study participant, or if problems arise which you do not feel you can discuss with the Principal Investigator, please contact the University of Arkansas Institutional Review Board at 1-479-575-2208.

VOLUNTARY PARTICIPATION

Your participation in this project is voluntary. It is your decision whether or not to take part in this project. If you decide to take part in this project, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this project will not affect the relationship you have, if any, with the principal investigator. If you withdraw from the project before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this project.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix N: Copy of Approval Letters

N/A

Appendix O: HIPPA Completion Forms

N/A

Appendix P: IRB Approval

Sequence 2/2: Exemption Granted 01/12/2021

Protocol Number: 2012301954

Initial Submission

Initial Approval Date: 01/12/2021

Expiration Date

Last Approval Date: Generated on Renewal Approval

PI: Callie A. Talley

Title: Streamlining the Referral Process to a Specialty Weight Management Clinic

Personnel:

	Name	Role	Affiliation
1	Callie A. Talley	Principal Investigator	Student Investigator
2	Kelly M Young	Co-Investigator	Supervisor

Areas of Research:

- 1 000001 : All Research Areas

Appendix Q: Data Result Tables

Data Collection Point	# Discharged	# Eligible for Referral	# Referred	Percentage of appropriate referrals
1	96	24	6	25%
2	77	16	11	68.7%
3	104	22	14	63.6%
4	83	13	4	30.7%
5	98	27	13	48.1%
6	111	21	10	47.6%
7	72	15	6	40%
8	101	24	13	54.1%
TOTAL	742	162	77	47.5%

Data Collection Point	# Referred	# Referred with Order Set Used	Percentage of Order Set Utilization with Referral Order
1	6	6	100%
2	11	8	72%
3	14	12	85.7%
4	4	4	100%
5	13	11	84.6%
6	10	10	100%
7	6	6	100%
8	13	11	84.6%
TOTAL	77	68	88%

Data Collection Point	# Eligible for Referral	# Referred	Utilization Compliance %
1	24	6	25%
2	16	11	68.7%
3	22	14	63.6%
4	13	4	30.7%
5	27	13	48.1%
6	21	10	47.6%
7	15	6	40%
8	24	13	54.1%
TOTAL	162	77	47.5%