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# A Process Improvement for the Treatment of Obesity in Primary Care

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A PROCESS IMPROVEMENT FOR THE TREATMENT  
OF OBESITY IN PRIMARY CARE

James Raymond Fix

A Dissertation Submitted to the Faculty of  
GRAND VALLEY STATE UNIVERSITY

In

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## **Abstract**

Obesity is a significant cause of chronic disease affecting 34% of American adults. Obesity costs \$147 billion annually, yet it is rarely treated as aggressively as the associated chronic diseases. This process improvement was conducted to address the barriers to effective and adequate strategies to promote weight management among obese adults in the primary care environment.

Utilizing the Six Sigma framework, a comprehensive assessment of a primary care setting was conducted. Electronic patient health records were utilized to establish the prevalence of obesity in this practice. The barriers and facilitators of obesity treatment were identified through a provider survey. The effectiveness of current practices was evaluated by performing a chart review. Internal and external resources were identified and a cost analysis of practices was performed.

A comprehensive review of best practices led to identification of strategies for overcoming the barriers to obesity treatment, promoting effective interventions for obesity and reduction of the associated chronic disease burden. It is essential to optimize current resources in order to achieve the “Triple Aim:” better care, better health, less cost.

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## CHAPTER 1

### INTRODUCTION

This project focused on a process improvement effort to address identified barriers to the implementation of effective evidence-based care for obese adults in a primary care practice. Obesity, defined as a body mass index (BMI) of 30 kg/m<sup>2</sup> or greater, is recognized as a significant problem in the United States, yet efforts to address this condition in primary care are generally inadequate. To identify and address the barriers to obesity treatment, the process and structure of a primary care environment were comprehensively assessed, and in the context of available evidence, recommendations were made for the provision of a consistent, evidence-based interventions for weight loss among obese persons. These recommendations were formulated in light of national efforts to achieve the “Triple Aim:” better care, better health, less cost (Institute for Healthcare Improvement, 2014).

#### **Background and Significance**

There has been a significant and growing need for the recognition and treatment of obesity in the adult primary care setting. Obesity is one of the most significant health conditions in the United States, affecting a third of the population, and it is estimated to be the number one cause of preventable death (Jia & Lubetkin, 2010). Obesity is a significant detriment to health, is associated with many chronic diseases, and is described as a health epidemic in the United States (Centers for Disease Control and Prevention, 2014; Pi-Sunyer, 2002). The prevalence of obesity among adults in the United States increased from 23% in 1988, to 34.9% in 2012 (CDC, 2014; Ogden & Carroll, 2010).

## **Disease**

Obesity has recently been classified as a disease by the American Medical Association (Lundberg, 2013) and has been found to drastically increase an individual's risk of developing additional chronic disease. Obesity is associated with coronary heart disease, type 2 diabetes, cancer, dyslipidemia, stroke, sleep apnea, osteoarthritis, and gynecological problems (CDC, 2012). Obesity is found to significantly increase risk for morbidity and mortality (Adams et al, 2006). Mokdad et al. (2003) found that adults who are obese are at a significantly increased risk for disease: 7.37 times more likely to have diabetes, 6.38 times more likely to have hypertension, 1.88 times more likely to have high cholesterol, 2.72 times more likely to have asthma, 4.41 times more likely to have arthritis, and 4.19 times more likely to have fair to poor health. Obesity is also associated with a 20% greater incidence of cancer (Wolin, Carson, & Colditz, 2010). There is congruence among research that the health risks of obesity are significant and detrimental to health.

## **Cost**

There are financial consequences associated with obesity and related diseases which contribute broadly to an increase in health care costs. Finkelstein, Trogon, Cohen, & Dietz (2009) stated, "There is an undeniable link between rising rates of obesity and rising medical spending" (p. 822). Bertakis and Azari (2005) observed a strong correlation between obesity and number of healthcare visits, yet obesity generally was not addressed during those visits. Finkelstein et al, (2009) found that obesity was associated with a 42.7% increase in medical cost, with a direct annual per-person increase in medical cost of \$1429, which does not account for lost productivity. With obesity

affecting a third of the United States population, the national cost of obesity is profound, estimated to be \$147 billion per year, the majority of which is paid for by Medicare and Medicaid (Finkelstein et al., 2009). The cost of obesity is increasing rapidly, yet it is seldom addressed in the primary care environment when compared to the associated chronic diseases (Ruser et al., 2005). Treatment of obesity is estimated to be cost effective when compared to the increased health care costs for those who are not treated (World Health Organization, 2000). The cost of not treating obesity is greater than the cost of treating it, both in terms of dollars and health.

### **Current Practice**

In primary care, the most profound characteristic of obesity treatment is how rarely it is adequately addressed, especially in contrast to how harmful it is. Treatment for this condition is recognized as an area of great need, even though reports reveal that excess weight is mentioned in only 17% of primary care visits and obesity counseling occurs in only 11% of encounters with obese patients (Ruser et al., 2005; Scott et al., 2004). The minimal emphasis on obesity treatment in primary care is not meeting the needs of the population. The under treatment of obesity is a missed opportunity because even brief provider intervention has been shown to produce meaningful weight loss (Rubak, Sandbaek, Lauritzen, & Cristensen, 2005). With the legislated requirements included in the Patient Protection and Affordable Care Act, providers are required to document a patient's BMI, and providers can no longer claim that they did not know that the patient qualified as obese (United States House of Representatives bill 5209, 2010).

Work needs to be done to ensure that obesity is screened for and treated as consistently and effectively as possible. As the leading cause of chronic disease and a

condition that affects a third of the population, obesity needs to be recognized and treated more aggressively. It is thought that the provider's job is to offer evidence-based treatment that is warranted by the patient's condition, to include health promotion, risk reduction, disease prevention, or disease treatment (American Academy of Family Physicians, 2014). Evidence-based results suggest that providers are not offering obese patients treatment options the majority of the time (Ruser et al., 2005; Scott et al., 2004).

### **Barriers**

In order to effectively change practices in primary care, the barriers to obesity treatment need to be recognized and overcome. Barriers to obesity treatment, consistently identified by primary care providers, include the following: counseling is ineffective; lack of interest among patients; lack of provider time; lack of reimbursement, and vague weight management guidelines (Briscoe & Berry, 2009; Ferrante, Piasecki, Ohman-Strickland, & Crabtree, 2009; Kushner et al., 1995; Nawaz, Adams, & Katz, 1999; Ruelaz et al., 2007).

### **Purpose of this Project**

The focus of this evidence-based process improvement project was on addressing barriers to effective and adequate strategies to promote weight management among obese individuals. The goal was to improve the recognition and treatment of obesity in primary care, with consideration of patients' preferences. With intention to address from a system perspective, the process and structure of the primary care environment was comprehensively addressed. Six Sigma DMAIC methodology (DMAIC stands for define, measure, analyze, improve, control) was utilized to outline the steps for this process improvement. During the analysis phase, focus was on the current structure and process

of the selected primary care office. The improvement phase focused on changing the structure and process to provide better outcomes. At this primary care office, a process of screening patients BMI for obesity was already in place. The defect in this process was not reliably providing treatment for this condition.

## CHAPTER 2

### LITERATURE REVIEW

The purpose of this project was to improve the recognition and treatment of adult obesity by: performing a systems assessment in a primary care office; identify the barriers to effective and adequate interventions for obesity; and implement a process improvement that focuses on overcoming the barriers identified. Lack of adequate intervention for obesity was identified as a significant health threat. Obesity is recognized as a “fast-growing public health issue in the United States, with serious health and economic consequences. Reversing the obesity trend is a national priority” (Health Resources and Services Administration, 2012, Para. 1). This disease is associated with significant individual health consequences as well as posing a burden on the finances and resources of individuals and the national health care system.

This chapter contains a review of literature related to overcoming the barriers to obesity treatment in primary care. The review is structured to identify what is currently occurring in primary care, the barriers to obesity treatment, strategies to reduce barriers, and potential models for implementation. Studies are ranked according to the level of evidence (Melnyk & Finehout-Overholt, 2011). This ranking is from one to seven, with one being the highest level of research, as shown in Table 1.

Table 1

*Levels of Evidence*

---

|         |  |
|---------|--|
| Level 1 | Systematic review or meta-analysis                         |
| Level 2 | Well-designed random control trial                         |
| Level 3 | Well-designed control trial without randomization          |
| Level 4 | Well-designed case-control or cohort studies               |
| Level 5 | Systematic review of descriptive and qualitative studies   |
| Level 6 | Single descriptive or qualitative studies                  |
| Level 7 | Opinion of authorities and/or reports of expert committees |

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*Note:* Adapted from “Evidence-Based Practice” By Melnyk & Finehout-

Overholt, 2011, p. 12.

The ranking is applied for each study that is reviewed. For organizational purposes, studies are presented in chronological order in their respective sections.

The literature review included any studies that met the inclusion criteria and provided direction for this project. The inclusion criteria were: Adult focused, written in English, examined the treatment of obesity, and was applicable to obesity treatment in primary care. Relevant literature was identified using the following databases: Google Scholar, CINAHL, PubMed, ProQuest, and Cochrane. The search terms included primary care, obesity, obesity treatment, obesity counseling, weight loss, Weight Watchers, Chronic Care Model, barriers to obesity treatment, changing physician behavior, and weight loss implementation.



## **Problem in Primary Care**

To improve the recognition and treatment of obesity in primary care it is first important to understand the current standard of practice. This helps establish a baseline of how the providers address this condition and how it can be improved. Several studies were found, that provided insight into how obesity is addressed in primary care.

Nawaz et al., (1999) studied how providers were addressing obese clients in their practices. This study utilized data from the Connecticut Behavioral Risk Factor Surveillance System telephone survey. This was a telephone survey of adults that inquired about their health risk factors and what their doctor had advised them to do at his or her last visit. There were a total of 1,254 subjects with the majority being female, 18-39 years old, white, and college educated. The study found that 71% of overweight or obese individuals were not counseled to lose weight, while 89% of those that were counseled started trying to lose weight, compared to 52% of those who were not counseled. The authors suggest that provider recommendation does impact patient's personal health habits. It also suggests that providers are only addressing obesity 19% of the time. (Level 4)

Potter and Croughan-Minihane (2001) studied what patients wanted from their primary care providers to help them with weight management. This was a survey of 410 subjects from two California practices using a 15-item questionnaire. It was found that weight loss was never discussed with 51% of obese patients and 76% of overweight patients. Thirty five percent of these patients thought that they would benefit from being referred to a weight loss program. Greater than 80% of those surveyed wanted help from their primary care provider regarding dietary advice and help setting realistic weight

goals. The weight loss approaches most commonly used by providers were instructing patients to lose weight (48%), while more commonly providers do not address weight at all (64%). It was noted that both of the most common approaches do not effectively include the dietary advice and goals that the patients wanted. It was suggested that physicians address overweight and obesity consistently because patients want to work on this issue with their provider. (Level 3)

Scott et al. (2004) studied how often obesity was not addressed in primary care. This research reported results for both adults and children. This study performed chart reviews of 633 adult patient visits to six primary care offices in a Midwestern state. It was found that 68% of that adult population was overweight or obese and that weight loss counseling occurred in only 11% of these encounters. The authors concluded that work needs to be done to increase the prevalence of weight loss counseling in order to address the obesity epidemic in the United States. (Level 4)

Ruser et al. (2005) studied how often obesity was recognized and treated by internal medicine residents. This study included 424 overweight or obese patients from two clinics in Connecticut, in a cross-sectional medical record review. Patients were included if they had a BMI of 25 kg/m<sup>2</sup> or greater. Patients had an average age of 51, were mostly male (69.4%), and white (32.5%). It was found that for those who were overweight, it was addressed 7.3% of the time and for those who were obese it was documented 30.9% of the time. Only 16.5% of patients that were overweight or obese received any form of weight loss intervention. The common interventions for obese individuals were dietary advice (22%), nutrition referral (47%), exercise advice (53%), bariatric surgery (1%), or behavior modification (6%). This study recognized that while

obesity was significantly associated with chronic disease, it was rarely diagnosed or treated. Higher BMI was positively correlated with recognition and treatment. The authors suggested that medical training appears to focus on treating the results of obesity instead of the cause itself, and that more needs to be done to increase physician recognition. (Level 5)

Heintze et al. (2010) conducted a qualitative study of providers' attitudes and practices regarding weight loss counseling. This study included twelve solo providers who were audiotaped in conducting weight loss counseling for a total of 52 conversations with patients. The patients were mostly female (67%), aged 35 and older, and had a mean BMI of 32 kg/m<sup>2</sup>. It was found that providers rarely discussed weight control strategies with their patients. The providers regularly underestimated the patient's motivation to lose weight and did not directly address weight issues. This research suggested that providers take a patient centered approach to weight loss and focus on collaborative weight loss interventions. (Level 6)

Kraschnewski et al. (2013) studied trends of weight loss counseling in primary care. Documentation from adult primary care visits were analyzed from 1995-1996 and compared to documentation from 2007-2008. This included a total of 32,519 adult visits. The data show that weight related counseling had declined from 7.8% in the earlier time frame to 6.2% of visits in the later time frame. It was also found that those with hypertension, diabetes, and obesity were less likely to be counseled about weight than other patients. The authors concluded that there was a decline in weight related counseling during a time when it is most needed. (Level 4)

These studies identified that obesity is not consistently being addressed in primary care. While it is suggested that patients want to address their obesity with their health provider, weight loss counseling occurred in only 6.2% - 19% of encounters with obese patients. It was recommended that providers address obesity with a patient centered approach that includes specific dietary advice, goal setting, and that this counseling should occur regularly. The level of evidence in this section ranged from three to six indicating moderate confidence.

### **Barriers**

It is important to understand the barriers to obesity treatment and practice change in order to effectively improve care. Understanding the problem is the initial step in process improvement, which allows an intervention to precisely target the areas of greatest need. This section addresses why obesity is so rarely adequately addressed in the primary care environment. A degree of commonality was found in the literature about barriers to obesity treatment and practice change.

Kushner (1995) surveyed primary care practitioners about their barriers to providing nutrition counseling. In this study there were 2,250 questionnaires mailed to physicians who were randomly selected from the membership of the American Medical Association. There was a 49% response rate for a total of 1,030 completed surveys. The survey consisted of 18 questions, 16 of which were Likert scale questions and two that were open ended. The majority of respondents, provided dietary counseling in less than 40% of cases, and spent less than five minutes during those sessions. Barriers to nutritional counseling include lack of time, patient compliance, teaching materials, counseling training, knowledge, reimbursement, and confidence. Dietary counseling was

stated as a high priority for 79% of the respondents and 72% of the respondents thought that it was the responsibility of the physician. The author identified that there was a disparity between what providers thought they should do and what they actually did. This study suggested that a multifaceted approach is needed to address physician barriers to dietary counseling. (Level 2)

Hiddink, Hautvast, Vanwoerkum, Fierren, and Vanthof (1995) conducted a study that surveyed general practitioners to discover attitudes, knowledge, behaviors, and barriers to providing nutritional guidance to patients. Questionnaires were sent to a random sample of 1,000 providers from the Netherlands that had between 5 and 15 years of experience, with a 64% response rate. It was found that, although providers believed that diet was the second most important health factor, only 5% and 10% of patients received nutritional counseling. Providers found their greatest barriers to be lack of time, lack of confidence, lack of training, patient noncompliance, and lack of reimbursement. This study suggested that these barriers should be the focus of future intervention. (Level 2)

Kristeller and Hoerr (1997) examined physicians' attitudes towards obesity management across six specialty groups. This study was conducted using a mail survey that was returned by 1,222 physicians specializing in family practice, internal medicine, gynecology, endocrinology, cardiology, and orthopedics. The survey included questions about attitudes, beliefs, and practices related to obesity and the associated medical risk, management, and interest in further training. A majority of physicians from all specialties reflected that obesity should be treated. Family practitioners, internists, and endocrinologists reported that they treated obesity about 50% of the time while other

specialty groups treated it only 5% -29% of the time. All specialties reported low to moderate confidence that they could treat obesity effectively. Physicians reported that they were most likely to suggest weight loss when there was an associated medical problem. With the exception of family practice physicians, all expressed great concern about obesity and related medical problems, while they were the least likely to provide treatment. Endocrinologists were the most likely to refer a patient to a dietitian or weight loss program, while these options were rather unlikely for other specialties. The most common intervention for obesity was discussion of the health consequences. The authors concluded that obesity was a prominent health concern while intervention occurs much less often than it should and referral was underutilized. (Level 3)

Foster et al. (2003) studied primary care physicians' attitudes about obesity and its treatment. The authors reported that obesity treatment was related to physicians' perception of the condition. In this study, there were 5,000 primary care physicians that were randomly mailed surveys, and the study had a 63% response rate. The survey asked about causes of obesity, attributes of those who are obese, beliefs about treatment, and efficacy of obesity treatment. The providers believed that obesity was related to physical inactivity, overeating, and high fat diet. The majority of respondents, had a perception that those who are obese are awkward, unattractive, ugly, and noncompliant. Additional findings included: 75% agreed with the recommendation that a 10% weight reduction would improve health complications; 49% felt proficient at prescribing strategies for weight loss; and 54% would devote greater effort for weight management if it were reimbursed appropriately. Only 22% believed that maintaining long-term weight loss was possible. Obesity treatment was thought to be least successful of all treatable conditions

except for drug addiction. Less than half of respondents felt that it was possible for an obese patient to lose a meaningful amount of weight. The investigators concluded that the overwhelmingly negative perspective reflected in this study significantly contribute to providers' efforts to treat obesity aggressively. (Level 2)

Jallinoja et al. (2007) used a survey to understand the perceptions of physicians' and nurses' perceptions regarding their professional roles in managing lifestyle-related disease. This study included responses from 59 physicians and 161 nurses from a hospital district in Finland. The health professionals agreed that lifestyle counseling was part of their professional responsibility, while less than half felt that they could effectively provide that service. The barriers that were most commonly cited were pessimistic perspectives about the patients' willingness to change, insufficient skills to perform lifestyle counseling, and lack of time to perform life style counseling. It was suggested that providers' negative attitudes about treating obesity may pose a barrier to lifestyle counseling. (Level 4)

Ruelaz et al. (2007) studied the perspectives of patients and providers regarding weight management in primary care. This study was a cross-sectional, self-administered survey that included 48 medical providers and 488 patients from a Veterans Administration primary care clinic. The survey explored the attitudes, beliefs, and experiences of patients and providers. The results indicated that only 16.5% of overweight and obese patients received any form of weight management intervention. Patients had significantly more confidence in their ability to adhere to diet and exercise recommendations, when compared to the providers. The authors suggested that the barriers to effective weight loss interventions are providers' perceptions of efforts being

futile and lack of time. While providers perceived lack of time to be a barrier, the authors suggest that brief weight management interventions would fit into a 10-15 minute appointment. (Level 4)

Briscoe and Berry (2009) performed a literature review of studies that identified barriers to addressing obesity in adult primary care practice. There were a total of seven studies that were chosen for inclusion. Selection criterion included studies that focused on adults, the primary care setting, and addressed barriers to weight loss counseling. Combined, the studies included a total of 1,951 subjects that were physicians, nurse practitioners, or physician assistants. Data collection methods included focus group discussions and surveys. The barriers identified to addressing obesity were similar across all seven studies. Listed in order of highest to lowest impact, the barriers included lack of time, lack of education, scarce resources, lack of confidence in patients, poor reimbursement, vague guidelines, focusing only on acute problems, lack of patient demand, and lack of privacy. This study recommended that providers take a more active approach to obesity treatment. Providers are not regularly applying the obesity interventions that are supported by the evidence. (Level 5)

Ferrante, Piaseki, Ohman-Strickland, & Crabtree (2009) studied attitudes among family practice physicians about providing care for extremely obese patients with a BMI over 40 kg/m<sup>2</sup>. In this study, a 30-question survey was mailed to 500 family physicians that practiced in New Jersey. There was a 53% response rate for a sample size of 255. The majority of subjects were white, male, and practiced in suburban settings with an average age of 48 years old. This study found a high prevalence of negativity toward obese patients. The majority of physicians reported dealing with obese patients was



frustrating and ineffective. Providers felt that patients lacked discipline, did not have time to exercise, physically could not exercise, and were not motivated. Providers with more knowledge of obesity treatment were more likely to discuss weight loss and have greater confidence in obesity treatment. It was also found that providers rarely prescribed the two most effective obesity treatments, which are weight loss medications and bariatric surgery. This study suggested that obesity treatment would occur more often if providers were well educated about the effectiveness of treatments and resources available to help with this condition. It was also suggested that the negative attitude toward obesity management was a factor that was limiting to effective treatment. (Level 5)

Phelan, Nallari, Darroch, and Wing (2009) explored what physicians recommended as weight loss strategies to their obese patients. This study was a cross-sectional survey of 101 primary care physicians from the eastern United States. The survey inquired about physicians' recommendations for weight loss, what they would expect as an outcome, and the basis for his or her decision. The most common recommendations were to increase physical activity, minimize fast food consumption, eat less, and decrease consumption of soft drinks. The respondents reported that they rarely recommended self-weighing, recording intake, and decreasing television viewing. Weight loss medications and meal replacements were also rarely recommended. Physicians reported that decisions were not based on medical literature, but based on clinical experience. It was reported that a 21.5% weight loss would be an acceptable outcome and a 10.6% weight loss would be disappointing. This study concluded that providers need education about the health benefits of even modest weight loss. Providers would serve

patients better if their recommendations were based on empirical evidence instead of personal experience. (Level 5)

Wynn, Trudeau, Taunton, Gowans, and Scott (2010) investigated the role that Canadian family physicians have regarding nutrition counseling. There was a response rate of 59.6% for a total of 451 completed surveys in this study. The majority of physicians thought that his or her patients would benefit from nutritional counseling while few of the patients ever received it. The most common barriers identified by the respondents were (from most to least) lack of time, compensation, patient compliance, and patient knowledge about nutrition. Providers had a generally positive attitude toward nutritional counseling while few patients actually received this counseling. (Level 5)

This review suggested that there are many barriers to effective obesity treatment in primary care. Several studies directly cited that providers had a negative attitude about treating obesity and found obesity care frustrating. Patients often had a more positive perception about their ability to lose weight than the providers did. The top five barriers to obesity treatment identified in the literature were:

- 1). Lack of Time
- 2). Lack of provider education related to weight loss strategies
- 3). Inadequate patient educational materials
- 4). Pessimism about patient compliance
- 5). Inadequate reimbursement

Providers consistently thought that patients would benefit from weight loss while they did not provide this service. The barriers that are common among studies indicate areas of opportunity that also may be found in the specific primary care setting. The research does

indicate that a successful intervention should be multifaceted. The research in this section includes a mix of level two to five.

### **Solutions**

It is important to recognize that there are a multitude of barriers to obesity treatment, while the unique needs of the patients are also varying. This indicates that there is not one solution to improving obesity treatment and that a multifaceted solution as suggested by Kushner et al. (1995) would be optimal. This review includes research about interventions that range from inter-office to external solutions. Inter-office solutions include brief patient counseling about diet, exercise, and weight loss. Evidence was also found supporting provider referral for external help, which overcomes the barriers of provider time, provider and patient education, and reimbursement.

### **Counseling**

Provider counseling has been shown to be effective for treating obesity. Strong evidence of the success of brief provider counseling is helpful in overcoming the barrier of lack of time and pessimism about patient compliance. Getting the provider to engage the patient about obesity is the first step in effectively addressing obesity treatment in primary care.

Mullen et al. (1997) performed a meta-analysis to evaluate the effect of patient education and counseling on health behaviors. This study included 74 randomized and non-randomized studies, of education and counseling, which measured the change in health behavior. The studies, focused on smoking, alcohol, contraceptive use, self-breast exams, injury prevention, weight loss, nutrition, and exercise. It was found that patient education and counseling consistently impacted patients' health behaviors. Self-

monitoring had a significant positive effect on smoking, alcohol, nutrition, and weight. It was suggested that providers regularly educate and counsel patients on their health risk behaviors because it is effective and provides a significant impact on health. (Level 1)

Galuska, Will, Serdula, and Ford (1999) performed a telephone survey to understand if healthcare providers were advising patients to lose weight, and if receiving this advice caused him or her to attempt to lose weight. This study included 12,838 randomly selected, obese American adults, who had visited their provider in the last 12 months. Multivariate logistic regression was used to analyze results. Forty-two percent reported that they had received advice to lose weight from their provider. Those who were recommended to lose weight were 2.79 times more likely to be attempting to lose weight compared to those without provider counseling. The authors concluded that weight loss advice has significant impact on weight loss efforts and should be given more regularly to patients. (Level 2)

Sciamanna, Tate, Lang, and Wing (2000) studied the impact of patients receiving weight loss counseling on weight loss. This study was a cross-sectional survey of health risk behaviors collected from the 1996 Behavioral Risk Factor Surveillance System, and included 124,085 subjects from 10 states. Of those subjects with a BMI greater than 30 kg/m<sup>2</sup>, 41% received advice to lose weight. Individuals who received advice to lose weight were more than twice as likely to be actively pursuing weight loss. This study suggested that providers may benefit from training about diagnosing obesity and prescribing a weight loss intervention. While weight loss advice was found to be uncommon, when given advice, it had a significant impact on the weight loss behavior of the patient. (Level 5)

Huang, Marin, Brock, Carden, and Davis (2004) studied weight loss counseling on patients in two American primary care clinics. Exit interviews were conducted with patients who were 18 years old and older and had a BMI of greater than 25 kg/m<sup>2</sup>, for a total of 210 patients. The mean BMI of the subjects was 39 kg/m<sup>2</sup>, and 96% had at least one obesity related chronic disease. This study found that, although the weight loss recommendations were limited in scope, patients who did receive weight loss counseling were significantly more likely to understand the health detriments of obesity and be more motivated to lose weight. Physician counseling did significantly impact patients weight loss efforts, but only 18% received specific weight loss advice during his or her appointment. The investigators concluded that weight loss counseling should be regularly included in appointments. (Level 5)

Rubak, Sandbaek, Lauritzen, and Christensen (2005) performed a literature review and meta-analysis to evaluate the effectiveness of motivational interviewing across 72 studies. Studies were included if they were randomized control trials, focused on motivational interviewing, and objectively measured the effect of the intervention. The investigators examined the impact of brief (15 minute) motivational interviewing on BMI, cholesterol, and blood pressure. This intervention was found to have no negative or adverse effects. Motivational interviewing had a significant impact on behavior in 80% of the participants in the studies. This intervention was shown to produce more significant results, when measured by BMI, cholesterol, and blood pressure compared to standard care. It was suggested that motivational interviewing be used more consistently. (Level 1)

Tsai et al. (2010) conducted a pilot study to test the effectiveness of a weight loss intervention provided by medical assistants. This study was a randomized control trial

including two primary care offices, 50 patients, and two medical assistants (MA). The patients had brief 15-20 minute visits with an MA on weeks 0, 2, 4, 8, 12, 16, 20, and 24. The MAs used educational handouts from the Diabetes Prevention Program. Patients were instructed to consume fewer calories, keep a dietary journal, and gradually increase physical activity. Patients were weighed each visit and offered phone visits if they could not keep their appointment. Before the trial began, the MA's received a 3-hour training session for the weight loss intervention and about the educational material. Patients that received the counseling with the MA's had a mean weight loss of 5.1% body weight compared to a loss of 1% for control patients. The authors recognized that lack of provider time was cited as a major barrier to effective weight loss intervention and used MAs to overcome this. This study suggested that using auxiliary staff may be effective for a weight loss intervention. (Level 2)

The counseling research included in this review only contains interventions that can be performed during a regular 15-minute patient appointment. There is strong support for the effectiveness of brief provider counseling intervention. The level of research about counseling ranged from one to five, with the majority being at the highest two levels of research.

### **Weight Watchers**

Weight Watchers has consistently been shown to help patients lose weight. Weight Watchers is an international weight-loss company that utilizes education about healthy food choices, promotes exercise, and conducts group meetings (Medicine.net, 2012). Provider referral to Weight Watchers would overcome the barriers of limited provider time, lack of provider education, lack of patient educational materials, and poor

reimbursement. Weight Watchers is also commonly known to patients and providers, which may increase utilization, while patients usually incur an out-of-pocket cost.

Ahem, Olson, Aston, and Jebb (2011) studied adults from the UK who were referred to a Weight Watchers program by the National Health Service. This study included 29,326 subjects that were referred to this weight loss program and attended at least one meeting. The subject's weight was measured at each weekly meeting. The attendance at meetings varied with 5% of all subjects attending only one meeting and 54% of all subjects attending all 12 meetings. The average median weight loss was 3.1% of body weight, while 33% of those referred had a weight loss of 5% or greater of body weight. Those who completed more meetings generally had more weight loss. Weight loss was greater in men, those who were over 40 years of age, and if this was their first referral to weight watchers. Weight loss was found to be similar to other commercial or primary care based programs. The authors suggested that this weight loss intervention was relatively cost effective and available when compared to other forms of weight loss intervention. (Level 3)

Jolly et al. (2011) compared the use of a commercial weight loss program with a primary care led program. This study was conducted in England and included 740 overweight or obese adults. Subjects were offered six different weight loss programs including Weight Watchers, Slimming World, Rosemary Conley, The Size Down Program, general practice, and non-pharmaceutical pharmacy programs. The outcome measurement was the weight lost in 12 weeks and at one year. Significant weight loss after 12 weeks was achieved by all programs with a range of 1.37 kg lost in the primary care intervention to 4.43 kg lost from the Weight Watchers intervention. Weight

Watchers achieved weight loss of 5% of body weight for 46% of participants. Weight Watchers also had the greatest weight loss maintained at one year, compared to the other interventions. Primary care intervention had the greatest cost while producing the least amount of weight loss. It was concluded that commercial programs were the most effective and the least costly, with Weight Watchers being the most effective. (Level 4)

Mitchell, Ellison, Hill, and Tsai (2012) studied the effect of subsidizing Weight Watchers for Tennessee Medicaid recipients. It found that these Medicaid recipients had estimated obesity related costs of \$724 million. This study was an effort to save money on Medicaid while providing a health service to the population. There was a cost of \$120 per enrollee, totaling \$196,000 for these participants to engage in this program.. This study included 1,605 individuals that met the criteria of enrolling and having at least one subsequent visit. The median weight loss for all participants was 1.8% of body weight. Clinically significant weight loss of 5% was achieved by 20% of the participants. Attending more meetings was associated with an increased amount of weight loss. A correlation was found between the number of meetings attended and amount of weight lost. This study suggests that partnerships that increase access to community-based weight loss programs provide a weight management tool that is both, effective and cost effective. (Level 6)

There is significant evidence for the success and effectiveness of Weight Watchers to contribute to weight loss. There was a clinically significant 5% weight loss, for 5-46% of participants. The level of research included in this section ranged from three to six.



## **Chronic Care Model**

The Chronic Care Model (CCM) of care delivery has been successful in improving primary care outcomes. This approach was developed by Edward Wagner in 1993 after realizing that health problems were often not anticipated or treated proactively, the chronically ill are not educated sufficiently, and that providers are too busy to educate patients (Wielawski, 2006). This model focuses on changing primary care practice by supporting a multifactoral approach that includes community resources, the healthcare system, self-management, delivery system design, decision support, and clinical information systems (Hung et al., 2007). Elements of this model can be used to overcome the barriers to effective obesity treatment.

Hung et al., (2007) examined the use of applying the CCM to prevent disease conditions in primary care. This study included 52 practices that had received funding for health promotion from the Robert Wood Johnson Foundation. It found that practices that were associated with a larger hospital system were more likely to conduct a health risk assessment. The offices that had a multidisciplinary approach, assessed health risk more often, and had a dietician in the office, greatly increased the likelihood of dietary counseling. Identifying at risk patients with chart stickers, using flow charts, and using checklists were found to positively impact patients' referral to a community program. The authors found that the CCM was critical for preventing disease and promoting health. The implementation of the CCM was found to be positively associated with practices that targeted at risk behaviors and that wide spread implementation of this model would control existing disease and decrease incidence of future disease. (Level 5)

Ely et al., (2008) conducted a pilot study at three rural Kansas primary care practices to understand how the CCM impacts obesity treatment. This study included 107 participants in a randomized control trial comparing the CCM with the control group. The intervention practices received an electronic registry of obese patients, treatment guideline decision support, self-management support, and bi-weekly phone counseling for patients for the first three months. At 90 days, the study group had lost 4.5 pounds compared to 2.4 in the control group. At 180 days the study group had lost 9.4 pounds compared to 2.1 in the control group. The authors concluded that the multifaceted approach of the CCM was useful for obesity treatment. (Level 2)

Coleman et al., (2009) performed a literature review on the effectiveness of the CCM. Eighty-two articles met the inclusion criteria of being published since 2000, being in English, and based on the CCM. This review found that the model was not discretely replicable in each instance because it was a framework that has been utilized differently by geographical location and resource availability. It was found that the model improved health outcomes but would be more feasible in a large healthcare organization. (Level 5)

Strickland et al., (2010) studied the use of the CCM and its association with diabetes behavioral counseling. This was an interventional trial of 25 practices for a one-year duration. This study recognized that practices adapted to the CCM at different levels. Practices that incorporated more elements of the CCM were associated with better disease control, and levels of counseling about obesity and exercise were 1.5 times higher. Practices that were in the 75<sup>th</sup> percentile for level of CCM implementation were 90% more likely to conduct an appropriate diabetic assessment compared to practices in

the 25<sup>th</sup> percentile. The authors suggested that implementation of the CCM over a longer period of time would further improve practices. (Level 4)

The CCM is helpful in overcoming the barriers to obesity treatment. This model supports a team approach that also incorporates technology, community resources, and patient self-management. Chronic conditions are treated more thoroughly by incorporating a greater number of resources. Studies commonly found that the CCM model was applied to varying degrees across practices, while greater application of this model resulted in improved outcomes. This model of care has been designed to treat care needs proactively and improve outcomes, while it can be a challenge to incorporate all of the elements effectively. The research included in this section is a mix of level two to five.

### **Other Models for Implementation**

There are many strategies that can effectively lead to adequate interventions for obesity treatment in primary care practices. Implementations that have been successful will be reviewed for aspects that may be useful for consideration in this process improvement project. The following literature will be used to direct the implementation of the proposed evidence based solutions and effectively change current practice in the primary care environment.

Kawamoto, Houlihan, Balas, and Lobach (2005) performed a systematic review to understand what decision support systems had the most meaningful impact on clinical decision making. This research included randomized control studies that met the inclusion criteria of evaluating the ability of a clinical decision support system to actually change practice. Of the 70 studies that were included, 68% of the trials included clinical

support that significantly improved practice. It was found that in order to be effective, the decision support had to occur automatically as part of workflow, provide a recommendation, provide this support at the time and location that the decision was made, and be computer based. A common theme among decision support systems that were most effective, was related to minimizing the effort required by the clinician. It was also moderately influential when the system provided feedback, asked for explanation when the recommendation was not followed, and the results were shared with patients. (Level 1)

Appel et al. (2011) conducted a study over 24 months to compare the effects of an in-person weight loss intervention with those that received only telephone support. There were 415 obese patients that were randomized into the remote group, in person group, or control group. The control group participated in self-directed weight loss, while the in person group and telephone group had a weekly meeting for the first three months followed by monthly contact. Motivational interviewing techniques were used during each of these contacts. The goal was to lose 5% or more of their initial body weight. The goal was met in 18.8% of the control group, 38.2% of the telephone group, and 41.4% of the in person group. The difference between the intervention groups was not statistically significant. This study concluded that a phone based weight loss intervention is effective and is a feasible option. (Level 2)

Dunlop, Leroy, Trowbridge, and Kibbe (2007) studied the effect of provider training and tool dissemination on the practices of pediatric providers. Even though this study has a pediatric focus, the results of effective provider practice lend insight for all primary care practices. The participants were residents and providers from six urban

community primary care offices. Provider practices were reviewed by examining medical records before intervention, at three months, and at six months. Initially providers were given education about treating obesity and were followed for three months. Next, the providers were given patient educational tools and followed for another three months. There was little practice change after educational intervention alone. After the providers were given educational tools, obesity was addressed twice as often as before. This study suggested that education alone may not be enough to evoke practice change and that a multifaceted approach, including provision of tools, may be most effective. (Level 4)

Laws (2004) developed an evidence-based implementation for primary care to effectively manage obesity. This model titled The Counterweight Programme focused on adults 18-75 years of age who were obese. This study was conducted in 80 practices for a two-year duration with 18 practices used as a control. It consisted of four phases including “(1) practice audit and needs assessment, (2) practice support and training, (3) practice nurse-led patient intervention, and (4) evaluation” (Laws, 2004, p. 191). The interventions included patient centered goal setting, diet recommendations, a group program, physical activity and behavioral approaches, weight loss medication, and weight maintenance strategies. This was a nurse-based intervention where nurses educated patients on healthy eating, physical activity, behavior change, pharmacotherapy, and follow-up. There were 1,256 patients recruited during this implementation; 91% received a lifestyle intervention with three, six, and twelve-month follow-up. For the twelve month check up, 34% had achieved a weight loss of 5% or greater. This pilot study found that this practice was effective and sustainable using existing resources with no funding being provided from the study. (Level 5)

Ross, Laws, Reckless, and Lean (2008) studied a nurse based, weight loss implementation study, called The Counterweight Programme, and its long-term effects. This was a prospective study involving 65 primary care offices from 7 United Kingdom regions. There were 1,419 subjects that were followed for six appointments at 3, 6, 9, 12, and 24 months. Eligible patients were identified by the providers and recommended to the nursing staff for weight loss intervention. At the 12-month follow-up, 30.7% had achieved a 5% or greater weight loss, while at 24 months 31.9% had 5% weight loss. Those that achieved the greatest weight loss tended to be male, attended more appointments, were 35 – 45 years old, had higher initial BMI, and absence of diabetes or arthritis. In addition to weight loss, subjects tended to improve low-density lipoprotein (LDL), high-density lipoprotein (HDL), systolic and diastolic blood pressure, and hemoglobin A1c. Although there were no funds provided for the practices that participated, two thirds continued to enroll new patients after the 12-month study. The authors suggest that nurses can successfully implement evidence based patient weight loss. It was suggested that this program was cost-effective and was more effective than providing no intervention. (Level 5)

McQuigg et al. (2008) performed a qualitative investigation of the barriers and facilitators to The Counterweight Programme. It was noticed that not all practices implemented this weight loss program effectively. In-depth interviews and focus groups were conducted with providers, nurses, and patients. The interviews lasted for about an hour while the focus groups lasted about two hours. This communication was examined for common themes. The biggest barriers were clinicians' beliefs and attitudes about weight management, which included skepticism about effectiveness and that obesity was

not the job of primary care. In the process of implementation the common barriers were poor practitioner involvement, low rates of referral, and unclear expectations. Other barriers were low self-efficacy in managing the program, perceptions that it was too time and resource intensive, and the environment was not supportive for the program. The facilitators of this program were patient success, emphasizing that obesity is a health issue, provider interest, having a staff champion, providing high quality materials, and that the program was well integrated into existing practice systems. This study concluded that when implementing this change it was important to enhance self-efficacy, provide follow-up with providers, and have clear program goals. (Level 5)

### **Conclusion**

This literature review guides the process improvement of consistently implementing evidence-based interventions for obesity in the adult primary care environment. There is a great need for primary care to address the obesity epidemic. This literature review has found that patients are consistently not being offered the evidence-based obesity treatment that could greatly improve their health.

There were similar findings among providers included in studies that researched the barriers to obesity treatment. These included the belief that counseling was ineffective, lack of preparation for weight loss counseling, perceived lack of patient interest, lack of time, lack of reimbursement, negative attitude toward obesity treatment, and vague guidelines (Briscoe & Berry, 2009; Ferrante et al. 2009; Kushner et al., 1995; Nawaz et al., 1999; Ruelaz et al., 2007). There were a number of intervention options identified in the literature that were reviewed, with potential for application to the recommendations that will be proposed as an outcome of this project. An effective

obesity intervention includes many of the components found in this literature review. The intervention should include all members of the healthcare team, and be tailored to meet the specific needs of the selected primary care setting.

This project focused on incorporating effective and adequate interventions for addressing obesity among adults in primary care. Integrating evidence-based interventions requires overcoming existing barriers within the primary care setting. The goal was not to turn primary care into an obesity specialty practice, but for obesity to be addressed and treated as any other serious health risk. As directed by patient-centered care, the patient deserves to be screened for obesity, offered evidence-based options for intervention, and make a choice about the direction of his or her plan of care.



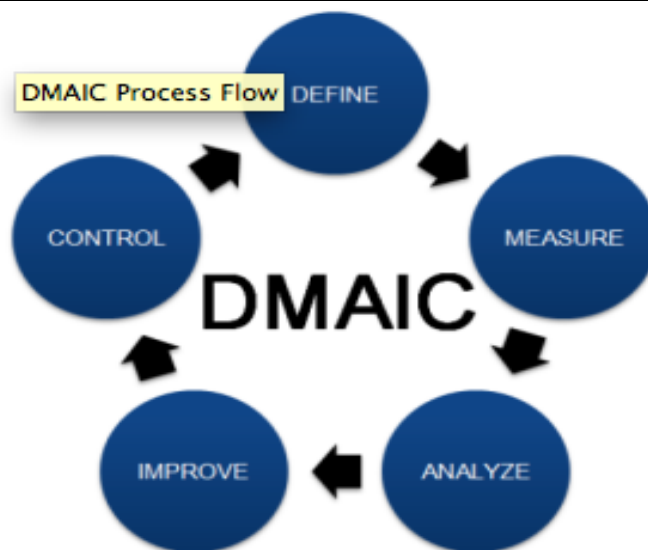
## CHAPTER 3

### CONCEPTUAL FRAMEWORK

This chapter identifies the conceptual framework that guided the development, implementation, and evaluation of improving the process of obesity treatment in primary care. The Six Sigma DMAIC methodology was selected as the conceptual framework for this project. DMAIC stands for Define, Measure, Analyze, Improve, and Control. This methodology was utilized to outline the steps for this process improvement. It has been used in manufacturing, business, and healthcare for process improvements with great success. It provides a structured approach for process improvements, making it fitting for this project. In this chapter the history and rationale for selecting the Six Sigma framework will be established, followed by describing each step in general. These steps will be outlined more specifically, in relation to this project, in chapter 4.

Figure 1

*DMAIC*



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*Note:* From "Six Sigma: DMAIC methodology." By Villanova University, 2013.

DMAIC began as a concept in the eighteenth century. Carl Fredric Gauss first identified this concept of process improvement in the early industrial era by recognizing that three sigma deviations from the mean required a process change (Sigma Six Online, 2013). It began as a way of recognizing and decreasing defects in the processes of industry. In 1985, a reliability engineer at Motorola pioneered the concept of Six Sigma to improve reliability and quality by minimizing deviations from the standard (Kumar, Chita, Crocker, Saranga, & Springerlink, 2006). Six Sigma is defined as, “a management strategy which provides a roadmap to continuously improve business processes to eliminate defects in products, processes, and services” (Kumar et al., 2006, p. 7). DMAIC was later adopted by large-scale companies such as General Electric, Ford, and Du Pont (Qianmei & Manuel, 2008).

The DMAIC methodology was adapted to use in healthcare due to the low tolerance for error in health care delivery. Although all process improvements in healthcare are different, the steps of effective change have great similarity. The DMAIC methodology has been used effectively in healthcare to improve process flow, decrease medical-error, and decrease cycle time (Qianmei & Manuel, 2008).

Qianmei & Manuel (2008) found many commonalities among 15 healthcare organizations that utilized DMAIC. It was found that the majority of the process changes took from four to seven months to complete. For the majority of the organizations, there was a quick return on investment with greater returns realized over time. There were also common barriers to using this methodology such as resistance to change, overcoming the organizational cultural resistance, and delay in administrative support.

For this process improvement, the DMAIC methodology was thought to fit well with the project goals. Arthur (2011) identified that a good Six Sigma plan “will identify what activities to implement, how to do them, who will do them, when they will be started and completed, and how they will be measured” (p.44). The goal of this project was to decrease the process defect of not treating obese patients who would benefit from treatment. The process of screening patients for obesity was already in place. The defect in this process was not reliably providing treatment for this condition.

The Define step is the initiation of this process improvement. It is first important to define the problem to establish that it is an area that needs to be addressed. In this phase the problem will be defined along with possible outcomes of this project. A clear definition and realistic goal are essential to the outcome and success of the project (Taaffe et al., 2012). In this section the key players of the process improvement will be identified along with their role in the project.

The Measure step of this approach is focused at determining the significance of the problem in the specific environment. It is essential to establish a baseline of current practice in order to identify areas of opportunity. It is important to identify what the existing process is, in order to better understand how this will impact subsequent steps of the process and resulting outcomes. This step focuses on identifying the current interventions for addressing obesity. Failure to treat obesity or failure to utilize evidence-based guidelines is perceived as a defect in the process that can be remedied (Sanders & Prior, 2011).

The Analyze step of this framework focuses on understanding the root causes of the defects. Examining the information collected in the measure step of this process

allows the process defects to be understood. The opportunities that are discovered in the analyze phase are prioritized (Taaffe et al., 2012). The components and processes that are determined to be the most impactful are prioritized for change.

The Improve phase focuses on changing the factors that have been prioritized as causing the greatest defects. The elements that compose the improve phase are highly dependent on what is discovered in the previous phases (Bandyopadhyay & Coopens, 2005). It is recognized that the implementation of the improve phase is based on what is hypothesized to work best. Adjustments may be needed for these improvements to be optimal (Taaffe et al., 2012).

The DMAIC concludes with the Control phase. In this phase the process improvements are maintained and monitored. A process of continuous improvement will be established to assure that the changes are optimally effective. Figure1 illustrates the cycle of continuous process improvement. A statistical method of quality monitoring is often implemented in this phase in order to maintain optimal level of efficiency and quality. If it is discovered that the process has not been optimized, this quality improvement cycle begins again (Bandyopadhyay et al., 2005).

The process of providing optimal treatment for individuals in healthcare, including obesity treatment, is thought to be a continually evolving process. The most effective evidence and practices change over time and with each specific patient population. The DMAIC methodology is ideal for promoting optimal practice in that it includes the element of continuous quality improvement, which allows practices to change as needed. The primary care defect, of not consistently and adequately treating

obesity, is detrimental to health and very costly. This 5-step method of improvement provides a simple process framework, while applying it to a very complex problem.

## CHAPTER 4

### METHODOLOGY

The purpose of this chapter is to outline the methodology used for this process improvement project focused on interventions for obesity in the primary care environment. First the project plan, setting, goals, and measures of this implementation are identified. Then each of the steps of the DMAIC methodology are described in the context of the project and implementation site. The science of obesity treatment has been outlined in the previous chapters. The application of that science to the specific healthcare setting will be identified in this chapter.

The triple aim focuses on increasing efficiency in healthcare by optimizing capabilities through healthcare systems change (Institute for Healthcare Improvement, 2014). The triple aim concept recommends refining primary care services, controlling costs, and improving systems integration. This project focused on refining primary care services in order to overcome the identified barriers to obesity treatment, equipping providers with evidence-based strategies, promoting systems change to save provider time, and suggesting outcome metrics. The goal was to improve the overall health of those most at risk for disease, by using the most efficient, cost effective resources for treating chronic conditions.

#### **Plan**

The plan in general was to perform an assessment of current practice, leading to process improvement for addressing obesity in a primary care environment. In the first two chapters, obesity was established as a harmful condition and cause of increased morbidity and mortality. Obesity was also identified as a condition that is vastly

undertreated and as an area of opportunity for healthcare improvement. This process improvement will utilize the steps in the DMAIC methodology as a guide.

### **Setting**

The selected primary care office is an affiliate of a large primary care network located in the Midwest, United States. This primary care office currently employs seven physicians, one nurse practitioner, 12 medical assistants, and two secretaries. The city in which the office is located is a township within a larger metropolitan area. The township has a population of 41,692 and a median household income of \$46,231 (Citi-data.com, 2013). The payer mix of this office is Blue Cross 24.8%, commercial 1%, managed care 42.5%, Medicaid 7.5%, Medicare 18.1%, and private pay 5.8%. This office is a patient centered medical home, as designated by the National Committee for Quality Assurance (NCQA). A patient centered medical home is an incentive program that encourages the incorporation of services that are comprehensive, patient-centered, coordinated, accessible, and monitored for quality and safety (Agency for Healthcare Research and Quality, 2014). Monthly meetings are conducted to assure that criteria to maintain this designation are being met. The employees of this office are thought to be the primary clinical stakeholders of this project.

### **Goals**

A comprehensive facility evaluation was performed to establish an understanding of current practice and outcomes. The process improvement interventions were based on the information from the systems assessment. The potential end product included a process improvement focused on overcoming barriers to the effective and adequate use of interventions for patients with obesity, including facility recommendations, and a cost

analysis of the intervention. The goals were met by following the detailed DMAIC methodology, as provided later in this chapter. The potential end product answered two questions.

- Question #1. What are the key barriers to the provision of effective and adequate interventions for obesity in this setting?
- Question #2. What are strategies for overcoming the identified barriers that can be implemented and sustained in the primary care office?

The intervention targeted providers and all staff that have patient contact, due to care being offered through a team approach. Patients are screened opportunistically, during their regular appointments (similarly to patients whom are screened for smoking and other risk factors). As a part of patient centered care, each person should be offered health screening and appropriate intervention. A patient's BMI is a required part of the electronic health record as part of Stage 1 meaningful use criteria and is included in the electronic health record of the setting (Centers for Medicare & Medicaid Services, 2013). The Stage 1 meaningful use criteria is the minimum standard of data capture and sharing required of an electronic health record in order to receive the meaningful use incentive. In the NextGen electronic health record system utilized in this primary care site, the BMI turns red if it is  $30 \text{ kg/m}^2$  or greater, indicating that the individual is obese. Since the screening information is already available, it is easy to identify those who are at risk. The availability of the BMI for each patient is an opportunity for the providers to address obesity and is a facilitator of this project.



## **Define**

As identified in chapter one, obesity is estimated to significantly increase morbidity and mortality in the United States (Jia & Lubetkin, 2010). Obesity has recently been declared a disease by the American Medical Association and is a significant contributor to the rising cost of healthcare (McCreless, 2013; Finkelstein et al., 2009). The Health Resources and Services Administration recognizes obesity as a “fast-growing public health issue in the United States, with serious health and economic consequences. Reversing the trend is a national priority” (HRSA, 2012, para. 1). Obesity is addressed in only 11% of primary care visits with obese patients (Scott et al., 2004). It has been newly defined as being a disease that adversely affects health, yet it is generally not treated as aggressively as associated chronic diseases.

The ultimate goal of this project was that all patients with a BMI of 30 kg/m<sup>2</sup> or greater would be provided with a patient-centered plan of care and supported to achieve that plan. Potter and Croughan-Minihane (2001) found that 80% of patients wanted help with weight management from his or her provider. It has been found that even a brief mention of weight loss increases a patient’s efforts to lose weight (Rubak et al., 2005). Addressing obesity among primary care patients consistently has been found to increase weight loss behaviors (Nawaz et al., 1999).

## **Measure**

The measure phase of this methodology encompassed the comprehensive assessment of all related parameters needed to address the focus of the proposal as previously described. Data collection strategies included use of the practice’s electronic health record and de-identified clinical data; point of care decision support technology;

survey with a semi-structured interview; and investigator observation in the practice site.

The following lists the parameters that were assessed:

- Prevalence of obesity among adult patients served in the study site
- Current standards and outcomes for addressing obesity
- Perceived barriers/facilitators associated with interventions for obesity
- Providers' knowledge, skills, and attitudes (goal was to identify a standardized assessment instrument)
- Available resources to address identified barriers
- Cost of current practice for addressing obesity

Observational strategies included designated time to shadow a provider, office manager, information technologist, and other specialty roles. This increased understanding of the office culture and the capability of these roles.

The qualitative process of conducting semi-structured interviews was used to augment the measurement phase of this project. This type of interview provided reliable and comparable data while allowing the informants the freedom to express their own views (Crabtree, 2006). An interview guide was developed to provide structure to the interview and collect consistent data. It is important to understand the interview data within the context of the observational data. The structured interviews included the following:

- Describe your perception of the prevalence of obesity among your patient population
- Describe your current standard of practice for addressing obesity for your patients

- Describe your perception of the effectiveness of your current intervention strategies for addressing obesity
- Explain what you believe are the biggest barriers/facilitators for effective and adequate interventions for addressing obesity in your practice

### **Analyze**

The analyze phase of this process examined the results of the comprehensive assessment, and is reported in chapter six as the discussion. The entire assessment data was studied for themes and patterns in order to establish commonly understood barriers to obesity interventions (Patton, 2005). This phase provided insight into the process and structure of the office and what is perceived to limit effective and adequate interventions for obesity.

### **Improve**

The elements identified in the first three steps of this process guided the improvement phase. The improvements that are desirable were not known until the previous steps had been completed. This step focused on directly addressing the identified barriers.

A comprehensive report of recommendations is provided at the conclusion of this project, including short-term and long-term strategies, made within the context of resources and what is sustainable within this practice. The improve phase encourages that only the highest yield improvements be selected and implemented (Taaffe et al., 2012). The potential for resistance to change related to the culture of the organization was taken into consideration.

## **Control**

The control phase provided insight into how successful the process improvement can be if it is maintained. This phase opened the door for continuous process evaluation and improvement (Banyopadhyay & Coopens, 2005). Inherent in the final product of this process improvement endeavor was the identification of the outcome metrics to be measured to ensure success, and strategies for ongoing monitoring. This included attention to return on investment. Cost analysis was integrated to ensure fiscally responsible strategies were recommended and sustainable.

## CHAPTER 5

### RESULTS

The objective of this chapter is to report the detailed results from the comprehensive assessment of a primary care setting. As reported in Chapter 4, the setting for this study was a primary care office that is an affiliate of a large primary care network located in a midwestern state of the United States. Utilizing the Six Sigma, Define Measure, Analyze, Improve, Control (DMAIC) process improvement framework, this chapter will include the Define and Measure phases of the project.

#### **Define**

This phase of the project established the problem of obesity within the primary care practice, along with possible outcomes. Obesity was evaluated by utilizing information technology to query data from patients' electronic records. The goal was to report the prevalence of obesity within the primary care office.

Providers at this site commonly recognized that obesity was a problem and expressed frustration in inadequate resources to treat the condition. The primary focus was on treating chronic disease, while minimal effort was used to treat obesity. It was thought that an improvement could be made in the obesity treatment process.

To establish the prevalence of adult obesity within this primary care practice, the System Application Specialist was consulted. This individual specializes in querying the electronic health record for quality improvement purposes. In 2013, this office saw a total of 6,893 adult patients, of which 2,608 had a BMI of 30 kg/m<sup>2</sup> or greater, equating to a 37.8% prevalence of adult obesity for that year. Additionally, the total number of adult visits for the year was 16,626, of which 6,914 (41.6%) had a BMI of 30 kg/m<sup>2</sup> or greater.

The larger primary care network, that this practice is associated with, previously had a weight management program, to include obesity treatment. This network service was available as a referral source for four years and included a registered dietitian, care provider, and psychologist. This service was not fiscally sustainable and was closed. The explanation reported was that the chronic diseases associated with obesity were billable, while obesity itself was not, resulting in persistent financial deficit.

In the Define step, it was identified that obesity is significant within this office with a prevalence of 37.8%. After examining previous attempts at providing weight loss services, it was recognized that any future intervention must be fiscally sound.

### **Measure**

The Measure phase of this project focused on the results of a comprehensive assessment of all related parameters associated with obesity treatment in the primary care office. Providers were interviewed in order to identify key barriers to the provision of effective and adequate interventions for obesity in this setting. The current standards and outcomes for obesity treatment practices were identified, along with an associated cost analysis. Providers' knowledge skills and attitudes about obesity treatment were surveyed and community resources were assessed.

### **Provider Survey**

A literature-based provider survey was adapted with permission from Block, DeSalvo, and Fisher (2003) to measure knowledge, skills, and attitudes, as well as to effectively assess the current standard of practice. Before it was implemented, the survey (Appendix A) was reviewed by one doctorally prepared nursing faculty, and three primary care providers, external to the study site, to ensure accuracy and face validity.

The survey had two sections: one that was self-reported, and one that was completed via an interview. All eight providers in the primary care office completed the survey. There were five doctors of allopathic medicine (MD), two doctors of osteopathic medicine (DO), and one nurse practitioner (NP). Among these providers, there were five males and three females. The survey data were collected over a period of 14 days. Each provider was surveyed privately, in the office, at a time of his or her convenience. The interview portion was conducted personally and recorded; then reviewed to ensure accuracy in data recording.

There were eight questions on the self-reported section of the survey. They were directed at understanding knowledge, skills, and attitudes of the providers; identifying common barriers to obesity treatment; and discovering the perceived number of adult patients with obesity seen during an average daily schedule. The first six questions of the survey contained a Likert Scale response format. The responses to these questions are displayed in Table 2.

Table 2

*Provider Survey*

| Regarding the treatment of obese patients:                | Strongly Agree | Agree      | Neither    | Disagree   | Strongly Disagree |
|---|----------------|------------|------------|------------|-------------------|
| 1). I have had success in treating obese patients?        |                | 37.5%      | <b>50%</b> | 12.5%      |                   |
| 2). I think treating obese patients is futile?            | 12.5%          |            |            | <b>75%</b> | 12.5%             |
| 3). Obesity is primarily caused by genetic factors?       |                |            | 25%        | <b>75%</b> |                   |
| 4). I have confidence in treating obese patients?         |                | 37.5%      | <b>50%</b> |            | 12.5%             |
| 5). Obesity is primarily caused by environmental factors? |                | <b>50%</b> | 25%        | 25%        |                   |
| 6). I think treating obese patients is important?         | <b>75%</b>     | 25%        |            |            |                   |

*Note:* Adapted from “Are physicians equipped to address the obesity epidemic? knowledge and attitudes of internal medicine residents.” By Block, DeSalvo, & Fisher, (2003).

There was a moderate degree of consistency among responses. The majority of providers neither agreed nor disagreed about success in treating obesity; did not think that obesity treatment is futile; and did not believe it is caused primarily by genetic factors. Providers felt strongly that treating obesity was important, while success and confidence in treating obesity was moderate.

The providers’ perception in this office was that on an average day, 59.3% of adult patients were obese. The most commonly reported barriers to obesity treatment



were shared with the providers and they were asked to indicate any of these that they had experienced. Of the eight providers, 87.5% selected lack of time, 50% selected concern about patient compliance, 25% selected my personal insufficient knowledge or experience related to weight loss strategies, and 25% selected inadequate access to patient educational materials. Some providers wrote in other barriers including lack of patient interest, poor/ineffective medical treatment for this condition, lack of access to a dietician/nutritionist, and fear of offending the patient.

### **Provider Interview**

All providers were interviewed immediately following completion of the self-report section of the survey. There were eight interview questions. The interviews were conducted to establish the current standard of care for treating obesity, identify what prompts the provider to address obesity during an appointment; discover personal perceptions of barriers and facilitators related to obesity interventions; and determine available, as well as, desired resources. All interviews were recorded and were eight to fifteen minutes in duration, depending on how much the provider wanted to share. The recordings were reviewed three times to extract accurate and common themes from the interviews.

The first interview question asked about the current standard of practice for treating obesity. The majority of providers recognized that they identify obesity at the annual health maintenance exam (annual physical). Obesity is most often identified on the electronic health record with the calculation of the BMI, which turns red if the patient is obese. The providers may then note that weight is a problem, often encourage lifestyle change, and provide the patient an educational handout. One provider recognized the

limitations of practice, that “it is not really a health maintenance exam but a review of chronic disease.” If the effort to promote weight loss is unsuccessful, then community services are recommended (e.g., Weight Watchers). Providers recognized important qualities of weight loss programs are accountability, group support, and external motivators. To be noted, 25% of providers discussed using weight loss medications occasionally and 37.5% of providers mentioned bariatric surgery as a last resort.

There were three common triggers for addressing obesity that were identified among all interviews. Six of the providers (75%) were influenced to address obesity because of a co-morbidity, while four (50%) mentioned that they address obesity at the annual physical. Three of the providers (37%) identified that they are triggered to address obesity when the patient identifies it as a problem, although this happens rarely.

Many barriers to obesity treatment were identified during the interviews. These barriers included both provider barriers to addressing the problem and patient barriers to weight loss. It was recognized that the patient and provider barriers are often inter-related. The provider barriers to obesity treatment (in order from most common to least common) included provider time, no reimbursement for provider intervention, lack of a referral base, and disease-focused appointments. The most common patient barriers identified by the providers were low income, patient culture/home environment, lack of success, and patient’s level of education.

There were fewer facilitators to obesity treatment. Six of the providers (75%) recognized that patient educational materials and referral to a community resource were effective. Other, provider identified, facilitators included using goal setting, recognizing

associated co-morbidities, using technology (such as the MyFitnessPal smart phone application), and simply providing encouragement for patients.

There were several community resources identified by the providers. Providers discussed referral to Weight Watchers (75%), dietician/nutritionist (37.5%), media based public education (37.5%), Over Eaters Anonymous (25%), and other commercial programs (25%). The most common response from providers was that more resources are needed.

The last question in the interview guide was open-ended, allowing the provider to share anything not captured in the survey. There were many responses to this question that provided insight into the inquiry. Fifty percent of responses included that obesity treatment is not a good use of time for a primary care provider. Other responses included:

- “I am not the best person to provide long term obesity treatment with follow-up. Seeing me for fifteen minutes once a month is not a good use of time for me or the patient.”
- “Weight Watchers is probably the only program that most patients can afford.”
- “There is a perception that healthy food is expensive and that fast food is not. This is just not the case.”

### **Effectiveness of Current Practices**

A chart review was performed to identify the effectiveness of current practices. One provider in the primary care practice sees patients when they cannot make an appointment with their regular provider. A convenience sample of this provider’s patient visits were identified and the associated EHR was reviewed, as it provided a

representative sample of the total. This review of patient records was conducted to discover how obesity is treated.

This sample was from appointments occurring between March 3 and March 18, 2014, and included 130 adult visits. For each patient record, BMI was examined over a 23-month period, from the initiation of the current electronic health system in April 2012. In this time period, 51 patients (39%) were obese at some point, and 49 of them had been seen two or more times during this time period. From this patient sample of 51 obese individuals, 21 had a formal obesity diagnosis in the EHR and 27 had received some form of intervention, which are shown in Table 3. The most common documented interventions included encouraging diet and exercise, providing an educational handout, and recommendation to Weight Watchers. There was no capability to track which educational handouts were given to patients during visits.

Table 3

*Obesity Interventions from Chart Review*

| Intervention                       |          |
|------------------------------------|----------|
| No intervention                    | 24 (47%) |
| Recommended diet and exercise      | 15 (29%) |
| Handout on diet and/or exercise    | 7 (14%)  |
| Recommend Weight Watchers          | 3 (6%)   |
| Recommended to keep a food journal | 1 (2%)   |
| Recommended MyFitnessPal           | 1 (2%)   |
| Total                              | 51       |

When reviewing the sample of patient records, obesity associated co-morbidities were recorded. The chronic problem list included in each obese patient's record was evaluated for one or more of the following chronic illnesses associated with obesity: Type 2 diabetes, hypertension, dislipidemia, sleep apnea, and osteoarthritis. Seventy two percent of obese individuals in the sample had at least one obesity-associated condition.

Evaluation of the effectiveness of current practices revealed that obesity treatment is inconsistent. Of the obese individuals in the sample, more were treated for obesity than had a documented obesity diagnosis. Except for one patient who refused to be weighed, all patients had a documented BMI. It is important to note that during this 23-month period, 96% of these patients had been present for two or more visits, offering multiple opportunities to address obesity. Providers were very inconsistent with documentation and treatment of obesity.

### **Available Resources**

It is important to assess the resources available for addressing the barriers to effective and adequate strategies to promote weight management in the context of this practice setting. It is recognized that long-term obesity treatment by the provider may not be feasible, while provider screening and referral may be successful. An evaluation was performed to understand what patient educational handouts are available, what reimbursement mechanisms are available (e.g., insurance), and what weight loss programs are available within the community.

**Handouts.** In this primary care office, the standard of practice is that an educational handout is provided for the patient at the end of each appointment. These handouts are selected by the provider to reinforce what was discussed during the

appointment. These handouts come from a national vendor Healthwise, and are written for the 4<sup>th</sup> to 8<sup>th</sup> grade level. These handouts do not provide education specific to the resources of this geographic region and cannot be altered by the providers. The handouts available for weight loss are numerous. The handouts commonly used for weight loss were noted during the chart review were: the dash diet, diet and exercise, wellness, and walking for exercise.

**Insurance Coverage.** An evaluation of insurance coverage for obesity treatment was performed to understand patient and provider incentives and opportunities. The Network Referral Manager of this office was consulted to discover the top 80% of insurance payers. Top payers included Blue Cross Blue Shield, Blue Care Network, Priority Health, and Centers for Medicare and Medicaid Services (CMS). Each insurance company was contacted through email, telephone, or both.

Insurance coverage is very limited for obesity treatment. It was found that obesity is not a billable diagnosis and there are no provider incentives from any of these payers. Blue Cross Blue Shield and Blue Care Network do have a program where employers providing health insurance may select Weight Watchers coverage for its employees. The majority of employers do not choose to provide this coverage.

Priority Health offers a patient incentive that an employer can elect to provide to its employees. Priority Health offers a biometric screen with a possible monetary patient incentive. The biometric screen includes a cholesterol, blood sugar, blood pressure, smoking, and BMI screening with recommendation. There is a financial incentive offered to patients for keeping these elements within a defined healthy range.

Beginning in 2014, the Patient Protection and Affordable Care Act (2010) requires all insurance companies to cover preventive services that get a rating of A or B by the United States Preventive Services Task Force, at no cost to the individual (Patient Protection and Affordable Care Act, 2010, P. 14). The coverage of obesity screening and up to 22 intensive counseling sessions annually was confirmed with Blue Cross Blue Shield, Blue Care Network, Priority Health, Medicare, Medicaid (Blue Cross Blue Shield Michigan 2012; CMS, 2012; Priority Health, 2014). This benefit is currently not being utilized in this practice. Intensive behavioral therapy (IBT) has the strongest evidence of success for medical treatment of obesity (Jensen et al., 2013).

IBT must be provided by a primary care physician, certified clinical nurse specialist, nurse practitioner, physician assistant, or billed under “incident to” by registered dietitians (CMS, 2012). There is coverage for up to 22 therapy sessions a year. Beneficiaries are eligible for one visit every week for the first month, followed by visits every two weeks for months 2-6. If the individual loses at least 6.5 pounds, one visit a month for months 7-12 is allowed (CMS, 2014).

**Community Resources.** There are many community resources that encourage weight loss, healthy diet, and/or exercise. These resources provide a number of options, in a broad price range, and also provide a referral option for providers. During the interview, the providers each knew of one or two resources while none mentioned searching out resources within the community. A table of community resources (Appendix C) was created after performing an Internet search.

There is a broad range of community resources that are available within 15 miles of the primary care office or are on-line programs. One of the most notable resources is the Diabetes Prevention Program, offered for free at the YMCA for those with a BMI of 30 kg/m<sup>2</sup> or greater and who do not have diabetes. Other resources include Overeaters Anonymous, Grand Rapids Parks and Recreation, Mercy Health Life Counseling, Take Off the Pounds Sensibly Club, Weight Watchers, Kent County Health Department, YMCA, Nutrisystem, and Jenny Craig. The price of these programs ranges from free to \$249.99 a month, with the majority costing less than \$50 a month.

### **Cost Analysis**

The current practice of treating chronic conditions very aggressively while treating obesity minimally, is expensive in terms of health and healthcare dollars. Obesity has an impact on the quality measures that are linked directly to provider reimbursement and office reimbursement. Obesity costs will be examined from the perspective of medical cost, lost productivity, and lost office revenue.

The estimated medical cost of obesity varies widely. Finkelstein et al., (2009) estimated the annual cost for an obese person to be \$1429 greater than a non-obese individual, or a 42% increase in cost. Cawley and Meyerhoefer (2011) estimated the annual health care cost for an obese person to be \$2741 more than a non-obese individual. In this primary care office in 2013, there were 2,608 obese adult patients, who are estimated to have additional medical costs per year of between \$3,726,832 and \$7,148,528 due to obesity.

There are expanded costs of obesity. Trogon, Finkelstein, Feagan, Cohen, and Joel (2012) estimated that 41.8% of obesity-attributed expenditures are financed by the



state of Michigan (publicly funded insurance). There are also expenses associated with lost productivity which are estimated in the U.S. to range between \$1143 to \$6694 per obese individual annually, depending on level of obesity (Finkelstein, DiBonaventura, Burgess, & Hale, 2010). These expenses also result in lost state revenue due to lost taxable income.

There is cost to the primary care office associated with lost revenue and related lost insurance incentives. At this primary care office, 25% of provider wages are linked to meeting quality measures, because meeting these measures increases office reimbursement. These quality measures are linked to providing the appropriate screenings and care at annual physicals, controlling hypertension and cholesterol, managing diabetes within parameters, and other requirements. The more effectively that obesity is treated, the better hypertension, cholesterol, and diabetes will be controlled. The majority of providers in this office do meet the criteria to receive the 25% incentive for meeting quality measures. Treating obesity is thought to prevent chronic disease and decrease the chronic disease burden related to many of these quality measures and decrease the number of parameters that must be met per patient, on average.

Finally there is the cost of missed opportunity for treating obesity. In this office there are 2,608 obese patients that could be receiving IBT for obesity. Reimbursement is \$25-\$36 for a 15-minute, face-to-face, behavioral counseling visit, which can occur 22 times a year (Code G0447) (American Medical Association, 2014). The code G0447 is not billable on the same day as another encounter or appointment (Department of Health and Human Services, 2012). There is potential for providers or a registered dietitian to realize this missed revenue and improve patient outcomes.

## **Conclusion**

In the Define and Measure phases of this project, valuable assessment data were discovered. It was found that obesity is a significant problem in this office. Providers expressed frustration with this challenge, desiring more resources to treat this condition, while many treatment options for this condition have not been realized.

A great deal was discovered related to providers' perspectives from the provider interview and survey. Providers identified the biggest barriers to effective obesity treatment were lack of time, concern about patient compliance, lack of referral base, being disease focused, and not being encouraged by reimbursement. Providers were comfortable screening for obesity, but did not feel that they were the best ones to provide long-term treatment for this condition.

The chart review revealed more information. It was found that the majority of the time no intervention for obesity was documented during the 23-month period that was reviewed. Interventions that were documented most often were diet and exercise recommendations, and handouts on diet and exercise. There was great variability among the documentation and treatment of obesity.

Obesity is a significant problem among the patients of this primary care office. Although providers recognize the importance of obesity treatment, they treat it inconsistently, and do not utilize the fullest extent of the resources available. This primary care office is not optimizing its resources, which equates to increased medical costs, missed opportunities to treat obesity, poorer patient outcomes, and unrealized revenue. This office and patient population are in need of a process improvement to improve the treatment of obesity and realize the long-term health benefits.

## CHAPTER 6

### DISCUSSION

The final three phases of the DMAIC methodology will be used to organize this concluding chapter. There is a substantial need for change in obesity management practices. In the Analyze phase, the main barriers to effective and adequate intervention are summarized. The improvement strategies focus on the barriers that must be addressed using evidence based guidelines found in well-designed weight management programs published for use in practice. Strategies to promote success and sustainability are considered under the Control phase and include evaluation metrics necessary to document return on investment. Changes in workflow are outlined to show how these elements can be incorporated into current processes.

#### **Analyze**

The Analyze phase is focused on understanding the root causes of the defect. The defect is not treating obesity because of the barriers to effective and adequate treatment. Elements from the Measure phase are examined, which include the provider survey and interview, resources, and cost analysis. Opportunities discovered in the analyze phase lead to the focus of the system changes.

#### **Provider Survey and Interview**

There were many patient and provider barriers that were found by analyzing the provider survey and interview. The barriers listed on Table 4 were the target of the Improve and Control section.

Table 4

*Common Barriers to Obesity Treatment*

|   | Survey                                | Provider identified primary care barriers | Provider identified patient barriers |
|---|---------------------------------------|---|--------------------------------------|
| 1 | Provider time                         | Provider time                             | Low income                           |
| 2 | Patient Compliance                    | No insurance coverage for treatment       | Patient culture/home environment     |
| 3 | Provider knowledge                    | Lack of referral base                     | Lack of success                      |
| 4 | Lack of patient educational materials | Disease-focused appointments              | Patient level of education           |

The findings from the provider survey and interview were compared with the chart review. In the survey, the providers unanimously indicated that treating obesity was important. This is in contrast to the chart review. Among outcomes from appointments with obese individuals, it was found that generally no interventions were attempted. This discrepancy of what providers believe is important, compared with what is actually occurring during appointments, further indicates that change is needed in obesity treatment processes. It may be suggested that if providers had resources that they were confident in and thought to be successful, they would be utilized more consistently.

**Resources**

There are a number of resources available to improve evidence-based obesity treatment for primary care patients. Effective use of these resources can be applied to overcome the barriers that have been identified. The two most effective interventions, as identified by the obesity treatment guidelines, are intensive behavioral therapy (IBT) or

referral to a community program (Jensen et al., 2013). Utilization of these services is seldom used and need to be optimized in order to treat obesity effectively.

The Analyze phase revealed many areas for improvement. Effective use of evidence-based resources has the potential to overcome the current barriers to obesity treatment. Current obesity treatment practices at this site do not optimize the most effective interventions, IBT or referral to a community program, creating great opportunity for process improvement. There is lack of awareness of evolving reimbursement structures that address cost concerns.

### **Improve**

The Improve phase focused on overcoming the barriers to effective and adequate treatment of obesity and promoting the facilitators identified in the literature.

Recommendations are made focused on system changes to be made within the primary care office. These changes focus on incorporating evidence based tools, practices, interventions, and electronic health record (EHR) support.

The recommendations have been prepared for the primary care practice in the form of a Provider Toolkit for the Treatment of Obesity. A toolkit is a practical strategy to allow resources to be readily available. Items included in the toolkit are non-copyrighted materials, which are evidence-based and created as resources to providers and patients. The following resources were adapted and used in the development of the toolkit:

- California Association of Health Plans. *Adult obesity provider toolkit*. 2008.
- Centers for Medicare and Medicaid Services. *Intensive behavioral therapy for obesity*. 2014.

- Fitch, E. A. E, Fox, C., Goldberg, J., Heim, C., Johnson, K., Kaufman, T., . . . Webb B. Institute for Clinical Systems Improvement. *Health care guideline: Prevention and management of obesity for adults (6<sup>th</sup> ed)*. 2013.
- McGinnis, P., Davis, M.M., Howk, S., DeSordi, M., & Thomas, M. Oregon Rural Practice-based Research Network. *Integrating primary care practices and community-based resources to manage obesity: A bridge building toolkit for rural primary care practice transformation*. 2014.
- Missouri Council for Activity and Nutrition. *Adult activity and nutrition: Health care provider tool kit*. 2014.
- National Institutes of Health, National Heart, Lung, and Blood Institute, North American Association for the Study of Obesity. *The practical guide: Identification, evaluation, and treatment of overweight and obesity in adults*. 2000.
- University of Vermont, Area Health Education Centers Program; Vermont Department of Health; & Fit & Healthy Vermonters. *Promoting healthier weight in adult primary care*. 2007.
- U.S. Department of Human Services. *Tips to weight loss success*. 2002.

There are nine recommendations included in the Toolkit, with guidelines, tools/resources, and outcome metrics identified for each. Recommendations have been made with consideration of the identified barriers that must be addressed. The recommendations are as follows:

Table 5

*Recommendations*

| Recommendation   | Tool  | Outcome Metrics   | Barriers addressed   |
|--|---|---|--|
| Establish utilization of a Patient Readiness Scale                         | Many provided. Recommend 1-10 scale.  | Percent of obese adults who have completed readiness scale.   | Disease focused appts.<br>Provider time  |
| Use tools such as posters, brochures, fliers to educate about BMI and risk | Many provided. Recommend free YMCA programs.  | Improvement of all outcome metrics.                           | Pt. culture<br>Provider time<br>Provider knowledge   |
| Remove barriers to patient referral programs                               | Follow recommendations to create an in-office intensive behavioral therapy program for obesity. | Percent of obese adults offered treatment.                    | Provider time<br>Provider knowledge<br>Lack of insurance coverage<br>Lack of referral base<br>Low pt. income |
| Develop patient-centered education and management program                  | Utilize list of community resources and in-office intensive behavioral therapy.                 | Percent of obese adults provided education.                   | Provider time<br>Lack of pt. ed.<br>Materials<br>Disease focused appts.<br>Pt. culture                       |
| Establish a system for staff and provider training                         | Follow recommended EHR changes.   | Improvement of all outcome metrics.                           | Disease focused appts.<br>Provider knowledge   |
| Develop patient tracking system to notify provider                         | Follow recommended EHR changes.   | Improvement of all outcome metrics.                           | Disease focused appts.<br>Provider knowledge   |
| Develop medical record tracking system, with ability to track by provider  | If EHR changes are made, this will be possible.   | Improvement of all outcome metrics.                           | Disease focused appts.<br>Provider knowledge   |
| Develop a system to track patient education                                | If EHR changes are made, this will be possible.   | Increase % of obese adults who receive appropriate education. | Disease focused appts.<br>Lack of pt. ed.<br>Materials<br>Provider knowledge                                 |
| Track outcome measures and evaluate response to various treatments.        | If EHR changes are made, this will be possible.   | Change in BMI among obese adults sorted by intervention.      | Disease focused appts.<br>Provider knowledge   |

## **Provider Toolkit**

Further descriptions of each of the recommendations in the toolkit are presented, in the context of the relevance for the primary care practice.

### **Utilize Educational Tools**

It is recommended that posters, brochures, and fliers be distributed throughout the office in order to inform patients about their weight and associated health risk. These tools are designed to educate patients about provider and community services, increase patient understanding, and save provider time.

It is currently an office standard for the MA to obtain the patient's height, weight, and BMI on admission. One simple step to further patient education is for the MA to point out the patient's BMI on a wall chart in the exam room. This can begin the conversation about weight, if it is needed. The printable weight loss education available to staff on the Healthwise system should be used along with information about IBT and/or community services. This information can be provided by the MA and be incorporated into the current discharge process.

### **Incorporate a Readiness Scale**

There is a strong recommendation to establish a system to evaluate patient readiness to lose weight. Patient readiness for weight loss can be established after the MA has identified the patient's BMI is 30 kg/m<sup>2</sup> or greater on the chart located in the exam room. There are a number of evidence based patient readiness scales that can be used and are supplied in the provider toolkit. If providers find a preference for one of these tools it should be adapted into the electronic health record (EHR) for standardized care and to increased accessibility. The IT department can be consulted to incorporate the patient



readiness tool into the EHR. Incorporating a system for MA's to evaluate patient readiness removes the barriers of focusing only on chronic disease and limited provider time.

### **Remove Referral Barriers**

There are currently a number of barriers to patient referral that have been identified by providers during the interview. Providers frequently cited that patients had limited financial resources and there were few places to refer for effective obesity treatment. It has been discovered that as of 2014, IBT for obesity is a mandatory coverage for insurance and that this service can be created within the primary care office. For patients that do not select IBT there are other treatment options available.

### **Intensive Behavioral Therapy (IBT)**

IBT has been shown to be the most effective primary care obesity intervention (Jensen et al., 2013). A previous effort established by the overall primary care network to have a referral site for weight management failed due to lack of reimbursement. With the evolving reimbursement efforts, a system-wide shared intervention could be re-considered. A registered dietitian employed by the primary care network organization could be shared across practices in which there are adequate numbers of obese patients to support the position.

There are several elements that need to be incorporated for IBT to be reimbursed. It can only be billed for by a physician, physician assistant, nurse practitioner, clinical nurse specialist. IBT can also be billed "incident to" by a dietitian as long as it is signed off by a provider. IBT needs to be offered within the primary care office in order to bill "incident to." It cannot be billed on the same day as a medical exam and needs to occur at

authorized intervals as previously described. Information about these details is included in the provider toolkit.

There are (2,608 obese adult patients x 22 appointments annually) 57,376 potential appointments for obesity. If a registered dietitian were hired full time with two weeks of vacation, there are 2,000 available working hours. If this employee would schedule three, 15-minute appointments an hour, that would be 6,000 appointments a year. Hiring a registered dietitian would be reasonable if 10% of the obese patients wanted treatment. An average U.S. registered dietitian's salary is \$55,240 (Bureau of Labor Statistics, 2014), with an additional estimated 25% reimbursement in the form of benefits for a total cost of \$69,050. This position would be revenue positive if the proposed 6,000 visits were reimbursed at \$25 equating to a total revenue of \$150,000. Additionally, the (22 visits x \$25) \$550 spent per patient by the insurance payer is a great bargain when compared to the \$1429, average annual cost of obesity. There would be other expenses such as the provision of office space, time of the scheduler, and other related costs, while this program is still expected to be profitable.

### **Referral to a Community Program**

Referral to a community program has shown to be the second most effective weight loss intervention (Jensen et al., 2013). This intervention is often overlooked, but preferred by some patients. If a patient does elect to utilize a community program this should be documented and offered for re-consideration at the next appointment, to engage the patient and encourage progress. Information about community resources is included in the provider toolkit.

## **Patient Self-Management**

Developing a patient self-management program is a third option for treating individuals who elect a self-directed weight loss program. The primary care team can encourage self-management by providing education and resources for the patient. These resources include information about how to calculate BMI, a BMI chart, exercise and diet information, along with follow-up at subsequent visits. It is important for the MA or provider to document patient self-management efforts in order to follow-up and encourage success. This also creates an opportunity to offer additional resources if needed.

## **Patient Tracking**

A patient tracking system should be included to remind providers if the appropriate obesity treatment was not offered during a visit. If the MA does not document the patient readiness scale for an obese patient, with appropriate referral/intervention, then the provider would get a pop-up reminder in the EHR.

There would be a one-time cost for creating the BMI pop-up. If the lifetime cost of the improvement is considered, this change will be more economical, the longer and more effectively it is utilized in practice. The obesity charting pop-up should open as a reminder if obesity should be addressed and is not, and should be available as an icon in the EHR.

The pop-up would include the BMI from the last three visits and the intervention that was performed at those appointments. The pop-up would quickly provide pertinent information and would include check boxes for common interventions, which makes it

easy to document and is trackable by the quality department. An example of what this may look like is provided in Figure 2.

Figure 2

*BMI Pop-Up*

| Date         | 2/04/2013                                | 8/04/2013    | 12/15/2013                                      | Today |
|--------------|--|--------------|---|-------|
| BMI          | 31                                       | 31.5         | 34  | 30.2  |
| Intervention | Recommendation to lose weight.           | Pt. declined | Referral to YMCA                                |       |
| Education    | BMI chart and diet information provided. | Declined     | Flier for free YMCA weight loss class provided. |       |

Interventions provided today:

- Patient declined
- Recommendation to lose weight with patient self-monitoring.
- Counseling about diet and exercise
- Goal setting
- Handout provided
- Referral to community weight loss program
- Referral to IBT
- Other

**Staff Training**

Staff training is an essential element to change the culture and practices of this primary care office. The staff has become accustomed to attending continuing education programs during lunch, which is preferable by many as it avoids interruption of regular patient appointments. All staff should be briefed about the recommended changes so that they can appropriately incorporate them into workflow. Staff education should include the expectation of addressing obesity annually, along with the recommendations that comprise the rest of this Improve section. If there are future incremental changes to this process improvement, it can be included during the regular monthly staff meeting. The

implementation of these recommendations and staff training should take place over time to increase staff buy-in and allow the staff to incorporate the changes into their workflow concept.

### **Implementation**

To implement the recommendations as suggested, they should be done within the context of this primary care setting, a phased-in approach, and the resources of this office. A final implementation plan should be completed in collaboration with all of the members of the healthcare team. Some of these recommendations can be implemented in the short term, while others will take time to fully integrate. The suggested timeline for intervention is included in Table 6. There may be delays in the implementation process related to the ability of IT to create the EHR pop-up. This dissertation and the toolkit will be supplied to the lead provider in this primary care office, along with a discussion of the benefits of implementing this plan.

Table 6

| <i>Suggested Timeline For Implementation</i> |   | Timeline                         |
|--|---|----------------------------------|
| 1  | Office manager to assess who is interested in being an obesity process improvement champion.                          | Now                              |
| 2  | Appoint obesity process improvement champion to oversee implementation and sustain practice change                    | One week after initiation        |
| 3  | Staff champion to begin staff training and collaboration with care team.  | One month after initiation       |
| 4  | Staff champion works with team: review toolkit as resource for practice; phase in process improvement activities      | One month after initiation       |
| 5  | Staff champion to introduce readiness scale.  | One month after initiation       |
| 6  | Staff champion to introduce posters/brochures/fliers.   | One month after initiation       |
| 7  | Staff champion to introduce referral of patients to community programs.   | One month after initiation       |
| 8  | All care teams to phase in use of steps 4-7.  | Two months after initiation      |
| 9  | Pilot registered dietitian in the office.   | Four months after initiation     |
| 10   | IT to estimate cost to build EHR pop-up.  | Four months after initiation     |
| 11   | Office manager to perform a cost analysis of improvements with help of billing dept.                                  | Six months after initiation      |
| 12   | IT to build EHR pop-up.   | Seven months after initiation    |
| 13   | Quality department to monitor changes as suggested in the Control phase.  | Eight months after initiation    |
| 14   | Quality Department and office champion to perform continuous obesity process improvement monitoring.                  | Quarterly after month eight      |
| 15   | Administration to expand the obesity process improvement to other primary care offices within the associated network. | Eighteen months after initiation |

The Improve phase incorporates many evidence-based elements from the documented resources in order to standardize a system for the treatment of obesity in this primary care office. The incorporation of IBT has the potential to be a great resource to

patients by helping them lose weight, to the office by generating revenue, and to payers by saving healthcare dollars that would be spent on chronic disease. These changes focus on giving providers the effective and time saving resources that are needed to incorporate evidence-based treatment for obesity into regular processes.

The overall profession of nursing is seeking to promote the co-design of clinical education experiences for nursing students across all degree levels. Academic leaders and practice partners must recognize the importance of careful collaboration in the development of education and practice designs that will provide reality-based experiences with attention to resource efficiency, systems improvements, productivity, and positive patient outcomes. The intent is to ensure a reciprocal partnership where students add value to the practice environment, while engaging in meaningful service learning and achievement of learning objectives. With this in mind, this primary care practice should seek to continue the partnership with Grand Valley State University's Kirkhof College of Nursing. Future placement of Doctor of Nursing Practice students in the practice will foster dedicated student project time for the implementation and sustainability activities that are needed to carry this initiative forward. This could be a most valuable resource for the practice.

### **Control**

The Control phase of this process improvement focuses on sustaining long-term improvements by monitoring associated outcome metrics. In this primary care office the Control phase incorporates both quantifiable and qualitative impacts. The recommendations in this phase are structured on the evidence from Fitch et al, (2013).

The information technology department is able to change the EHR in order to streamline charting, standardize practices, and make obesity treatment an element that can be tracked over time. The Quality Department can then incorporate the obesity-associated EHR changes to monitor obesity treatment, along with the elements of care that are currently monitored. Structuring obesity charting like Figure 2 would greatly improve the capability of the EHR to provide outcome metrics about the improvement of these obesity treatment process improvements. There is currently no standardized or consistent way that obesity treatment is charted or tracked.

### **Track Patient Education**

The current EHR does not track the education that is provided to patients, which is only available through a manual chart review, if the provider documented it. Capability to track obesity educational materials is essential to understand if these tools are being utilized consistently and effectively. The information technologist should be consulted to make obesity treatment an intervention that can be quantitatively tracked by each provider to ensure that obese individuals are consistently receiving appropriate education. It should be an expectation that each obese individual receive an appropriate educational handout, based on his or her level of readiness to lose weight, at least once a year. The education selected and provided to the patient should be automatically documented for that appointment. With the current system a patient could receive the same handout multiple times because previous actions are not documented.

### **Track Interventions**

To reinforce the expectation that obesity should be addressed annually and standardize processes, interventions should be tracked. If the EHR is changed to



incorporate obesity treatment that is charted in the format of Figure 2, the intervention will be documented in a trackable format. Documentation in this format would standardize charting among providers, allow previous interventions to be easily found during an appointment, and increase appropriate follow-up from previous interventions.

Provider performance is currently tracked through outcome metrics, monitored by the quality department. Providers get a periodic up-date of their performance, based on the outcome metrics established by the organization. When providers meet these expectations, they get a 25% bonus in addition to their regular salary. This bonus is a significant incentive for providers and is taken very seriously. Screening for obesity, providing appropriate education, and offering obesity treatment annually can be added to the outcome metrics associated with this bonus to ensure rapid adaptation to the new expectation.

### **Track Treatment Response**

In order to understand the effectiveness of this intervention treatment response should be monitored. The outcome metrics associated with treatment response should be monitoring quarterly of the percentage of obese patients provided education, percentage offered treatment, number of patients receiving IBT, and change in BMI associated with type of intervention. This can allow the quality department to understand which interventions are most effective and monitor the need to grow IBT services. With this information, processes can be continually improved to meet identified needs.

The control phase also has qualitative impacts on this primary care office. A significant part of the control phase is to change processes to incorporate new practices as a routine part of existing processes. If obesity treatment is offered consistently it can

change office and patient culture. Over time, the health care team will adapt practices to treat obesity routinely, the healthcare team will expect an obesity intervention and remind each other if it is missing, and patients will expect to be offered treatment for obesity if needed. Once dietitians begin providing IBT within the office, providers and patients will incorporate it into their primary care concept and expect this resource. With consistency, obesity treatment will become an expectation and not be addressed haphazardly as it is now. It may be suggested that if providers recommend weight loss consistently, that the culture of healthcare and of the community may be influenced, just as breast cancer screening has found its way into popular U.S. culture.

The recommended process improvements can be controlled through standardized outcome metrics, EHR improvements, and by changing the culture of this primary care office. Associating a financial incentive with the expectation for treating obesity will quickly initiate practice change. Creating a culture of routine obesity screening and treatment will take time, but will further solidify the change.

### **Work-Flow**

It is understood that following these recommendations will change work-flow, which is a very important consideration in this highly efficient primary care office. Work-flow for this process improvement is structured on the 5A's approach. The Center for Medicare and Medicaid Services (2014) requires that IBT follow the 5 A's, which are Assess, Advise, Agree, Assist, and Arrange. Information about the 5A's format is included in the toolkit.

Standard work-flow should be as follows. The patient arrives and is weighed and measured for height on the way back to the exam room. In the exam room the medical

assistant (MA) identifies the patient's BMI on a chart (Assess) and, if needed begins the conversation about weight. The MA identifies the elevated weight and associated health risk (Advise). The patient is asked if he or she wants help losing weight using a patient readiness scale (Agree). The MA will encourage the patient and provide education about IBT and community resources (Assist). The MA will assist with referral to IBT or provide information about other treatment. (Arrange). The MA will document the BMI, referral/resources provided which can be referred to at subsequent visits. If this is not documented the provider will get the pop-up as discussed. The provider will encourage this intervention as time allows. At discharge the patient will receive information focused on his or her level or readiness and agreed upon action. The patient will receive follow-up at the next visit with encouragement. Finally, the staff will get up-dates on their outcome metrics associated with this process to maintain the effectiveness and encourage the staff.

This recommendation requires many interdependent roles and elements. It is important to incorporate obesity treatment practices into work-flow, just as other quality improvement measures are. Part of this recommendation involves changing the culture of the office to treat an elevated BMI just as an elevated blood pressure, pulse, or temperature would be treated.

Providing IBT, referring to a community program, utilizing the toolkit, and improving EHR capabilities, all focus on incorporating obesity treatment into usual work-flow. This would overcome the barriers of patient cost, lack of provider reimbursement, lack of provider time, lack of referral base, lack of patient educational materials, providers being disease focused, and providers not feeling that they are the best ones to provide this service. This creates a sustainable evidence based intervention that is

financially feasible and addresses barriers to effective and adequate strategies to promote weight management among obese individuals.

### **Effectiveness, Feasibility, and Sustainability**

There are many factors that impact the effectiveness, feasibility, and sustainability of these recommendations. It is recognized that healthcare is provided through a team approach and because of this, recommendations are included for the many interdependent roles. This process change consists of simple, evidence based steps, and provision of obesity treatment tools, which have been effective at improving obesity treatment.

Providers in this primary care office recognize the importance of treating obesity and currently feel that they have limited resources to do so. Incorporating these recommendations will give the providers the tools that they need to overcome many of the barriers to effective weight loss treatment. Recommending these evidence-based treatments as standard practice will increase effectiveness and improve health.

The feasibility and sustainability of this process improvement is dependent on incorporating obesity treatment into usual work-flow. The success of the project relies on these interdependent improvements and the team approach. The goal of sending patients to a registered dietitian for IBT (G0447) 15-minute face-to-face counseling is thought to be revenue positive, is free to patients, and will save healthcare dollars in the long-term. Registered dietitians already work with this office from a remote location. Having the registered dietitian available in this primary care site, with increasing availability as demand requires, is not a big adjustment. There is space and support staff in this office to assist with this change. More registered dietitians may be needed if this service has great demand. For those who prefer referral to a community program, the handout on

community resources with contact information is an asset, when incorporated with follow-up and encouragement at the next visit.

This process improvement is thought to be effective, feasible, and sustainable. As this process improvement is adapted to the needs of this site, much can be learned about how to expand this obesity intervention to similar sites. Although community resources are not universally available, IBT coverage is consistent across the U.S. and similar intervention is thought to be useful to primary care offices throughout the nation.

### **Strengths**

There were several strengths in this process improvement project. One of the greatest strengths in this office is the openness to change and cooperation of the providers. Other strengths include universal coverage of IBT with no co-pay, ability of the registered dietitian to bill for this service, and the amount of opportunity that exists.

The eight providers in this primary care office are very open to change if it will better the lives of their patients. Because of this, 100% of the providers of this office were available for survey and interview. During the interview many of the providers expressed that if there were resources available, they wanted to know. This level of professionalism provides a fertile environment for process improvement.

The prevalence of obesity in this office creates a significant opportunity for intervention, making it feasible to incorporate the registered dietitian into the office. The dietitian would perform IBT often enough to be very skilled at this type of treatment and would develop a rapport with patients. If a registered dietitian's salary is \$55,240 and they can generate \$150,000 annually, save healthcare dollars, and increase health; from a business and health standpoint this opportunity should be maximized.

The recommendations focus on utilizing existing resources more effectively. With the incorporation of IBT, minimal refinements to the electronic health record and quality department, the obesity interventions can be tracked. Incorporating IBT, community resources, elements of the toolkit, and EHR changes will take minimal effort once these are in place and can overcome the current barriers to obesity treatment.

### **Limitations**

There were some limitations in this process improvement project. This project was conducted on behalf of one primary care office, and while the process used can be duplicated, the results are not generalizable. The limitations include aspects of the office environment and how care is documented.

This is a time of heightened change within this office, and all of healthcare; in regard to the Patient Protection and Affordable Care Act, tightening reimbursements, and the transition to the ICD-10 coding system. The rapidly changing care environment may distract from the importance and need to address obesity.

When comparing the difference between number of obese patients seen in 2013 and number of appointments with obese patients, there is some degree of error. This error is related to the individuals who are healthy, not being seen annually. If this difference were examined over five years this may decrease the percentage of obese patients while increasing the percentage of appointments for those who are obese. In one of the interviews a provider stated, “Those skinny runner types only get seen every few years because they are healthy and have no health problems.”

There is difficulty in accurately quantifying the cost of current practices. In the short term effectively treating obesity will increase revenue by providing a greater

amount of services. In the long-term, treating obesity effectively has the potential to decrease chronic disease and healthcare expenditures.

### **Summary and Conclusion**

The recommendations are focused on overcoming the barriers to the effective and adequate treatment of obesity. The providers in this primary care office do think that treating obesity is important and have identified several common barriers. These recommendations are focused on offering more provider resources in order to overcome the barriers.

Promoting effective and adequate strategies that promote weight management among obese individuals is essential to accomplishing the “Triple Aim:” better care, better health, less cost (Institute for Healthcare Improvement, 2014). As a leading cause of chronic disease, obesity needs to be treated as seriously as its associated conditions. The primary care environment too often focuses on treating chronic disease instead of preventing the cause. Incorporating IBT into this primary care setting will have positive short and long-term outcomes for providers, patients, and payers. The current standard of practice, focused on treating the results of obesity instead of the true cause has serious health and economic consequences offering great potential for improvement.

APPENDIX A

**Obesity Treatment in Primary Care Survey**

Obesity is commonly defined in the literature as having a body mass index of 30 kg/m<sup>2</sup> or greater. Please check the box, fill in the blank, or indicate your answer as appropriate.

| Regarding the treatment of obese patients:                | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|---|----------------|-------|---------|----------|-------------------|
| 1). I have had success in treating obese patients?        |                |       |         |          |                   |
| 2). I think treating obese patients is futile?            |                |       |         |          |                   |
| 3). Obesity is primarily caused by genetic factors?       |                |       |         |          |                   |
| 4). I have confidence in treating obese patients?         |                |       |         |          |                   |
| 5). Obesity is primarily caused by environmental factors? |                |       |         |          |                   |
| 6). I think treating obese patients is important?         |                |       |         |          |                   |

7). On average, among all adult patients seen in a day, what percentage are obese (BMI  $\geq$  30 kg/m<sup>2</sup>)? \_\_\_\_\_%.

8). Listed below are the most common barriers to obesity treatment from the literature. Please circle the barrier(s) that you have experienced.

- 1). Lack of Time
- 2). My personal insufficient knowledge or experience related to weight loss strategies.
- 3). Inadequate access to patient educational materials
- 4). Concern about patient compliance
- 5). Inadequate reimbursement
- 6). Other: \_\_\_\_\_



## APPENDIX B

### **Interview Guide**

Begin by thanking the person for their time. Establish that the interview will only be used for this process improvement project and that their name will not be associated with it. For purposes of clarity the interview will be recorded... with the providers permission. Identify that obesity is commonly defined as having a BMI of 30 or greater and that the process improvement project focuses on the barriers and facilitators to obesity treatment.

- 1). Describe your current standard of practice for treating obesity?
  
- 2). When I introduced our discussion of the barriers and facilitators related to obesity treatment, what aspects immediately came to mind?
  
- 3). Can you tell me about what kinds of things influence whether or not obesity comes up for discussion for a particular patient?
  
- 4). Related to the facilitators, what strategies have you found most effective?
  
- 5). Related to the barriers of obesity treatment, what do you believe is the most significant barrier to providing adequate interventions for patients with obesity?
  
- 6). What resources are available in your office and community to assist you in treating obesity.
  
- 7). Are there additional resources that would be helpful to you in treating obesity?
  
- 8). Are there any other issues pertaining to obesity that you would like to discuss?

APPENDIX C

**Grand Rapids Area Community Resources**

06/03/2014

| <b>Name</b>                                       | <b>Address</b>   | <b>Phone and Website</b>  | <b>Cost</b>   |
|---|--|---|---|
| Overeaters Anonymous                              | 114 Division Ave N,<br>Grand Rapids, MI<br>49503   | (616) 336-1359<br><a href="http://www.oa.org/">http://www.oa.org/</a>   | FREE  |
| YMCA  | Belmont MI<br>Grand Rapids MI<br>Grandville MI<br>Wyoming MI   | 616-855-9688<br><a href="https://www.grymca.org/programs">https://www.grymca.org/programs</a><br>Diabetes Prevention Program and a<br>Number of activity programs                                     | FREE  |
| Grand Rapids Parks and Recreation Fitness Classes | Grand Rapids Area  | 616-456-3232<br><a href="http://grcity.us/public-services/Parks-Recreation-Forestry/Pages/Adult-Fitness.aspx">http://grcity.us/public-services/Parks-Recreation-Forestry/Pages/Adult-Fitness.aspx</a> | Variable<br>\$10-\$155  |
| Mercy Health Life Counseling                      | Byron Center<br>Grand Rapids<br>Muskegon   | 231-726-3582<br><a href="http://www.mercyhealthmuskegon.com/life-counseling">http://www.mercyhealthmuskegon.com/life-counseling</a>   | Accepts most insurances   |
| Take off the Pounds Sensibly Club                 | Grand Rapids,<br>Grandville,<br>Kalamazoo,<br>Kentwood, Portage,<br>Wyoming                            | Area Captain – Jan Hauser (616)826-3362 e-mail: JanSHAuser@comcast.net<br>Coordinator - Penny Redner (616)453-7773, e-mail: pennyredner@comcast.net   | \$26 annually plus fees   |
| Weight Watchers                                   | Walker Ice and Fitness Location<br>4151 Remembrance RD<br>GRAND RAPIDS, MI<br>49534                    | <a href="http://www.weightwatchers.com/">http://www.weightwatchers.com/</a>   | About \$10 a week   |
| Weight Watchers                                   | Weight Watchers Store Plainfield Plaza<br>3144 Plainfield AVE<br>NE STE A<br>GRAND RAPIDS, MI<br>49525 | <a href="http://www.weightwatchers.com/">http://www.weightwatchers.com/</a>   | About \$10 a week   |
| Kent County Health Department                     | 700 Fuller Ave NE,<br>Grand Rapids, MI,<br>49503   | Numerous health and wellness classes offered.<br>616-632-7100<br><a href="http://www.accesskent.com">www.accesskent.com</a><br><a href="http://www.grymca.org">www.grymca.org</a>                     | \$55 and up.  |
| YMCA - Membership                                 | Belmont MI<br>Grand Rapids MI<br>Grandville MI<br>Wyoming MI   | Belmont – 616-363-3000<br>Grand Rapids – 616-855-9622<br>Grandville – 616-530-9199<br>Wyoming – 616-885-5500  | \$67 month for adults<br>\$55 month for 60 and older.                     |
| Jenny Craig                                       | On-line  | On-line only. No location within 100 miles.<br><a href="http://www.jennycraig.com/">http://www.jennycraig.com/</a><br>866-706-4042  | \$49 enrolment fee,<br>\$29 month membership fee,<br>food \$15-\$22 a day |
| Nutrisystem                                       | On-line  | 1-800-435-4047<br><a href="http://www.nutrisystem.com/jsps_hmr/home/in dex.jsp">http://www.nutrisystem.com/jsps_hmr/home/in dex.jsp</a>   | \$249.99 and up.  |

## APPENDIX D

### **Doctorate of Nursing Practice Essentials**

The Doctorate of Nursing Practice (DNP) roles have been invaluable to this process improvement project. There are eight foundational essentials of DNP education that have been identified by the American Association of Colleges of Nursing (2006). This process improvement has incorporated all of these elements.

The first essential is *scientific underpinnings for practice*. This has been utilized by applying the evidence from the literature to the specific problem within the practice environment. Scientific practice has been utilized by evaluating the risks of obesity and recommending the use of the evidence based resources that are readily available.

The second essential is *organizational and systems leadership for quality improvement and systems thinking*. This essential focuses on developing care delivery that meets a current or future need of a specific patient population. This process improvement has established a need within the organization, contrasted current obesity treatment practices with optimal practices, and provides a recommendation for changing and controlling practices.

*Clinical scholarship and analytical methods for evidence-based practice* is the third DNP essential. This was utilized in this project through data collection and analysis including use of survey, interview, chart review, and information technology. Clinical scholarship was used to evaluate and adapt current evidence in the context of the practice environment.

The fourth essential is *information systems/technology and patient care technology for the improvement and transformation of health care*. The design of the

EHR shapes how care is provided in the primary care setting. During this project the capability of the EHR was evaluated to understand how the BMI is presented to the provider, how patient educational material is accessed, and to understand what can be queried using this technology.

*Healthcare policy for advocacy in healthcare* is essential five. The focus of this project is to change the policy of this primary care office to improve the health of the patients. Healthcare is often focused on treating conditions after they occur instead of preventing them. Greater patient advocacy is needed for obesity treatment starting at the local level.

*Interprofessional collaboration for improving patient and population health outcomes* is essential six. Collaboration with many healthcare specialties was essential to the completion of this project. The specialties utilized in this project included nurse practitioner, physician, medical assistant, billing and coding, information technology, insurance representatives, and many others. The interprofessional collaboration utilized for this project exemplifies the team approach that is required to provide healthcare effectively.

Essential seven is *clinical prevention and population health for improving the nation's health*. The focus of this project is maximizing disease prevention strategies by analyzing the impact of obesity, and recognizing that current options have not been optimized. Many of the strategies utilized in this project can be adapted for use among the nation's primary care offices.

*Advanced nursing practice* is essential eight. Experience at the point-of-care was the catalyst for this project. Conducting patient histories and physical exams provided the

understanding that obesity is a significant contributor to chronic disease. Providing advanced nursing practice outlined the limited resources used for treating obesity. This project has focused on linking providers with the resources that will provide optimal results with the resources available.

The DNP practice essentials have been actualized within this process improvement. Each role adds a unique element to this comprehensive project. These foundational elements of DNP education have also been found to be essential for this project.

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