INITIAL SCREENING AND REFERRAL FOR OVERWEIGHT OR OBESE ADULTS IN AN AIR FORCE PRIMARY CARE SETTING

A SCHOLARLY INQUIRY PROJECT SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAI’I AT MĀNOA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF NURSING PRACTICE

MAY 2015

By

Yusharn Wang

Committee:

Cheryl L. Albright, Chairperson
Erwin Danzer
Debra Mark
Teresa Parsons

Keywords: Obesity, Overweight, Adult, Military, Air Force, Airmen, Physical Activity, Diet, Exercise, Cost of Obesity, Obesity Comorbidities, Obesity Interventions
Abstract

Background: Overweight and obesity contributed approximately $147 billion to national medical expenses in the United States in 2008. There are many overweight and obese active duty service members (ADSMs) or airmen in United States Air Force (USAF). The USAF leadership’s goal at Robins Air Force Base (RAFB) is to have primary care managers (PCM) to routinely screen airmen for their body mass index (BMI) and refer them to the Health and Wellness Center (HAWC). The objective of this initiative is to improve the percentage rate of screening and referrals documented with a statistically significant improvement after three months.

Methods: The Iowa Model guided the implementation of evidence-based practice (EBP) practice. Data was collected from 1 May to 31 July 2013 and 1 May to 31 July 2014. The posters in the patient care rooms served as reminders. Six providers worked with twelve medical technicians (MTs) in the family health clinic (FHC) who measured heights and weights of ADSMs at every patient visit. The electronic medical record (EMR) automatically calculated the BMIs. The providers diagnosed airmen with overweight or obesity and they ordered referrals in the EMR.

Outcomes: Statistically significant changes were found in 2014 compared to 2013 for the older obese ADSMs in the age 30 to 64 year group for males and females; 48.3% vs 21.4%, p<0.5 and 66.7% vs 36%, p<0.5, respectively.

Conclusion: There was a statistically significant increase in the referral rates for older obese male and female airmen in 2014. There was no significant increase for the other groups.
# Table of Contents

Abstract                                                                                                                        ........................................... 2

List of Table                                                                                                                   ........................................... 8

List of Figures                                                                                                                  ........................................... 9

Chapter 1. Introduction                                                                                                        ........................................... 10

  Background and Literature Synthesis                                                                                           ........................................... 12
  Recruitment                                                                                                                   ........................................... 12
  Readiness                                                                                                                     ........................................... 13
  Comorbidities                                                                                                                 ........................................... 15

Interventions                                                                                                                   ........................................... 15

  Identification and Referral                                                                                                   ........................................... 15
  Behavioral Modifications                                                                                                      ........................................... 16
  Financial Implications                                                                                                       ........................................... 17
  Summary                                                                                                                        ........................................... 17

Chapter 2. Problem                                                                                                              ........................................... 19

  Theoretical and Conceptual Framework                                                                                           ........................................... 19
  Problem-Focused or Knowledge-Focused Triggers                                                                                ........................................... 20
  Form a Team                                                                                                                   ........................................... 22
  Assemble Relevant Research and Related Literature                                                                               ........................................... 23
  Critique and Synthesize Research for Use in Practice                                                                            ........................................... 23
  Limitations                                                                                                                   ........................................... 24
  Summary                                                                                                                        ........................................... 25
Chapter 3. Methods .................................................................................................................. 26

Pilot the Change in Practice with Sufficient Evidence .......................................................... 27

PICO Statement ...................................................................................................................... 27

Design Method and Practice Change .................................................................................... 28

Innovation and Practice Change ............................................................................................ 29

Definitions ................................................................................................................................. 34

Setting ...................................................................................................................................... 35

Social Environment .................................................................................................................. 36

Economic Environment .......................................................................................................... 39

Political Environment ............................................................................................................ 40

Sample Population .................................................................................................................. 41

Data Collection ......................................................................................................................... 42

Instruments ................................................................................................................................ 44

Peer Reviews ............................................................................................................................ 46

Benchmarks and Data Analysis Plan ....................................................................................... 46

Implement the Evidence Based Practice Change ................................................................. 49

Procedure .................................................................................................................................. 49

Reminder Aids .......................................................................................................................... 50

Teamwork .................................................................................................................................. 51

Communication Strategies ........................................................................................................ 52

The Health and Wellness Center ............................................................................................. 53

Plan for Monitoring and Analyzing Structure, Process, and Outcome Data .................... 54

Data Analysis ............................................................................................................................ 54
List of Table

Table 1. Level of Evidence .............................................................................................................. 24
Table 2. Data Collection Process .................................................................................................. 44
Table 3. Project Timeline ............................................................................................................. 69
Table 4. Data Set 2013 .................................................................................................................. 77
Table 5. Data Set 2014 .................................................................................................................. 80
Table 6. Percentage Questions Responses .................................................................................. 86
Table 7. Opinion and Attitude Questions Responses ................................................................. 87
Table 8. Limiting Factors Questions Responses .......................................................................... 88
Table 9. Open-ended Questions ................................................................................................. 90
List of Figures

Figure 1. Iowa Model of Evidence-Based Practice .......................................................... 19
Figure 2. Weight Screening and Referral Process Chart .................................................. 34
Figure 3. Percentage Overweight Data Comparison of 2013 and 2014 ........................... 80
Figure 4. Percentage Obese Data Comparison of 2013 and 2014 ................................. 81
Chapter 1. Introduction

More than one third of the U.S. population is obese (CDC, 2013a). Obesity is defined as a Body Mass Index (BMI) of greater than 30 kg/m². The BMI is measured to obtain an anthropometric measure of the body mass by age and gender (CDC, 2013a). It is mathematically computed by weight in kilograms/(height in meters) (CDC, 2013a). For adults, being classified as overweight is defined as a BMI between 25 kg/m² to 29.9 kg/m² (CDC, 2013a; Fitzgerald, 2013; Warner, et al., 2008).

The condition of obesity and being overweight is creating a public health crisis in the United States (US) that places tremendous burden on individuals, families, and societies (Vaczy, Seaman, Peterson-Sweeney, & Hondorf, 2011). Obese individuals are affected metabolically by developing comorbidities which increase their cardiovascular risk factors, physically by reducing their ability to be more mobile and engage in physical activity, and mentally by inducing lower self-esteem, social functioning, and depression which can contribute to unnecessary stress on their families (Vaczy, et al., 2011). The health complications of being overweight and having a diagnosis of obesity contributed to national medical expenses totaling approximately $147 billion in 2008. Health care costs for obese individuals are $1,429 higher than those who are not obese (CDC, 2013a). Current estimates indicate that costs related to obesity may be well over $100 to $200 billion annually or nearly 10% of all annual medical spending (Vaczy, et al., 2011). In 2001, Surgeon General of the United States David Satcher found obesity to be a rising epidemic which significant contribution to future serious health problems and a leading cause of preventable death (Warner et al., 2008).

The American Medical Association (AMA) House of Delegates recently classified obesity as a preventable disease (Page, 2013). The increasing prevalence of overweight and
obese adults may be due to lack of a healthy diet, physical activity, and education about obesity prevention (Lavizzo-Mourey, 2009). Other causes may be related to fewer available physical education programs, financial disadvantages, rising costs of produce, increased sedentary behavior, or unhealthy eating practices among peers (Lavizzo-Mourey, 2009). Many young adults are at risk of becoming obese and having a higher BMI in early adulthood due to economic disadvantages (Boutelle et al., 2013; CDC, 2012a).

Wellness is defined as “an intentional choice of a lifestyle characterized by personal responsibility, moderation, and maximum personal enhancement of physical, mental, emotional and spiritual health” (Chapman, 2006). The United States Air Force (USAF) requires active duty service members (ADSMs) to be physically fit at all times to be prepared for deployment and duty performance on short notice. Moreover, fitness improves wellness and morale within the unit. If active duty service members (ADSMs) or airmen do not manage their weight appropriately and/or fail physical fitness tests standards, administrative separation from the Air Force is mandated by USAF regulations.

As obesity is a recognized problem in the military and the community, the healthcare professionals and leadership in the USAF are directed to initiate actions to reduce obesity in the USAF by identifying obesity in USAF ADSMs and providing supportive interventions to assist ADSMs to achieve healthy weight. Therefore the purpose of this project is to identify the best practice to regularly screen for overweight and obesity in USAF ADSMs during health care-related visits in a selected primary care setting and make the appropriate referrals for weight control and management.
Background and Literature Synthesis

In the state of Georgia, 64.8% of adults are overweight and 29.6% are obese with BMIs greater than 25 kg/m² and 30 kg/m², respectively (CDC, 2012a). In particular, 49.5% of non-Hispanic black ethnic groups have higher rate of obesity than Mexican-Americans, all Hispanics, and non-Hispanic whites with rates of obesity at 40.4%, 39.1%, and 34.3%, respectively (CDC, 2013a). The percentage of adults who are overweight and obese is significant.

Recruitment

In the U.S. military, Hsu et al. (2007) found 32,445 (4.3%) of 751,310 applicants for US enlisted military service were obese. From 1993 to 2006, the crude prevalence of overweight or obese in the US increased from 25.6% to 33.9%. If these current trends continue through 2050, approximately one in three Americans who are overweight or obese will develop preventable metabolic related comorbidities (Hsu et al., 2007). An article in Medscape by Charles (2011) stated obese Americans in the military are a national security hazard. Furthermore, top Pentagon officials are also concerned about this epidemic and are working on a national campaign to prevent and treat ADSMs who are overweight and obese through nutritional awareness along with involving medical clinics to intensively treat overweight and obese adults (Charles, 2011).

A recent White House report considered a quarter of 17 to 24 year olds are too overweight to serve in the military. This reduction in the available service-capable population leads to a mission readiness problem and contributes to increased costs for the US military (Dall, Zhang, Chen, & et al., 2007; True, Cranston, & Hatzfeld, 2013). From 2006-2008, 43.9% of the military service age population was too overweight or obese to serve (Mission Readiness, 2010). ADSMs who become overweight and obese in the USAF which limits the ability of the military
to effectively participate in physically demanding operational missions, which places themselves and peers at greater risk of injury or death.

Each year, the US military spends about $4.65 billion in food services and about $1.1 billion on health care associated with obesity and its comorbidities (Dall, Zhang, Chen, & et al., 2007). The comorbidity costs of diabetes alone accounts for $300 million among TRICARE beneficiaries (Dall et al., 2007). The cost figures specifically for USAF active duty members only are not known. If this obesity trend continues, the cost of healthcare in the military will negatively impact other programs Department of Defense (DoD) as well as overall military readiness. It is crucial US military healthcare providers step forward to lead by example.

Readiness

Approximately 1,000 USAF ADSMs have diabetes and 3,000 ADSMs have prediabetes (True, et al., 2013). The numbers are even more alarming when family members are included. 49,000 USAF medical service adult beneficiaries have diabetes and over 100,000 with prediabetes (True, et al., 2013). The 2010 Air Force Healthy Airman Report reveals only about 54% of DSM from across the US are considered to have a healthy weight (True, et al., 2013). This figure may overestimate the true numbers due to the measurement parameters in the report which do not take into account those with overly muscular (body builder) body mass measurements (Hsu, Nevin, Tobler, & Ruberstone, 2007).

Cultural and lifestyle factors may contribute to the increased prevalence of overweight or obese adults which puts certain ethnic groups at higher risk for this obesity epidemic. Adult obesity is more prevalent among low-income individuals, including certain minority groups: Pima Indians, Pacific Islanders, Micronesians, Maoris, Hispanics, and African Americans (Hamdy, Citkowitz, Uwaifo, & Oral, 2013).
Urban living and contemporary sedentary lifestyles combined with increasing food portion sizes, frequent on-the-go snacking with energy-dense foods, high fat diets, and beverages containing high amounts of sugar contribute to weight gain (Cleobury & Tapper, 2013). Additionally, the lack of physical activity contributes to increasing numbers of overweight or obese adults. Many young adults in the US experience many hours of physical inactivity, such as watching movies or television, playing video games and using the Internet, combined with excessive snacking (Brener, et al., 2013). This sedentary lifestyle reduces caloric expenditure and contributes to weight gain. Furthermore, overweight or obese adults are more likely to have excessive daily caloric intake in addition to lack of physical activity (Brener, et al., 2013; CDC, 2012b).

As adults experience an overweight or obese state, their children may also be affected with similar weight and BMI issues. Pediatric obesity rates rose by about 22% between the years 2000 and 2010, from 13.9% to 16.9% (Healthy People, 2013). Interestingly, if one or both parents are obese, the adolescent has a higher likelihood (80%) of also being obese as an adult (Lavizzo-Mourey, 2009; U.S. Department of Health and Human Services, n.d.).

The obesity epidemic seems to be more prevalent in the Southern states where nine out of 10 states have the highest rates of obesity, Type 2 Diabetes Mellitus (T2DM), and hypertension. Georgia (GA) is the 20th most obese state in the nation for all populations (Levi, Segal, Thomas, Laurent, Lang, & Rayburn, 2013). For this project, not all military members are from Georgia, thus it may be difficult to generalize the Georgia overweight and obesity statistic within the military population itself.
Comorbidities

Obese adults have a lower life expectancy of 6 to 20 years lower than those who are not obese, depending on age and race (USPSTF, 2004). Moreover, young adults who are overweight or obese are more likely to develop at least one or more cardiovascular risk factors or other health problems including: impaired glucose tolerance, insulin resistance, T2DM, joint and musculoskeletal problems and pain, fatty liver disease, gallstones, gastroesophageal reflux disease (GERD), social discrimination, cancer, advanced growth and early maturity, polycystic ovarian syndrome (PCOS), asthma, obstructive sleep apnea (OSA), and depression (CDC, 2013a; Hamdy, et al., 2013; Marcus, et al., 2012; National Institutes of Health, 2011; Oude, et al., 2009; Page, 2013; Shantha, Kumar, Kahan, & Cheskin, 2012; Warner, et al., 2008). Furthermore, men with a waist circumference greater than 40 inches and women with a waist circumference greater than 35 inches are at increased risk of these preventable comorbidities (National Institutes of Health, 2011).

Psychological and social problems are more likely to arise from the stigma of obesity which can adversely affect the overall social wellness of the overweight or obese adult. The negative social stigma associated with adult obesity increase the risk for increased social discrimination, development of decreased self-esteem and depression, binge eating, rejection by peers. Negative social stigma can also result in poor work or academic performance. All of which can lead to declines in overall physical and emotional health (Brener, et al., 2013; Ebneter & Latner, 2013; Lavizzo-Mourey, 2009; Vaczy, et al., 2011).

Interventions

Identification and Referral. Given the risk of preventable comorbidities that continue to tax our healthcare system, providing adequate health care screening of BMI in addition to
providing referral for treatment programs to address diet modification and increasing physical activity may mitigate the risks of comorbidities (USPSTF, 2004). Providers play a pivotal role in managing this population by identifying overweight and obese adults at healthcare encounters. Calculating the BMI as a ‘physical activity’ vital sign can easily accomplish this task. This identification process prompts referrals for therapies to effectively manage these weight problems (Joy, 2013). Moreover, during primary care encounter intakes, MTs should assess and document specifics regarding the level of physical activity for each ADSM; number of days per week, minutes per day, as well as determine the intensity of exercise as light, moderate, or vigorous (Joy, 2013).

**Behavioral Modification.** Overweight and obesity management is a lifelong process of lifestyle change (Warner, Warner, Morganstein, et al., 2008). Behavioral factors must be addressed and modified to induce lifestyle changes to prevent those who are already overweight from progressing to obesity. Recent literature noted identification of overweight or obese adults and provision of referral to intensive behavioral therapy (IBT) was associated with greater weight loss and a positive impact on patient outcomes (American Family Physician, 2012; CMS, 2011; USPSTF, 2004). A resource team conducts IBT to provide group sessions consisting of nutritional and physical activity counseling (American Family Physician, 2012).

Appropriate IBT referrals initiated by providers for overweight and obese airmen can improve regular weight and BMI monitoring, educational information about healthy diet and regular physical activity, provide patient motivation, and early intervention strategies for weight management through support groups (Jebb, et al., 2011). A randomized-controlled trial (RCT) studied 772 overweight and obese adults and compared weight loss outcomes in a standard care group with provider management and a commercial weight loss program group over a 12-month
Better weight loss outcomes were achieved by IBT provided in the commercial weight loss program group with weight loss of 5.06 kg versus 2.25 kg in the provider-managed group (Jebb et al., 2011).

**Financial Implications.**

Treating health complications related to being overweight and obesity has financial implications; in 2008, $147 billion was spent on overweight-related conditions in the US. Health care costs for obese individuals are $1,429 higher than those who are of normal weight (CDC, 2013a). Current estimates indicate that costs related to obesity may be well over $100 to $200 billion annually or nearly 10 percent of all annual medical spending (Vaczy, et al., 2011).

Treating overweight and obese conditions is reimbursable by the Centers for Medicare and Medicaid Services (CMS) (CMS, 2011). Revenue can actually be generated for provider via reimbursements from Medicare through appropriate documentation of adults being overweight or obese through the use of specific diagnosis codes (CMS, 2011). Specifically, the Healthcare Common Procedure Coding System (HCPCS) code G0447 for 15 minutes of face-to-face behavioral counseling is frequently used. Codes used for obesity diagnosis is the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes V85.30 to V85.39 and V85.41 to V85.45 (Medicare Learning Network, 2012). Accurate coding for the treatment of overweight and obese patients is important to obtain the appropriate reimbursement for the level of care provided by the provider.

**Summary**

Addressing adult obesity is an issue that can be addressed through proper screening and behavioral education for all adults. Education may include, but are not limited to, living a healthy lifestyle with nutritious eating and increasing daily physical activity. Addressing overweight and
obesity problems and working toward prevention strategies is critical to avoid future health complications. Moreover, it may save an individual’s career from ending in the US military. Due to the need for constant readiness, the military continually encourages its service members to stay physically fit and healthy in order to remain combat ready for potential national security threats.
Chapter 2. Problem

Theoretical and Conceptual Framework

The Iowa Model of Evidence-Based Practice (EBP) (Titler et al., 2001) will be used to test and implement weight assessment and referral practice changes at Robins Air Force Base (RAFB) Family Health Clinic (FHC) (see Figure 1). The Iowa Model facilitates process improvement through dissemination of change ideas between organizations in the real world environment through planning, testing, observing, studying the results, and acting upon what is learned and improved after implementing a test of change (Massoud, Nielsen, Nolan, Schall, & Sevin, 2006).

Figure 1. Iowa Model of Evidence-Based Practice (Titler et al., 2001)
The Iowa Model is an organizational and collaborative model that helps guide the organization through the necessary processes to translate research into practice implementations after identifying the problem and knowledge focused triggers (Hall & Roussel, 2014). To effectively utilize this model, the project will employ the multiple steps in the Iowa Model: (1) identify a problem-focused or knowledge-focused triggers; (2) form a team; (3) assemble relevant research and related literature; (4) critique and synthesize research for use in practice; (5) pilot the change in practice with sufficient evidence; (6) institute the change in practice if change is appropriate for adoption in practice; (7) monitor and analyze the structure, process, and outcome data; and (8) disseminate the results (Hall & Roussel, 2014). This model guides the implementation of this EBP project at RAFB.

**Problem-Focused or Knowledge-Focused Triggers**

RAFB has a large FHC in Central Georgia serving 35,320 patients who are active duty, reserve duty, National Guard, retirees, and their dependent family members (Robins Air Force Base, 2013). A large majority of the patient population at RAFB FHC are retirees and dependents. The FHC provides primary care to beneficiaries ranging from children to age 65. For the RAFB ADSM population at this FHC, baseline data from calendar year 2013 annotated 311 (7%) obese airmen and 299 (7%) overweight airmen of the total 4,506 service members assigned to this clinic. Healthcare personnel will engage themselves to implement the EBP project at RAFB FHC. Primary Care Providers, also known as providers, working at the FHC include family physicians, family nurse practitioners, and physician assistants who provide the primary health care. Registered Nurses (RN) and medical technicians (MT) engage as support staff.

On average, early detection of overweight and obese adults and providing weight management referrals may result in 4 kg to 7 kg of weight loss, and the U.S. Preventive Task
Force (USPTF) strongly recommends referring these adults to appropriate interventions (American Family Physician, 2012). Therefore, it is essential to engage of the entire healthcare team to improve screening rates, document overweight or obesity status, and provide referrals for ADSMs at every patient encounter.

ADSMs assigned to this FHC are not regularly screened for BMI and physical activity levels to identify overweight and obese adults; therefore, referral of patients to the Health and Wellness Center (HAWC) is lacking. The current rate of appropriately screening for obesity the ADSM population assigned to the RAFB FHC is 7% and overweight status documentation rate is 7%. ADSM with excess weight problems are at a higher risk for future health problems. These future health problems include, but are not limited to heart disease, T2DM, cancer (liver, kidney, breast, endometrial, prostate, colon), risk of death, and respiratory disease (American Family Physician, 2012; Kitahara, et al., 2013; Warner, et al., 2008).

The PICO (patient population, intervention, comparison, outcome) statement for this project is as follows:

- **P**: Overweight or obese adults who are USAF ADSM assigned to the FHC at RAFB. Routine height and weight documentation to calculate BMI is usually performed at every patient visit, but FHC providers are not consistently identifying ADSMs with a diagnosis of overweight or obesity.

- **I**: Screening of all non-pregnant ADSM at the selected FHC during the usual workday in a non-acute visit with referral of all diagnosed overweight and obese ADSM to the HAWC over a 3-month period; from 1 May 2014 to 31 July 2014. The MT will complete initial screening of height and weight. The BMI is automatically calculated and recorded in the USAF Electronic Health Record (EHR) called the Armed Forces
Health Longitudinal Technology Application (AHLTA). No additional training will be required for vital sign measurements since the MT screens and records each patient for vital signs including height and weight at every primary care patient encounter. Training and reinforcement for the providers is required to ensure ADSMs who are diagnosed with overweight or obesity are referred to the HAWC.

- C: Comparison of past and post intervention practice by providers: Current practice: lack of consistent provider acknowledgement and intervention of overweight or obesity ADSMs, inadequate referrals of overweight/obese ADSM to the HAWC, and insufficient follow-up of ADSM referrals for overweight/obesity. The intent of this EBP project is to compare the past and post-intervention rate of diagnosis and referral of overweight/obese USAF ADSM at the selected FHC at RAFB.

- O: Rate of regular screening of BMI
  - The diagnosis and referral percentages in 3 months from 1 May 2014 to 31 July 2014, improves significantly
  - Present results to providers and their respective teams through group interaction meetings during normally scheduled routine meetings.
  - Provide basis for expansion of EBP project to other clinics and populations within the USAF.

Form a Team

Three teams will be conducting the project. Each team will consist of 2 providers in the role of change champions, 4 MTs, and 1 Disease Management Nurse (DMN). This multidisciplinary approach allows for engagement of all providers and input into the final practice change by all members of the FHC.
Assemble Relevant Research and Related Literature

With the assistance of a medical librarian, two primary databases were used to search the literature. PubMed and EBSCO were used. Search criteria were adults 19+ years. Key terms: Obesity, Overweight, Adult, Military, Air Force, Physical Activity, Diet, Exercise, Cost of Obesity, Obesity Comorbidities, Obesity Interventions. To keep the data as current as possible, only literature published within the last five years, or since 2008, were selected. A total of 46 applicable studies resulted from the search on PubMed and twenty-six articles were used for this synthesis.

Critique and Synthesize Research for Use in Practice. The research articles were critiqued using Mosby’s level of evidence scale (see Table 1). Articles no older than 5 years were included. Five studies and guidelines recommended providers to routinely screen in the primary care setting for overweight or obese adults with additional suggestions to refer these patients to IBT (CMS, 2011, Level I; LeBlanc et al., 2011, Level I; Moyer, 2012, Level I; Jebb, et al., 2011, Level II; Joy, 2013, Level VII). Nine articles used large sample sizes that ranged from 770 to 11,450 subjects in their study (Brener et al., 2013; Dall et al, 2012; Hsu, Nevin, Tobler, & Rubertone, 2007; Jebb et al., 2011; Kitahara et al., 2013; LeBlanc et al., 2011; Levi, et al., 2013; Marcus et al., 2012; Moyer, 2012). Six articles were either level I or II (Jebb et al., 2011; LeBlanc, O’Connor, Whitlock, Patnode, & Kapka, 2011; Marcus et al., 2012; Moyer, 2012; National Institute of Health, 2011; USPSTF, 2004).
<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Description</th>
<th>Number of Articles Used in Synthesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>Meta-analysis of relevant RCTs; EBP guidelines from systematic review of RCTs.</td>
<td>4</td>
</tr>
<tr>
<td>Level II</td>
<td>At least one well designed RCT.</td>
<td>2</td>
</tr>
<tr>
<td>Level III</td>
<td>Well-designed controlled trials without randomization.</td>
<td>0</td>
</tr>
<tr>
<td>Level IV</td>
<td>Well-designed case controlled or cohort studies.</td>
<td>5</td>
</tr>
<tr>
<td>Level V</td>
<td>Correlation studies, systematic reviews of descriptive and qualitative studies.</td>
<td>4</td>
</tr>
<tr>
<td>Level VI</td>
<td>Single descriptive or qualitative study.</td>
<td>6</td>
</tr>
<tr>
<td>Level VII</td>
<td>Authority opinion or expert committee reports.</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>Performance improvement projects.</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. RCT = Randomized Clinical Trials; EBP = Evidence-Based Practice. (Fineout-Overholt, Melnyk, Stillwell, & Williamson, 2010).

The quality, quantity, and consistency of the body of evidence strongly supports the need for screening and referrals for adults who are diagnosed as overweight or obese. The articles reviewed demonstrated good consistency in their findings regarding the need to improve screening rates for overweight and obese adults and provide the appropriate referrals. A systematic review reported an average weight loss of 3 kg compared to control groups when adults were screened and referred to weight management programs (LeBlanc et al., 2011). This finding is consistent with the recommendations from Centers for Medicare and Medicaid Services (CMS) (CMS, 2011) which also supports regular screening for obesity and initiation of appropriate referrals (CMS, 2011).

**Limitations.** More level I or II studies are needed to address the impact of screening and referrals on obesity. Patient compliance with weight management interventions may also play an important role in the treatment of overweight and obese patients. Yet, this was not clearly addressed in the studies included in the synthesis.
Summary

In order to improve practice and implement change through EBP methods, this project will be conducted in the summer of 2014 through multiple interactions within a complex clinical environment to determine the success or failure of the evidence based interventions (Rycroft-Malone, 2012).

Incorporating program effectiveness and cost-effectiveness, as a priority in health policy is important to improve generalizability and this can be done through simple initial screening of BMI in adults for overweight or obesity and provide intensive counseling at every health care visit (Reilly, 2012). This will project will be implemented in the summer of 2014. If successful, an approach to overweight and obese adults on a larger scale through changes in health care policy at the organizational level by influencing stakeholders at higher Air Force leadership levels is ideal (Reilly, 2012).
Chapter 3. Methods

Obesity is a recognized problem in the military and the community. Therefore, the objective of this EBP project is to improve the percentage rate of providers at RAFB FHC to screen, identify, and refer overweight and obese adults who are active duty service members (ADSM), also known as airmen, to the Health and Wellness Center (HAWC). The outcome is intended to evaluate the total percentage increase of diagnosis of overweight and obese ADSMs and initiation of referrals to HAWC made by providers at RAFB FHC over a 3-month period. Although every ADSM presenting for primary care encounters at the FHC at RAFB are being screened for BMI, providers at the FHC are not regularly diagnosing overweight and obese adults. This results in insufficient referral of overweight and obese ADSM patients to the HAWC.

The current rate of documentation and referrals of airmen at the FHC is 7% or 311 obese airmen and 7% or 299 overweight airmen, or a total of 610 airmen out of 4,506 enrolled ADSM. The ideal denominator to measure the number of airmen seen, screened and referred is the number of visits and not the number of airmen enrolled at the clinic since not every airmen will be coming into the clinic for outpatient care more frequently than every 3 months. Primary care managers, also known as providers, verbalized the primary reason for not including documentation and referral for overweight and obese ADSMs is lack of time. The methods section of this paper will discuss the overview of the project, the project design, setting, samples, instruments, procedure, ethical considerations, and limitations.

The definitions, settings, sample, and instruments segment will also be discussed here. The definitions section describes and delineates the overweight and obesity classification through a specifically defined standard, proper screening, and referrals. The settings section describes the military treatment facility (MTF) used. The sample population section discusses the
required qualifications to participate in this program. The data collection section reviews the instrument/tools, benchmarks, and data analysis plan. The procedure section reviews the process of the program in detail which will be followed by a discussion on ethical considerations, limitations, and a chapter summary.

Pilot the Change in Practice with Sufficient Evidence

The PICO (patient population, intervention, comparison, outcome) statement for this project is as follows as mentioned in chapter two:

- **P**: Overweight or obese adults who are USAF ADSM assigned to a selected FHC at RAFB. Height and weight documentation to calculate BMI is usually performed routinely at every patient visit, but FHC providers are not consistently identifying ADSMs with a diagnosis of overweight or obesity.

- **I**: Screening of all non-pregnant ADSM at the selected FHC during the usual workday in a non-acute visit with referral of all diagnosed overweight and obese ADSM to the HAWC over a 3-month period; from 1 May 2014 to 31 July 2014. The MT will complete initial screening of height and weight. The BMI is automatically calculated and recorded in the USAF Electronic Health Record (EHR) called the Armed Forces Health Longitudinal Technology Application (AHLTA). No additional training will be required for vital sign measurements since the MT screens and records each patient for vital signs including height and weight at every primary care patient encounter. Training and reinforcement for the providers is required to ensure ADSMs who are diagnosed with overweight or obesity are referred to the HAWC.

- **C**: Comparison of past and post intervention practice by providers: Current practice: lack of consistent provider acknowledgement and intervention of overweight or
obesity ADSMs, inadequate referrals of overweight/obese ADSM to the HAWC, and insufficient follow-up of ADSM referrals for overweight/obesity. The intent of this EBP project is to compare the past and post-intervention rate of diagnosis and referral of overweight/obese USAF ADSM at the selected FHC at RAFB.

- **O: Rate of regular screening of BMI**
  - The diagnosis and referral percentages in 3 months from 1 May 2014 to 31 July 2014, improves significantly.
  - Present results to providers and their respective teams through group interaction meetings during normally scheduled routine meetings.
  - Provide basis for expansion of EBP project to other clinics and populations within the USAF.

**Design Method and Practice Change.** The Iowa Model of Evidence-Based Practice (EBP) will be used to test and implement weight assessment and referral practice changes at the FHC (Titler et al., 2001). The Iowa Model facilitates process improvement through dissemination of change ideas between organizations in the real world environment through planning, testing, observing, and studying the results, and acting upon what has been learned and improved after implementing a test of change (Massoud et al., 2006).

The Iowa Model is an organizational and collaborative model that is utilized to help guide the organization through the necessary processes to incorporate research into practice after identifying the problem and knowledge focused triggers, which was the inconsistency in the diagnosing/screening and referral of overweight or obesity (Hall & Roussel, 2014). The project will utilize several steps that were adopted from the Iowa Model: (1) identify a problem-focused or knowledge-focused triggers; (2) form a team; (3) assemble relevant research and related
literature; (4) critique and synthesize research for use in practice; (5) pilot the change in practice with sufficient evidence; (6) institute the change in practice if change is appropriate for adoption in practice; (7) monitor and analyze the structure, process, and outcome data; and (8) disseminate the results (Hall & Roussel, 2014). This model guides the implementation of this EBP project at RAFB.

This process improvement program involving routine screening, documentation, and referral for overweight and obese airmen will use the quasi-experimental pre-post design. The quasi-experimental pre-post design addresses the question whether routine screening, documentation, and referral at every patient encounter caused the observed outcomes in improvement through objective data. The pre-intervention data will be compared to the new post-intervention data conducted over a three-month time span, to evaluate if the program improved documentation and referral percentage rates.

A pre-post type of design was chosen because of the ability to modify the quality improvement intervention over time which will ensure full adoption and sustainability. The sample is all USAF ADSMs presenting for primary care encounters at the RAFB FHC who will be screened for overweight and obesity and, if diagnosed with overweight or obesity, referred to the HAWC for IBT. The patients who are referred to the HAWC may elect to not schedule and attend IBT, but this would be a future project to explore.

**Innovation and Practice Change.** There are five important characteristics of an innovation and practice change that Rogers (2003) discusses in detail. They are relative advantage, compatibility, complexity, trialability, and observability. The element of focus here is provider and clinical staff behavior change through these five characteristics, beginning with the discussion of relative advantage. The relative advantage of this project is that no extra cost is
required to gain the benefits of routine screening and referring ADSMs. It is a simple method to identify overweight and obese adults and to intervene as early as possible before their metabolic problems worsen and airmen begin to fail their physical fitness test (PFT) due to not meeting the required minimum fitness standards respective to each age group and gender. The potential for an improved generation of revenue for the FHC is seen as a long-term benefit and outcome.

This project will require the use of some additional resources such as provider time since the program will be included in every visit with airmen. Aside from that, no additional resources to successfully implement the process will be required. Furthermore, it may be conveyed by the staff as profitable for the clinic through the diagnosis and treatment of overweight and obese airmen according to standards of care. This is accomplished through proper coding in the electronic medical records for reimbursements from the military insurance company, TRICARE, in order to maintain a healthy business environment to continue providing high quality health care within the clinic.

Providers in the clinic do not see the direct benefits from TRICARE in monetary incentives. Instead, the benefits of improved revenue via implementation of this project may be seen through the increased availability of clinic supplies such as, but not limited to newer and higher quality outpatient surgical procedure supplies, as well as an increase in staffing of employees to increase productivity. Moreover, the use of additional services aside from the HAWC at the Air Force base to address overweight and obese airmen are not required. This is important to the Air Force since currently, the federal government is reducing its authorized size in force strength and they are trying to conserve adequate economic resources. Federal financial resource reduction can delay the timely delivery of high quality healthcare at the clinic.
Fortunately, the HAWC at this base is still able to provide weight-loss treatment services for ADSMs even during times of budget cuts throughout the government system.

With the potential increase in revenue, there is possible over adoption. Fortunately, the risk of over adoption of this screening and referral program for overweight and obese ADSMs is low at this clinic. In fact, there is currently a lack of adoption of this process by providers. Screening and referring overweight and obese airmen is considered a standard of care at this clinic and providers are expected to adopt this program to meet the standard of care as services to treat overweight and obese ADSMs are readily available at the HAWC. The stated barrier of “lack of time” exists that may be contributing to the commonly low rate of adoption by providers. Another issue stated by the providers is a lack of direct incentives to adopt this innovation.

Incentives may increase the rate of adoption in providers to improve their attention to detail in the process to screen and refer as accordance to the standard of care to address overweight and obese airmen (Rogers, 2003). This may increase the number of future providers to adopt this project and improve its sustainability. In contrast, caution must be taken if providers adopt the project purely because of its incentives due to potentially low quality decision making and an over influence from incentives leading to unintended consequences later.

Compatibility is also critical to have the clinic and providers successfully adopt the project to screen and refer ADSMs. This project is compatible with the standards of care and policies set by the clinic on previous terms to screen and refer overweight and obese airmen. However, many providers have not been routinely following this standard of care due to increasing workload. The intention of the set policies is to mandate and speed up the adoption of
the process, but the identified barriers perceived by providers may slow adoption. Written policies can also serve to reduce uncertainties and mandate behavior change.

The uncertainty issue has already been addressed by having a guideline available in the clinic for each provider to review regarding the treatment of overweight and obese ADSMs. If this project is accepted and perceived as compatible by the entire clinic, then the rate of adoption may lead more providers to screen, diagnose, and refer these ADSMs according to the set clinic policies. Concurrently, attention to the military cultural values within the clinical setting should also be contemplated to name this project. A culturally appropriate project name related and appropriate for the military may help to influence and improve the rate of adoption.

Complexity of an innovation is another characteristic that needs to be taken into consideration especially if the project is new. In this case, screening and referring airmen is not new and has been a clinic policy for several years. Guidance on this standard of care and policy is available through the clinic’s education and training department. It is available for free access during business hours by providers at the clinic to reduce the complexity issues that may arise, especially amongst new staff. It is a relatively simple project to understand and implement since it is part of the work processes via AHLTA. Fortunately, since a policy has already been enforced, it is expected that providers routinely screen, diagnose, and refer overweight and obese ADSMs. This implies that complexity is not an urgent issue to overcome at this time.

Making sure the project has gone through the trialability phase is important before applying it to other teams and specialty departments within this clinic. This project will test trialability with three teams, with each team consisting of 2 providers, 4 MTs, and 1 DMN. These three teams make up the family health clinic team and the FNP conducting this project will be the project team champion. The Air Force is a large organization that has many outpatient
primary care clinics established throughout the world. Allowing a trial project to screen and refer overweight and obese ADSMs allow future potential adopters at other clinics to review various qualities and processes that led to the success or failure of the project. If the project is successful, more primary care clinics throughout the Air Force are likely to eventually adopt the project. This implies that the successful trialability of a project is positively related to its rate of adoption (Rogers, 2003). Through trialability, the various primary care clinics throughout the Air Force may also modify the project to their needs and potentially develop improved ways to screen and refer overweight and obese ADSMs.

Finally, increasing observability of the project to screen and refer overweight and obese ADSMs is critical to increase the rate of adoption by other potential adopters (Rogers, 2003). It may be done through implementing the project, gathering data results, and disseminating the results to the users and through the chain of command in leadership positions such as the group commander. The group commander is usually at the level of a Colonel (O-6), who oversees the overall operations of the outpatient FHC at RAFB. However, authorization is required by the Air Force Medical Operations Agency (AFMOA) to allow the adoption and implementation of the project throughout this primary care clinic.

An algorithm was developed to provide a visual guideline of the process of screening and making the referrals (see Figure 2). The algorithm starts with the initial patient visit placed at the top and it moves downward in a Christmas tree format. This simplifies the process for all staff involved in the project and it will be another element to initiate change in the behavior of providers. The MTs are heavily involved and they bear a large portion of the responsibility to offset the provider barriers. It will be printed and posted in each provider’s and medical
Definitions. Obesity is defined as a BMI of greater than 30 kg/m². The BMI is measured to obtain an anthropometric measure of the body mass by age and gender (CDC, 2013a). It is mathematically computed by weight in kilograms/(height in meters) (CDC, 2013a). For adults, being classified as overweight is defined as a BMI between 25 kg/m² to 29.9 kg/m² (CDC, 2013a; Fitzgerald, 2013; Warner, Warner, Morganstein, et al., 2008). The USAF accepts this definition of overweight and obese. At this clinic, airmen are screened at least annually through mandatory medical readiness screening. If their BMI is greater than 30 kg/m², their unit leadership is notified, and this is information is also relayed to the provider. The failure
thresholds for waist circumference are larger than 39 inches for men and 35.5 inches for females (USAF, 2013).

A patient visit, a referral, and proper screening will be defined next. A patient visit is a medical appointment requested by the patient with the provider, greater than 24 hours prior to the appointment time. A referral is defined as a provider's referral for overweight and obese airmen to the HAWC entered into AHLTA. Proper screening is defined as obtaining the BMI of the patient and entering the International Classification of Disease (ICD) diagnosis code of overweight (278.02) or obesity (278.00) in the assessment and plan section of AHLTA.

**Setting.** This is a large Air Force Material Command (AFMC) base consisting of 35,320 individuals who are active duty, reserve duty, National Guard, retirees, and their dependent family members (Robins Air Force Base, 2013). The project setting takes place in the FHC at RAFB, Georgia. There are over 15,000 TRICARE beneficiaries enrolled at this clinic and many of these patients are dependents of active duty members or military retirees. The FHC provides primary health care to the pediatric, low-risk obstetric, women's health, general adult and geriatric population. The available ancillary services include the HAWC, radiology, laboratory, pharmacy, and referral management.

The project site is a fairly large primary care clinic with positions for 4 flight medicine physicians (FMD), 4 family nurse practitioners (FNP), 4 physician assistants (PA), 4 family physicians (MD), 1 women's health nurse practitioner (WHNP), 1 pediatric nurse practitioner (PNP), and 1 pediatrician. In the FHC, there are 2 MDs, 1 FNP, and, 3 PAs with Full Time Equivalents (FTE) of 1.0.

The FMDs see only those on flight status since their mission is to see service members and their dependents who are on flying status. Flying status means the ADSMs duties take place
on an aircraft. Majority of airmen who are on flying status are healthy individuals who infrequently visit the health clinic. They are closely monitored by their unit for compliance with regulations and any medical condition will disqualify them from flight status. The ADSMs on flight status do not want to get disqualified for any medical condition that could disqualify their flying status including, but limited to, minor health problems such as allergies. Even if an ADSM on flying status takes an over the counter antihistamine for their allergies, they would be disqualified from flying status until they no longer need the medication. This impacts their unit’s status and pride as well as the ADSM’s pay since they are compensated for flight status.

**Social Environment.** The military has its own unique customs and courtesies and rules. Each service member is expected to encourage each other to maintain a healthy weight and life a healthy lifestyle. Most military bases have a base fitness center to encourage fitness and exercise. Most are open between the hours of 0500 to 2300. In fact, most USAF bases have a fitness center associated with the military located either on-site or nearby with extended hours of operation. All active duty members are mandated by USAF regulation to participate in a formally organized physical training (PT) events held by the unit’s commander. All USAF ADSMs must wear a mandatory Air Force PT uniform during the duty day when exercising as a part of a formal PT program. However, the airman may wear personal clothing while exercising at the base gym if they are not in an official PT session, but this does not impact the ability for the airman to use the fitness center.

Overweight and obesity management is a lifelong process of lifestyle change (Warner et al., 2008). Behavioral factors of ADSMs need to be addressed and modified to positively impact overweight and obese ADSM’s lifestyles. This prevents those who are already overweight from progressing to becoming obese. Identifying overweight or obese adults and providing the
necessary referrals to the HAWC is likely associated with greater weight loss and a positive impact on patient outcomes (American Family Physician, 2012; CMS, 2011; USPSTF, 2004). Early identification of overweight and obese airman and having the provider engage in a brief counseling about healthy exercise and diet for less than 3 minutes and referring airmen to the HAWC will likely meet this goal.

It is anecdotally noted by some of the clinic providers at this base that many ADSMs who eat fast food frequently, do not monitor their diet, and do not get regular exercise easily become physically deconditioned. Moreover, when airmen are due for their annual or biannual physical fitness test, anxiety in these individuals seem to pose a further barrier. This leads the ADSM to seek an appointment for common orthopedic complaints such as low back, knee, and ankle pains and a request for a physical fitness waiver for a component of the test. The components of the physical fitness test are push-ups, sit-ups, 1.5 mile run or a 2-kilometer fast-walk if they are not able to run and are on a fitness waiver. This results in frustration by the providers and further deconditioning by the ADSM who is now restricted from engaging in vigorous exercise.

Readiness for change is important to assess in the staff and the providers. Due to their current attitudes, beliefs, and workload, it may be unrealistic to expect an immediate and significant change within less than three months of the project. The clinic leadership and administration must also be ready for changes to occur (Titler, 2010). Additionally, implementing this project in a single clinic with resulting success will make it easier to diffuse the EBP process and assess for a change (Titler, 2010). Identifying the readiness for change would be the first step in this social environment.

Provider attitudes and behaviors toward screening, documentation, and referral of overweight and obese ADSMs may be seen as additional workload to their duty day and thus, it
may pose a barrier to change. The clinic staff and providers must follow set policies and be ready to improve their coding diagnosis style, screen the BMI at every visit, and refer to the HAWC as indicated. If providers exhibit positive attitudes and readiness for change, there is a higher likelihood for an upward trend in screening and referral rates for overweight and obese airmen. Moreover, their ability to face difficult obstacles in achieving their intended goals will likely improve and providers will employ greater effort to find the time to fit the process in their daily workload.

The clinic’s leadership will be regularly involved in the project to provide ongoing support and guidance through regular clinic leadership involvement in the project. The commander of the clinic is typically proactive in providing a strong learning environment within the FHC. Having a positive learning environment may promote sharing of important knowledge and build absorptive capacity for new knowledge for the staff and providers (Titler, 2010). Without leadership and organizational support, the project may not succeed in achieving its intended goals and outcomes. Leadership has the authority to enforce policies locally at the clinic, such as to routinely screen and refer overweight and obese ADSMs. Although emails were sent out to the providers to routinely perform this process, it will be more effective to also perform a face-to-face contact with the clinic staff to discuss the situation and processes.

The flight commander, who is part of the clinic leadership, is an equivalent to a nurse manager will provide help through audits and feedback to providers after the initial 3 month period regarding their performance on routine screening along with making referrals to the HAWC (Titler, 2010). Through an interactive format audit and feedback method, improvement through frequent assessments and evaluating audit performance indicators such as the number of diagnoses made for overweight and obese adults and the number of referrals made to the HAWC
by the provider (Titler, 2010). Eventually, having the flight commander and project leader conduct face-to-face interactive feedback communication with the providers on performance in screening and referring will determine the need for changes to improve and institutionalize the evidence based program practices.

Findings within the project requiring attention from the provider and their team will be accomplished through frequent informal interaction meeting sessions for further education since formal didactic education alone is usually not sufficient to achieve optimal results (Titler, 2010). Interactive training for providers can reinforce the practice of routinely screening and referring overweight and obese airmen to the HAWC. The interactive educational training sessions for each provider and their team will be continued in a face-to-face format as required to maintain the screening and referral practices. These brief, interactive feedback and education sessions will occur during team huddles at the end of the clinic duty day at least once every two weeks. By providing these reinforcement communication sessions in a face-to-face format rather than email, it is anticipated to improve receptiveness of staff to the evidence based change.

**Economic Environment.** The majority of ADSMs make enough money to live comfortably and most are considered to be middle class. While homelessness is likely uncommon within the Air Force, there are likely some economically disadvantaged airmen. At this military installation specifically, the number or individuals who qualify for assistance such as food stamps or WIC due to being economically disadvantaged is unknown. Fortunately, the treatment of overweight and obesity ADSMs through appropriate diagnosis and referral to the HAWC is a covered benefit (no cost) by TRICARE.

Medically necessary treatments such as obesity intervention for ADSMs are available at no cost to the service member as long as they seek care through the HAWC. Since there is a
registered dietician, exercise physiologist, and nurses at the HAWC, TRICARE will not cover off base and non-authorized weight loss treatments. Prescribed or over-the-counter drugs for weight loss and off base education or fitness courses and nutritionists are not covered and if undertaken, the ADSM is responsible for the full cost of off-base treatments. TRICARE does cover bariatric surgery options, however, this will trigger an automatic Medical Evaluation Board (MEB) if airmen pursue the surgical option to weight loss and it will likely result in discharge from military service as it will be considered a disqualifying medical condition for service. Additionally, local policy for retention standards at this clinic does not allow ADSMs to start any prescribed drug therapy for weight loss because it will also trigger the MEB process.

In this military economic environment, the interventions provided by the provider for weight loss through referrals to the HAWC are covered by TRICARE at no cost; therefore, airmen do not typically experience economic hardship when attending appointments through the HAWC. However, there may be some who experience hardships due to various personal reasons including lack of access to transportation. These individuals may need assistance with transportation, especially if they are required to attend appointments at the HAWC for physical fitness test failure. Otherwise, these airmen will face administrative discharge from military service due to physical fitness failures.

**Political Environment.** The site for this EBP project is located on a federal military base. This location is noted to be highly political in terms of process requirements and obtaining authorizations. Federal rules and regulations strictly apply at Robins AFB. Leadership is conducted through a top-down approach. Any decision affecting the clinic as a whole must be authorized through the chain of command. In ascending order of authority to make decisions, the
personnel acknowledged as the leadership for the clinic includes the flight commander, the chief medical officer also known as the SGH, squadron commander, and the group commander.

An equivalent in the public sector, the flight commander is the immediate supervisor similar to a clinical supervisor who manages daily operations. The SGH is the chief medical officer for the primary care health clinic. The squadron commander is similar to the executive manager of the entire primary health care clinic. The group commander is similar to the chief executive officer of the medical clinic at RAFB which is comprised of various medical specialties and ancillary services. These senior leaders are involved in the larger part of the decision-making process and authority to initiate and terminate policies affecting the function of the clinic.

Local and state laws must also be observed. State laws regarding the medical and nursing practice of privileged licensed independent providers including providers adapt their scope of practice based on the State in which they hold their license. This will dictate the legal scope of practice for the respective provider.

**Sample Population.** The active duty population consists of 4,506 airmen who are male or female adults within the total population of 15,000 patients currently enrolled at the clinic. This population encompasses many ethnic and cultural backgrounds. Inclusion criteria of these adults will include the age group between 18 to 64 years who are active duty Air Force service members who are enrolled at the FHC. Two variables will include age and gender which will determine if more males or females are affected in this sample population. Moreover, measuring age as a variable will determine if obesity is more prevalent in individuals over the age of 30. Military members from other branches, family dependents, children and adolescents, and geriatric patients will be excluded. The number of patients enrolled at the clinic changes often
due to frequent base relocations or Permanent Change of Station (PCS) for airmen and their families.

**Data Collection.** Prior to data collection, the project will be implemented 2 weeks before May 2014 to engage the staff and educate them about the project and process. This preparation will assist the staff in being more knowledgeable about the project and comply with the program. Data will be collected during scheduled outpatient workdays which typically includes an average of 22 patient visits per day per provider. A usual outpatient workday is defined as the provider with appointments for patients presenting for any health-related visit including mental health-related reasons. Providers will proceed with their usual duties. When a patient encounter includes an USAF ADSM, staff will screen, diagnose, and refer patients for overweight and obesity as indicated. For mental health-related visits, weight issues will be addressed at the end of the appointment and they will be told to follow up with the HAWC after their mental health clinic visit when they are able to do so. An airman being seen for mental health issues will also need to have their weight addressed. If airmen are taking oral psychiatric medications, certain classes of drugs such as antidepressants are associated with significant weight gain; sertraline, paroxetine, citalopram, escitalopram, mirtazapine, venlafaxine, and duloxetine (Uguz, Sahingoz, Gungor, Aksoy, & Askin, 2015).

For acute visits, the patient’s primary acute reason for the visit is addressed, such as an upper respiratory infection. An acute visit is apportioned workload credit system which includes a limited Relative Value Unit (RVU) credit for the clinic. This means only limited workload credit is given, specifically covering workload for one diagnosis. Other clinic visit’s workload compared to a routine, established, or well visits, offer higher RVUs. Due to this workload credit limitation, some providers at the clinic stated it is not worth addressing other non-urgent issues
during an acute visit. Moreover, the acute visit is usually 15 minutes or less in length, with some providers having 10-minute acute appointments. This limits the provider’s ability to address other non-urgent issues within the acute appointment which can result in providers failing to document overweight or obesity or take the time to make referrals if the appointment is labeled as an acute visit in AHLTA. With this, it would be ideal to include the disease management nurses (DMNs) who assist with the education component for weight management for future projects.

The data for all patient encounters are automatically saved in AHLTA’s statistical record computer database. Collection of the 2013 data will be completed with the assistance of the DMN from the diagnosis and referral statistical database in AHLTA. During the period of the EBP project, there were a total of 5,832 visits made by airmen. From the 1 May to 31 July 2013 data, 311 airmen were categorized as obese. In this group, there were 233 males and 78 females diagnosed as obese. A total of 299 airmen were identified as overweight. There were 221 males and 88 females in this category. Between 1 May and 31 July 2013, a total of 610 airmen of the baseline population of 4,506 airmen were properly screened by documenting overweight or obesity after calculating the BMI from a patient’s height and weight and referred to the HAWC; or roughly 0.7%. Data regarding the number of ADSMs screened and referred will be collected and analyzed at 3 months. Table 2 below, illustrates the data collection process.
Table 2

Data Collection Process

<table>
<thead>
<tr>
<th>Variables</th>
<th>Instruments</th>
<th>Data Collection Point</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-program screening and referral data; 311</td>
<td>AHLTA statistical database</td>
<td>Within 1 week before interactive meeting with providers</td>
<td>Descriptive statistics.</td>
</tr>
<tr>
<td>obese, 299 overweight airmen.</td>
<td></td>
<td>and clinic staff.</td>
<td></td>
</tr>
<tr>
<td>Knowledge post-program</td>
<td>AHLTA statistical database</td>
<td>Immediately after three months of the program.</td>
<td>Descriptive statistics.</td>
</tr>
<tr>
<td>Barriers: lack of time, too much workload</td>
<td>Interview</td>
<td>Pre-implementation and at three months post-implementation</td>
<td>Themes</td>
</tr>
<tr>
<td>Compliance with practice change: Few compliance</td>
<td>Likert statement surveys.</td>
<td>Immediately after three months for anonymous Likert</td>
<td>Descriptive statistics and monthly</td>
</tr>
<tr>
<td>by providers</td>
<td></td>
<td>survey.</td>
<td>trend analysis.</td>
</tr>
</tbody>
</table>

**Outcome Measures**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Instruments</th>
<th>Data Collection Point</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of screening and diagnoses for</td>
<td>DMN to get diagnosis database audits from</td>
<td>Every other Friday or bi-weekly.</td>
<td>Descriptive statistics and trend</td>
</tr>
<tr>
<td>overweight entered into AHLTA during non-acute</td>
<td>AHLTA</td>
<td></td>
<td>analysis.</td>
</tr>
<tr>
<td>visits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of screening and diagnoses for</td>
<td>DMN to get diagnosis database audits from</td>
<td>Every other Friday or bi-weekly.</td>
<td>Descriptive statistics and trend</td>
</tr>
<tr>
<td>obesity entered into AHLTA during non-acute</td>
<td>AHLTA</td>
<td></td>
<td>analysis.</td>
</tr>
<tr>
<td>visits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Referrals to the HAWC</td>
<td>DMN to get referral database audits from</td>
<td>Every other Friday or bi-weekly.</td>
<td>Descriptive statistics and trend</td>
</tr>
<tr>
<td></td>
<td>AHLTA</td>
<td></td>
<td>analysis.</td>
</tr>
</tbody>
</table>

**Instruments.** Data collection tools currently used at RAFB FHC are embedded in AHLTA. AHLTA database tools are capable of tracking the number of diagnoses made for a particular diagnosis, date and time, and the number of referrals made. The database tools will measure the intervention performed by the provider from 1 May 2014 to 31 July 2014.
To evaluate the current practices, behaviors, and attitudes for each provider and MT, an anonymous paper copy survey containing items in a Likert format will be distributed. This process will be discussed in further detail under the program evaluation section (Appendix A). This will assist in measuring compliance with the practice change and their understanding of the importance of referrals for the ADSM who is at risk for separation from service for overweight or obese diagnosis. The survey will be distributed to the providers and MTs and a yellow envelope will be used to collect these surveys in a separate room to avoid identifying who completed the survey. Only MTs and providers will have the surveys administered because other staff members do not engage in the screening and referral process during patient encounters.

A survey is comprised of three parts which will be distributed via email after the completion of the EBP project. The survey can be completed on the computer and printed out for submission. The first part uses a five-point Likert scale based in a statement format and will include five questions ranging from 0% defined as “never” through 100% defined as “always”. The “N/A” choice will be available for questions that do not apply for the survey participant. The second part of the survey includes five-point Likert scale items ranging from not at all limiting, somewhat limiting, and to very limiting. The “N/A” choice will be available for the survey participants. The final part will include open-ended questions to determine common themes. Most of the staff complete paperwork via the computer, so handwritten responses will be unrecognizable. This survey will be analyzed by calculating the frequency of response for each response scale item to report the percent distribution to the clinic leadership. The providers will complete a post-intervention Likert statement survey to demonstrate their knowledge and competency with the standard of care. The objective measure is that all of the military providers
will respond to having gained some knowledge and competency regarding the process in addressing overweight and obese ADSMs in this clinic.

**Peer Reviews.** Another instrument to monitor the compliance of practice change amongst the providers is completed through peer reviews and this is component will be recommended in the future if this project is fully adopted by the clinic. No peer reviews will be conducted during this project, but a plan is discussed here for potential future implementation. All of the providers will maintain compliance with the standard of care to screen and refer overweight and obese ADSMs at every visit as evidenced by evaluation in peer reviews.

It will be very helpful to have this program become a requirement for peer review by other providers. Peer reviews will be conducted on a monthly basis to evaluate and ensure providers are routinely screening and referring overweight and obese airmen to the HAWC. The anonymous peer review results will be plotted on a graph to present the findings to the clinic leadership and staff through a PowerPoint presentation during professional staff meetings. These presentations will occur quarterly, around the same timeframe as the professional staff meetings within the military treatment facility.

Each provider will complete ten randomly selected medical records for peer review. The peer review will include a stratified checklist to ensure the standard of care overweight or obese ADSMs is met during non-acute visits. These patient encounters are easily located in AHLTA, which makes finding these random records easier for the MT to prepare for the providers. Each peer review checklist will consist of preexisting standard of care guidelines and questions which address overweight or obese airmen.

**Benchmarks and Data Analysis Plan.** The 2013 data collected will serve as a baseline and this data will be compared to the data collected 1 May 2014 to 31 July 2014. The number of
diagnoses and referrals made in 2014 will be tallied and compared to the 2013 data. The objective for this improvement project is a significant percentage increase of diagnosis and referral within the first three-month period. In analyzing the data, a quasi-experimental before and after evaluation design will be utilized. Data will be analyzed using a descriptive statistic approach to analyze and describe the objective findings.

Descriptive statistics will be calculated to analyze the extent the benchmark is reached after the three-month program. The active duty Air Force population is considered a sample of the military population because they are a smaller subset of the larger military with various other branches of service. The sample population section will be discussed later. By using the compare to standard technique, the data will be used to report the results by comparing the pre-program data to the post-program data and calculate the percent of change. The total number of visits by airmen over a 3-month timeframe will be the denominator for both data.

Data will be further analyzed descriptively to improve the understanding of the results obtained after the three-month program. This report will help determine the sustainability and outcome of the program to have providers continue to screen for overweight or obese airmen and refer them as necessary. The number of diagnoses made and the number of referrals created in AHLTA will be collected by the DMN. The DMN will obtain the numerical results for analysis at pre-post intervention timeframes.

The collected and analyzed data will then be organized to describe in further detail the meanings and relevance to the program intended measures. The purpose of using descriptive statistics is to describe the results of the program implementation and provide suggestions for improvement. However, a comparison between control groups will not be conducted, as there are no control groups.
Descriptive statistics will be used to interpret, evaluate, and further describe in detail the pre-post quasi-experimental design. The measured data includes the number of diagnoses documented within a three-month period for ADSMs will also be described. Moreover, the number of referrals will be collected from the referral tracking system database in AHLTA and the percentage of change will be discussed further to describe the pre-post data.

The data will also be analyzed using an ordinal level of measurement. Based on an airman’s BMI, subjects will only fit in one category of either overweight or obese if their BMI is greater than 25 kg/m². Using this level of measurement will categorize the overweight and obese ADSMs. It will also rank them based on the BMI number in a less-to-more basis. This also includes some of the features of nominal level of measurement to classify the overweight or obese airmen in one category. Moreover, there are two categories regarding this BMI classification which fits the criteria for nominal level of measurements; overweight and obesity, respectively. Moreover, the rate of screening and referrals placed will constitute two separate variables to be measured and analyzed by comparing the 2013 to 2014 data.

The post-program data after 31 July 2014 will be used to compare to the pre-program data to assess for any changes. The 2013 data inclusive from 1 May 2013 to 31 July 2013 will be used as a benchmark to compare the new data after three-month program intervention from the 6 providers in the clinic who are also the same providers working at this clinic during 1 May 2013 to 31 July 2013.

Measuring the number of BMI screenings, diagnosis, and referrals will convey to the staff and providers of the results of program implementation at the end of the three-month period. A nominal level of measurement is likely the best fit to utilize for this program evaluation. The numbers obtained are not ranked and there are no ratios to calculate. The number
of overweight and obese individuals who were diagnosed in the electronic medical record will be sorted in their respective categories; overweight or obese. At the end of the project on 31 July 2014, the program benchmark to reach is significant improvement in the program of screening and referring obese and overweight airmen to the HAWC. This will be calculated through obtaining the percentage data for active duty airmen visits as a denominator and overweight or obesity will be stratified by gender to assess for differences; male and female, respectively. Moreover, another category will be utilized to stratify the demographics. Age groups will be used to assess for which group has a higher prevalence for overweight or obesity; ages 18 to 29 and 30 to 64 years, respectively.

Implement the Evidence Based Practice Change

Procedure. It will likely take less than three minutes for the provider to briefly address the importance of weight management to the ADSM who is identified as overweight or obese. The items covered by the provider includes frequent exercise and eating a healthy diet, document the diagnosis of overweight or obesity in AHLTA, and place the provider order the referral for the patient to go to the HAWC if it was not already done previously. Providers will always need to be mindful of the standard of care in treating overweight and obese patients through the screening and referral process at each patient encounter. The standard of care will be emphasized at the initial meeting with the providers and their clinic staff and content will include the project’s content, process, and goals. The initial meeting will allow the providers and MTs to provide their suggestions for the project to improve screening through the recognition of a patient’s BMI, making the appropriate diagnosis and subsequent referral to the HAWC in AHLTA under the action and plan (AP) section in the patient encounters.
Screening and referring these overweight and obese airmen is compatible with existing policies of known standards of care on addressing this well-known epidemic (AHRQ, 2013). There are current clinical guidelines available to address this epidemic for providers and the FHC adopted them to facilitate diagnosis and treatment (AHRQ, 2013). Diagnosing and referring ADSMS is not a complex procedure, but the providers require support, education, and revised workflow to achieve consistent and sustained compliance. Essentially, the ultimate goal based on the current guidelines is to routinely screen for overweight and obese adults and refer them to obtain treatment for their weight issues at each health visit (AHRQ, 2013).

**Reminder Aids.** Prior to starting the three-month program, all 12 patient care rooms will have a poster placed in a location on the wall and designed to be attention catching to remind providers to refer overweight and obese ADSMs (Appendix B). These posters will be accessible to all the providers and MTs each time they enter patient rooms and it will be a non-intrusive reminders to routinely screen and refer overweight and obese airmen. The providers and MTs at the clinic are expected to participate for the duration of the three-month program. The MTs are expected to execute verbal reminders to each provider about an airman’s BMI in person or through instant messaging notifications on the network computer. Having the MTs document in the medical record can ensure the provider is informed.

During the one week training session prior to starting the program, providers will be educated together, during an initial group interaction meeting by the project leader to encourage routine screening and referring of ADSMs during a health care visit to the HAWC to improve the likelihood of achieving the goals of the program and improve health care reimbursement rates as the long-term outcome. In the future, it is recommended to the AHLTA informational technology (IT) specialists include a click-on tab to address overweight and obese adults. Having a tab easily
found in AHLTA to address overweight and obese adults will be another form of a visual aid for MTs and providers.

Visual aids will be provided in the patient care rooms for providers and MTs to see as a reminder. Posters will be placed in the patient rooms easily viewed to allow ADSMs have access to the contact information for the HAWC, which includes a phone number and hours of operation. Written labels will be created and taped on each computer monitor in the patient care rooms as another reminder. These visual aids will help MTs to remind the providers to address an airman’s weight if their BMI calculates to higher than 25 kg/m2.

**Teamwork.** Each of the three teams working in the FHC will involve the provider, one MT, and one DMN. Advice will be clearly given to ADSMs to specifically tailor to their personal behavior change approach as well as about personal health harms and benefits (CMS, 2011). The patient and their provider will agree collaboratively on appropriate treatment methods to reach the goals based on their interest and willingness to change their behavior. The team will work together to ensure the referral to the HAWC is entered to help the patient achieve arranged goals to acquire the necessary skills, confidence, and support in their weight loss goals (CMS, 2011).

At the beginning of all ADSM visits, the screening process will proceed with MTs who will measure the patient’s height and weight, and then input the data into AHLTA. Then AHLTA will automatically provide a calculation of the BMI. Demographic information collected will include the airman’s age and gender for statistical purposes. The MT will assist by verbally reminding or instant messaging the provider of BMIs greater than 25 kg/m2 for all airmen. This will assist the provider to stay attentive and identify overweight and obese individuals at every patient visit. The provider will see the patient for their chief complaint and near the end of the
encounter, a brief counseling session with the patient will be conducted lasting no longer than 3 minutes regarding their weight and the policy to refer them to the HAWC. The provider will create a referral to the HAWC in AHLTA if they meet the BMI criteria of 25 kg/m² or more and if no previous referral was made. If a previous referral was already made to the HAWC for the patient within the last three months, no new referral will be created and the airman will be instructed to follow up with the referral by having them call the HAWC. The AHLTA system does not track how many times an airman attended sessions at the HAWC.

**Communication Strategies.** The primary method of communication between the providers and patients is the face-to-face patient visits. The end of the patient visit will be used to relay information to patients from providers regarding their overweight or obesity diagnosis and the referral to the HAWC. This will help to improve compliance with recommendations to address their overweight or obesity issues provided by their provider. Consideration was given to those who are early adopters of electronic messaging technology, typically the younger airmen. The younger airmen are more likely to use this electronic network format of communication than those who are older in age (Rogers, 2003).

There is a small population of patients who are enrolled in the clinic, such as the late majority or even laggards, who do not frequently use electronic network format of communication. This is usually the older population above the age of age 55 years old or older of either gender who are still ADSMs (Decker, Jamoom, & Sisk, 2012). Interestingly, this also includes providers who are older than age 55 years, in which they may lag behind innovation and adoption (Decker, Jamoom, & Sisk, 2012).

Interpersonal channels will also be used during the face-to-face encounter between airmen and providers during the usual workday. This will allow a simple way to converse about
their weight, BMI, diagnosis, and referral to the HAWC. Face-to-face communication also works well within the clinic staff, providers, and stakeholders. It is convenient and efficient when all the providers are physically present in one room during meetings to discuss the program. However, it is not feasible to conduct a face-to-face type of communication with all the providers on a daily basis due to limitations of time as a resource to conduct daily meetings.

Another communication strategy is the train-the-trainer method and daily team huddles. The train-the-trainer method can be completed during biweekly provider meetings and team huddles held at the end of the duty day. The provider meetings will provide an opportunity to ask questions or provide suggestions regarding the screening and referral program. The train-the-trainer method is commonly used throughout the military setting to have individuals learn on the job and develop the skills necessary to master their primary duties and train new recruits.

The daily team huddles are usually held around 4 pm, which is at the end of the clinic workday. The team huddles will be utilized to train the MTs on initiating reminders to providers if they see an overweight or obese airman. This type of training will allow the MTs to train those who are MTs newly accessioned in the military.

**The Health and Wellness Center.** The HAWC will address nutrition and exercise education classes to educate the ADSM. After a referral is placed, airmen will go to the Referral Management Center (RMC) to activate the referral. The DMN will track the number of referrals activated by the ADSM through AHLTA and report the final results to the provider. This data will be tracked bi-weekly on a Friday. It will be the responsibility of the airman to contact the HAWC and schedule an appointment. Most ADSMs are allowed by their commanders at their respective units to attend HAWC classes during the duty day, about twice a week, if they have a referral from their provider.
The HAWC staff consists of 2 registered dieticians, an exercise physiologist, 2 registered nurses, and two MTs. The HAWC staff will be the team to provide the behavioral interventions to overweight and obese adults. Currently, because of federal budget constraints, the HAWC is only accepting referral from ADSMs.

Plan for Monitoring and Analyzing Structure, Process, and Outcome Data

Data Analysis. Data on two items will be collected by the DMN, which are the number of screenings and diagnosis codes of overweight and obesity made and the number of referrals created to the HAWC. The 1 May 2013 to 31 July 2013 data will be compared to the new results from the three-month program to evaluate for changes. This is advantageous because the new 2014 data will be fairly compared to the 2013 data since it is within the same time period in the previous year and no seasonal adjustments are required. The pre-intervention data will be compared to the new post-intervention data within a three-month time span, to evaluate for a percentage change. The quasi-experimental before and after design will be utilized to compare the post-intervention data to the pre-intervention data. This will be accomplished by: 1) assessing monthly trends in obesity screening rates, 2) the number of documentation of overweight and obesity diagnoses, and 3) number of referrals made to the HAWC.

The routine screening and referrals for overweight and obese ADSM program will use the quasi-experimental pre-post design because airmen are not randomly assigned to another program or a separate control group. A quasi-experimental before and after design was chosen because utilizing any other design (e.g., non-experimental, experimental), may not have worked well due to the nature of the samples and the intended program outputs and outcomes. Moreover, this is a time series before and after design, in which it does not have a comparison group since it would be unnecessary.
The independent and dependent variables were identified. The dependent variable is the behavior of providers to regularly screen, diagnose, and refer overweight or obese airmen to the HAWC and the number of overweight or obese diagnosis and referrals made within the three-month period. The independent variable is the daily notification made by the MT to the provider when an airman is screened and found to be overweight or obese during a non-acute visit. These notifications performed by MTs will be tracked by documenting in the encounter the provider was notified. The provider will keep a tally record of this data on a separate worksheet in their office. This measure will be calculated through the BMI of the ADSM. Other independent variables are patient gender, age, and level of BMI (overweight or obese). Other comorbidities other than overweight or obesity will not be included or considered in the screening and referral process for airmen.

**Data Analytical Procedures.** The screening and referral program will analyze quantitative data. Stakeholders at the clinic demand numerical data to objectively track and measure performance by documenting these results on a spreadsheet and present data on PowerPoint slides to the Air Force leadership. This process will assess and track for any changes occurring in the clinic through a performance metric system to evaluate the results. The data is eventually presented to a higher and more centralized Air Force medical leadership to work with Congress to determine the federal funding amount for the clinic regarding the following year.

The data will be calculated for the percentage of a change after the implementation phase. The percentage will be calculated to provide a quantitative value of either an increase or decrease in screening and referrals of the ADSM population. The percent increase is also being calculated to determine the extent additional focus or strategies are needed to improve our goals. The results
also allow the data to be placed on a spreadsheet to keep track of statistics for future use. These results will be placed on an excel spreadsheet to also track for monthly trends.

The number of diagnoses and referrals made in 2014 will be tallied and quantitatively analyzed in comparison to the 2013 data to evaluate for a change with a difference in proportions test and its also known as the two-proportion z-test to describe and summarize the results for statistical significance. The difference in proportions test will obtain an accurate estimate of the combined data of at least two independent samples in each category to calculate for statistical significance (Answers Research, 2011). It will not be used in determining causes or relationships between the independent and dependent variables.

Existing measurement and tracking tools will be used in AHLTA’s electronic statistical database to evaluate the number of diagnoses and referrals made by the provider. Utilizing this available health information technology to track the diagnoses and referrals will simplify the collection of data and decrease the risk of potential errors. Since the military health care has its own informational health technology system and resources due to efficiency and security reasons, using existing measures available in AHLTA is highly recommended. The statistical software to track the diagnoses of overweight and obesity is readily available for access by the program team through AHLTA.

**Coding.** The MTs will perform vital sign measurements to include the height, weight, and BMI of ADSMs. Throughout the FHC, all MTs are required to assess these vital signs at every patient encounter. The provider will identify and diagnose overweight or obese patients into AHLTA using the appropriate ICD codes for categorization and billing purposes; with 278.02 or 278.00, respectively. Through AHLTA, the DMN will obtain the data regarding the
In regards to coding for reimbursement purposes, the CMS allows primary care practitioners in the primary care setting to qualify for reimbursement after treating obese adults. This incentive will improve sustainability within the clinic to constantly implement and evaluate these quality measures through measurable outcomes. The outcome evaluation will be measured by comparing the number of overweight or obesity diagnoses and referrals made before and after the intervention to assess for a change and trend to obtain objective and measurable data for presentation to clinic leadership and the staff.

**Dissemination of Results**

During the 3-month program, results will be presented to the clinic staff and providers via group interaction sessions during normally held informal meetings. There are two types of routine meetings, which include biweekly provider meetings and biweekly professional staff meetings. The provider meetings are held every other Wednesday at lunchtime, which will be used as an opportunity conduct the meetings with the providers. The purpose of the provider meetings is to discuss issues to be addressed and gain feedback from providers. This will be an ideal time to discuss the project and gain initial feedback about the program from the providers. Final results will be interpreted and shared to the clinic staff and leadership through one interactive meeting post-program.

The professional staff meetings, also known as “pro-staff” meetings, are held every second and fourth Thursday of the month from lunchtime until the end of the duty day. These Thursdays are called training days and they usually consist of live continuing education sessions, essential clinical information that require face-to-face dissemination to the clinic personnel, and
disaster and combat related medical response training. Pro-staff will also be an ideal time to discuss the screening and referral program and gain immediate feedback the MTs and other clinic staff as well.

**The Future.** In the future, a small and mass media method of communication would be ideal. Facilitating mass media in addition to interpersonal channels with providers on a daily basis would deliver the message to a large group of stakeholders and involved individuals. One method is through an entertainment-education approach during an informal interactive meeting with a game show like delivery or with a pre-recorded video. The entertainment-education approach combines central and peripheral routes of persuasion (Briscoe & Aboud, 2012). To influence change in a larger group such as this clinic, social-action and community-readiness through facilitation will be necessary to sustain the changes created from the overweight and obesity screening and referral program (Briscoe & Aboud, 2012).

Improving these communication processes through facilitation may help to address the barriers posed in routinely screening and referring overweight and obese adults to the health and wellness center. These barriers may be the lack of engagement, negative attitudes, resource deficits, multiple and competing priorities resulting in the lack of time which is also considered as a resource, team and staff resistance to change due to increased workload that inhibits staff’s ability to take on new tasks, and lack of evaluations or follow-ups and sustainability for the program (Dogherty, Harrison, Graham, Vandyk, & Keeping-Burke, 2013). In order to succeed, evaluation of the screening and referral program, follow-up on outcomes of providing an intervention to the providers during a provider meetings, and sustainability needs to be addressed (Dogherty et al., 2013). In other words, tenacity is an important internal factor for providers and their teams to maintain.
Tenacity is an important factor for all providers in the clinic to uphold to become successful facilitators within their teams, respectively (Dogherty et al., 2013). Gaining leadership support from the flight commander and chief nurse and building partnerships with them are critical to initiate such a project. Moreover, tenacity in key stakeholder engagement and buy-in from the other providers throughout the family health clinic are needed to improve the communication process and be successful to maintain sustainability in complying with clinic policies and standards of care in treating overweight and obese airmen (Dogherty et al., 2013).

The flight commander and chief nurse have a large influence on the clinic’s current policies and they can facilitate behavioral change in the staff as they have a higher level of authority and heterophily than the providers in the clinic who bear much of the homophily. Heterophily is defined as having two or more interacting individuals have dissimilar characteristics, such as values, beliefs, education, social status, and thought processes (Rogers, 2003). Homophily is defined, as having two or more interacting persons who are analogous in their characteristics (Rogers, 2003). However, heterophily is sometimes needed to encourage innovation (Rogers, 2003). The flight commander and chief nurse are highly respected and innovative individuals in the family health clinic. They are open to many feasible ideas of change to help improve the tenacity within the clinic (Rogers, 2003).

**Marketing and Business Plan.** The plan to market this program will be to provide an initial educational group interaction session to the medical clinic group staff and providers at RAFB and discuss the program in brief to gain input and suggestions from others to improve the process of routine screening, diagnosis documentation, and creating referrals. This allows the clinic staff and leadership to enhance their involvement through educated support for the project and future screening and referral requirements.
Posters regarding the importance of screening for overweight or obesity and referring ADSMs will be created and posted in the patient rooms as another marketing tool (see Appendix B). The project leader will design the posters and the flight commander and providers will review them prior to implementation. The posters can provide a simple and cost-effective visual reminder for providers and it can also work as an advertisement for patients. These posters will also be posted at the front check in desk for improved visibility by patients. These posters will consist of a brief message regarding the importance to avoid becoming overweight and obese through regular diet and exercise and contact information with a phone number and directions to the HAWC will be listed. Visibility of these posters is essential since many patients are unlikely to notice them unless they are in an obvious position.

An effective way to quickly spread the word about the screening and referral program for airmen may be to post a brief description about the purpose and goals of the program on the medical clinic’s home online homepage. Moreover, utilizing social media is an efficient way to disseminate information fairly quickly and it is also cost-effective. The clinic has a Facebook webpage, which is accessible to the public and individuals with online computer access to see receive messages and respond with comments.

No other marketing or business plan will be made. This is due to the limitations in authority in marketing for the project leader. Further marketing plans such as photos and videos will need to be authorized by the clinic squadron commander. Color copy photos and videos will require a considerable amount of time and monetary resources, which are already currently limited. No consent form will be required since screening and making referrals for overweight and obesity is considered the standard of care at the FHC. However, surveys may be used as a marketing tool to the clinic leadership to display the usefulness of the program.
Resources. A provider’s time is a valuable resource known amongst all the clinical staff at this clinic. Time will be needed during a patient visit to fit in the discussion of overweight or obesity issues with airmen and create the referral to the HAWC. It may take less than 3 minutes to perform this task. The posters around the patient care areas will require the use of paper and printer ink in the clinic. Otherwise, no additional or new budget requests will be required for the screening and referral process since the intervention will be conducted during an airman’s healthcare related appointments. Screening for overweight and obese adults and addressing it through education and providing a referral to the HAWC is considered standard of care at RAFB FHC. As mentioned, the evaluation and treatment at the HAWC for referred overweight and obese adults are only available to airmen due to current federal budget constraints.

The level of cost-effectiveness, benefits, and importance will have an impact on the usefulness of this intervention and sustainability (CDC, 2012c). This is effectively approached by engaging stakeholders, describing the program, focusing on the evaluation design, gathering credible evidence, justifying conclusions, and ensuring lessons learned are shared (CDC, 2012c). The project is cost-effective since it does not require extra staffing, technology, and funding. The resources to address overweight and obese airmen are already available, but providers at the FHC do not routinely utilize them.

Changes will be measured for an increase number of screenings and referrals as the goal. It will justify the importance of the program to address the obesity epidemic in the Air Force. Positive changes will increase program credibility and strengthen the justification of the conclusions for sustainability. This will lead to having more ADSMs be appropriately screened and referred as necessary.
The Air Force is currently undergoing a large budget-cut to address the national budget issues within the government. This includes a reduction in force size and the strict monitoring for the efficient use of resources to reduce waste. Thus, every current or future program is thoroughly evaluated and reviewed by the clinic leadership to determine if it is feasible to sustain. Government organizations evaluate all programs to determine which programs need to be cut in order to save money and reach the resource goals. If a program is determined to be underutilized and inefficient, the decision to discontinue those programs will be made by the commander of the Air Force. This will have a large change effect on the Air Force health care service as a whole and there is a centralized leadership who will make the decision on which program will be continued or discontinued.

The cost-effectiveness of the program will also be evaluated to ensure resources are utilized efficiently after the 3 months of the program and it will consist of low cost interventions such as posters in patient rooms, biweekly provider meetings, and daily team huddles. If the program utilizes more resources than revenue generation, the program is not cost effective and will lead to eventual termination by the team leader and stakeholders.

The costs of the program will be tracked through AHLTA regarding the number of minutes required to implement this program each day and the number of diagnoses and referrals completed in order to calculate the estimated total revenue. Each provider in a personal log to document his or her time used to implement the program will track these minutes. This cost and revenue data will be used as an adjunct to the output data and to the program’s intended improvement objective. Since obtaining the height and weight by the MTs is a routine procedure at the beginning of every patient visit, the time to perform this task will not be tracked. The time the provider spends during the brief discussion, documentation, and referring process will be
tracked. It is anticipated each provider will spend less than 3 minutes at the end of each non-
acute visit with airmen who are overweight or obese. The emphasis of efficient resources 
utilization implies a lack of compliance with the program processes and its goals will lead to a 
non-reimbursable treatment that could affect the finances of the clinic as a whole.

**Ethical Considerations**

**Human Subject Considerations.** This proposal has been designed in such a way to protect the rights of any human subjects involved in the project. The author has taken the University of Hawaii required Collaborative Institute Training Initiative (CITI) course in Human Subjects Protection. Two committees consisting of faculty and clinical experts to ensure there is adequate human subjects protection have reviewed and authorized this proposal. One committee is from the University of Hawaii and the other is from the Air Force Research committee at Wright-Patterson Air Force Base. The Air Force Research Committee deemed this project as quality improvement and not research. Therefore, this project did not need further review by the two IRB committees and authorization was given to proceed with the project.

**Institutional Review Board.** The reported data and results will be derived from the monitored number of overweight and obesity diagnoses made in AHLTA by the provider at the FHC over a three-month period. This post-program data will be compared with the pre-program results at the end of the project. Before data collection, approval from a review committee was required. The institutional review board (IRB) committee and the nurse researcher group at Wright-Patterson Air Force Base approved the project protocol and provided authorization to proceed. No consent form is required from patients since screening and referring overweight and obese ADSMs is considered a standard of care and clinic policy.
Ethical Tenets. As a quality improvement initiative, the focus will be to ensure the ethical tenets are maintained to protect the providers, clinical staff, and patients. The ethical tenets are autonomy, non-maleficence, beneficence, and justice. Autonomy is maintained to ensure self-determination of complying with the guidelines and standard of care when treating overweight or obese airmen. Standard, evidence-based practices will be implemented. However, the clinic policy requires providers to comply with the standard of care to screen, document their diagnosis, and refer these airmen to the HAWC. Not every airman needs to be referred to the HAWC if they have already received a referral. Instead, they should be encouraged by the providers to follow up with their referral if they have not yet already done so.

Non-maleficence is to do no harm for the providers, clinical staff, and patients. Vulnerable populations will not be included. Harm is not anticipated or intended on routine screening overweight and obese airmen and referring airmen to the HAWC. Providers and clinical staff will unlikely be harmed because this process already a standard of care that is in place at the clinic. Routine screening and referring overweight and obese airmen is considered usual care and the provider will notify the patient that the appropriate diagnosis code will be entered in their record. Therefore, there should be no stigma attached to airmen if the diagnosis codes of overweight or obesity are in their chart because it is evident based on the automatically measured BMI. It is the standard of care at this clinic to measure BMI at every clinic visit and address an airman’s weight problem at every non-acute visit. No additional risk was identified as a potential harm to the program participants.

Beneficence is considered to have a greater role than the program risks. The risk is higher to ignore the elevated BMIs and not routinely screen and refer overweight and obese airmen. Moreover, the weight of these airmen may increase even further if early intervention is not
performed. This would make the “fit to fight” slogan of the Air Force to be of little value. Furthermore, the risk of being overweight or obese and failing the physical fitness tests three times due to not meeting waist size requirements will have airmen immediately removed from duty and discharged military service. There are no known additional risks beyond the standard usual practice at this clinic.

Justice will be maintained throughout the program. Person-identifiable information will not be collected. There are no plans to randomize subjects to different treatments. All of the providers and clinical staff will be given equal treatment and they will each be held to the same standard of care and policies of the clinic. None of the providers and clinical staff will be given special treatment during the program. Patients will also be treated fairly and the inclusion and exclusion criteria will be used. The individuals who will be routinely screened and referred will be overweight and obese airmen and they will all be treated the same without any special considerations in regards to the process of the program. All of the airmen that are referred will go to the same HAWC on the Air Force base and work with a registered dietician, registered nurse, and exercise physiologist.

**Limitations**

Limitations include the allotted short amount of time to conduct the project and the small sample population used. Three months may not be considered long enough to compare it to the May to July 2013 data and find a true positive trend in screening and referral rates. The sample population consists of only adults who are currently in the active duty Air Force. The program may not be applicable to the rest of the population in the nation and not every individual has immediate access to free of charge HAWCs as the military provides for its active duty military population.
The practice change project will be implemented in a fluid environment and the conditions are not constant. The clinic has predetermined goals, prescribed roles, an authority structure, rules and regulations, and informal patterns. The clinic has an organized structure to maintain efficiency and sustainability (Rogers, 2003). The military is usually focused on maintaining a high degree of structure and formality, which is common in government systems. Despite these facts, the measured variables will not be controlled for the project and there are no comparison groups.

This project cannot address every variable contributing to the lack of screening and referring airmen. There could be other factors posing as barriers or facilitators not yet known. Thus, it would be impossible to address every single variable impacting the program. Identifying the most common barriers and facilitators was considered as the critical initial step to introduce this program to the clinic.

As mentioned earlier, the sample population for the project was active duty airmen at this Air Force base and this is a very small group when compared to the rest of the nation. Inclusion criteria were specific, but the sample size will be small. Additionally, this group of airmen at this Air Force base does not represent the rest of the military due to many variables such as, but not limited to the different physical and social environments. This is a fairly small clinic compared to other military treatment facilities throughout the Air Force.

This clinic provides primary care and no advanced obstetric or inpatient acute care is provided. Implementing a program in a small clinic can sometimes hinder the adoption by larger facilities. Organizational innovativeness is also affected by the size of the organization. Larger facilities seem to have more innovativeness than smaller facilities like at RAFB probably due to having more manpower and a larger budget to operate (Rogers, 2003). The project will be clinic-
specific and generalizability is limited since each Air Force clinic has different settings, policies, and style of leadership. Each clinic that utilizes this program must tailor it to fit their clinic.

Prior to having any project submitted for final approval by the commander, it needs to be approved by several leadership personnel starting with the immediate supervisor and in this case, is the flight commander. It also needs to be authorized by the nurse researcher and institutional review board committee of the Air Force. This may cause delays in obtaining final approval and it could take several months to years for a large project to be approved for use. This is called centralization, in which power and control in the clinic are within the hands of the commanders of the clinic (Rogers, 2003). Centralization is beneficial due to maintenance of the bureaucratic order, but it utilizes a lot of resources including time, to implement a project.

Political authority is concentrated at the top leadership level, which may sometimes limit innovativeness within this clinic. To implement large projects such as this, providers have little authority to implement new policies and procedures throughout the clinic on their own without the approval from the commander. However, once written approval is obtained in this highly formalized unit, the implementation of the project is likely to proceed with less bureaucratic barriers (Rogers, 2003).

There are concerns with the data analysis and there are quality concerns since no risk adjustments are conducted. The project data will also be descriptive and trending and there is a known effect that occurs commonly when the participants are aware they are being formally evaluated. This is called the Hawthorne effect in which the providers and MTs are likely to improve their performance and comply with the standard of care for the duration of the program because they are aware of the ongoing project. The improvement in the screening and referral process could also be temporary. The providers could eventually stop maintaining this standard
of care and revert back to old practices of not routinely screening and referring after the three-month project duration if the standard of care is not addressed monthly at least on peer reviews. Peer reviews will become a good reminder for providers to routinely stay compliant with the standard of care in addressing overweight and obese airmen.

The instruments used were created without evidence of reliability and validity. These instruments would not be generalizable to the other Air Force medical clinics. The Likert scale survey is a self-rating scale that has not been validated. The instruments used in this project are military health clinic specific and it would not be applicable to the civilian sector.

The procedure for the project has a limitation in that the timing of data collection is during the summer of 2014; 1 May to 31 July 2014. Many airmen are now exercising more outdoors with their units, which includes long-distance running and other sports to stay physically active. Whereas during the winter, airmen would rather stay indoors to avoid foul weather. Moreover, the summer is usually the season of Permanent Change of Station (PCS) for many airmen. During the PCS season, airmen move from their current location to another military base. Thus, the number of overweight or obese airmen is almost never steady in each of the provider’s patient empanelment. Finally, despite all efforts to adjust for the limitations mentioned above, they still exist and this project is not generalizable to other military clinics.

**Timeline**

The goal is to complete this project by December 2014 for each team so that data synthesis and analysis can begin. On a bi-weekly basis, brief meetings will be continuously held to educate and train the MT to verbally remind the providers of an airman’s BMI as a protocol. The DMN will be obtaining the statistical data. The expected timeframe for the project duration will be three months. On a daily workday, airmen will be screened for their BMI. If they are in
the overweight or obesity category based on their BMI, they will be referred to the HAWC on
the same day. However, tracking actual visits to the HAWC by airmen will be not be feasible
due to systematic challenges and is not within the scope of this project. After December 2014,
data will be synthesized, analyzed, and charted on a graph. The final project report will be
disseminated to the clinic staff and providers with a PowerPoint interactive meeting within three
months post-intervention. A timeline is illustrated in Table 3 to provide a visual timeline of the
project.

Table 3

Project Timeline

<table>
<thead>
<tr>
<th>Task</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>J</td>
<td>A</td>
</tr>
<tr>
<td>Successful Proposal Defense</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief Key Leaders &amp; Staff</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Develop Marketing Products</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare Instruments for Distribution</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate Staff</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>In Progress Review</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Develop Database</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement Practice Change</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Collect Data</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Enter Data</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Analyze Data</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Interpret Data</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Prepare and Submit Dissemination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Products</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

69
Summary

The lack of compliance to the standard of care in addressing overweight and obese airmen at every visit is an issue experienced by all 6 providers in the clinic. Airmen maintaining a healthy weight and staying physically fit to mobilize anytime the nation calls in response to crises is critical to national security. In response, methods were developed to approach this problem within this program to make changes to current practice. The goal is to complete this project by December 2014 for each team so data synthesis and analysis can begin.

This chapter discussed the proposed methods to implement this project in a military outpatient clinic setting. The practice change was identified to form a PICO statement. Detailed information regarding the setting, sample, and instruments used were mentioned. The procedure and data analysis section was explained to make this project implementation process feasible. The human considerations were discussed in detail to ensure no full IRB review was required and participants in this project are protected from any potential harm. The limitations and timeline section addressed the identified limitations of the project within a specific timeline.
Chapter 4. Results

Objectives

The objective of this section is to describe the sample, present the trend analysis for process and outcome variables, and discuss the evolution of the project. The evolution of the project examines the expected versus actual outcomes and facilitators and barriers of the screening and referral program. The goal was for military providers to increase their awareness regarding the process of addressing overweight and obese ADSMs in the outpatient clinic. The objective was to obtain significant improvement in screening and referral percentage rates for overweight and obese active duty airmen during a three-month period.

The medical technicians (MT) performed vital sign measurements to include the height, weight, and BMI of each airmen as they presented to the Family Health Clinic (FHC). The providers identified and diagnosed overweight or obese patients and entered that diagnosis into the military electronic health record called AHLTA (Armed Forces Health Longitudinal Technology Application) using the appropriate ICD-9 codes for categorization and billing purposes as 278.02 or 278.00, respectively. Through AHLTA, the disease management nurse (DMN) assisted to obtain data regarding the number of screenings and documented diagnosis codes of overweight and obesity performed.

In regards to coding for reimbursement purposes, the Centers for Medicare and Medicaid Services (CMS) allows primary care practitioners in the primary care setting to qualify for reimbursement for treating obese adults, which was as an incentive to implement the process. The project was measured by comparing the percentage of overweight or obesity diagnoses and referrals made before and after the intervention (2013 vs. 2014 data) to assess a change. The results were placed on a table and a graph to display the results.
Description of Sample

The sample of active duty service members (ADSM) or airmen in this project involved men and women between the ages 18 to 64 years who were enrolled in the Family Health Clinic (FHC). For this project, there were a total of 4,506 patient care visits from a population of 15,000 enrolled patients at the MTF.

Airmen were categorized into two age groups to determine if one age group had a higher prevalence for overweight or obesity than the other. As an individual gets older in age and if they are physically inactive, they tend to lose muscle mass and continue to gain weight due to an increase in body fat mass. Other reasons could be increases in the caloric dietary intake, age-related changes in body morphology, and changes in socioeconomic and lifestyle influences such as cigarette smoking, alcohol consumption, and physical inactivity (Han et al., 2015; WHO, 2014). The prevalence of increasing BMI of greater than 30 kg/m2 or a waist circumference of greater than 102 cm or 40 inches is linearly consistent with each decade of age (Han et al., 2015). Particularly males above the age of 40 years are more inclined to be sedentary and, subsequently, obese (Han et al., 2015).

Airmen in this project were active duty military members or in the reserves or guard units on active duty orders. Military members from other services, family member dependents, children, adolescents, and geriatric patients were excluded from the analysis. The exclusion of these subjects was to focus on the active duty Air Force members whose overweight or obese status impacts their ability to continue their military career and affect the Air Force mission overall.
Trend Analysis for Process and Outcome Variables

The data was analyzed in a descriptive format using the difference in proportions test, also known as the two-proportion z-test, to describe and summarize the quantitative outcomes of the screening and referral process for overweight and obese airmen. The screening and referral program was implemented using a quasi-experimental pre-post design with a standard of care historic comparison group without random assignments. The difference in proportions test was used to obtain an accurate estimate of the combined data of at least two independent samples in each category to calculate for statistical significance (Answers Research, 2011). The screening and referral program does not determine causes or relationships between independent and dependent variables. Moreover, age groups categorized the frequency distribution of the individual sample data for overweight or obese airmen.

The assumption was that older airmen were more at risk for being overweight or obese. The grouping variable was categorized by gender of male or female. The genders were divided into two age groups for each overweight and obese category. The outcome variable of interest was the percent of screened males or females who were diagnosed as overweight or obese and the number of referrals made within each gender/BMI category. The purpose of using the difference in proportions test was to determine if the diagnosis rates and referral rates from 2013 to 2014 for overweight or obese males and females in the two different age groups were statistically significant. These categories did not influence the values between the different groups. The categorical and ordinal levels of measurements were used for these variables.

Two primary measurements were observed during the screening and referral program. They were the number of airmen diagnosed with overweight or obesity and the number of referrals made during the three-month program. The program objective was to obtain at least a
significant improvement during the three-month period. Thus, a quantitative analysis was performed and a nominal measurement scale was used to classify the two categories as overweight and obesity, as defined by the World Health Organization (WHO) (WHO, 2014).

**Dependent and Independent Variables.** The dependent variables were the percent of diagnoses made for overweight and obesity by gender-age categories and the percent of referrals to the Health and Wellness Center (HAWC) made within each of the two three-month periods pre- and post-implementation. The independent variable was the intervention versus the comparison period of the actual screening and referring of overweight and obese airmen to the HAWC.

Two data sets from 2013 and 2014 were used for comparison to assess for the percentage changes. The total number of visits by airmen during the three-month period is the denominator for both data sets. The numerical results for pre- and post-intervention data were obtained from the military electronic medical record, AHLTA. The Disease Management Nurse (DMN) used existing measurement and quantitative tracking tools in AHLTA to perform this task.

The number of diagnosis codes for overweight or obesity entered was the numerator and the number of eligible airmen seen and screened was the denominator. The number of airmen who came into the clinic for a visit was equivalent to the number screened since height and weight was always measured and entered into EMR. The initial measurement was the percent screened with a diagnosis of overweight for a BMI between 25.0-29.9 kg/m² or obesity for a BMI greater than 30 kg/m². The second measurement was the percentage of airmen who were referred to the HAWC who were diagnosed as being overweight or obese.

**Baseline Data.** During the entire three-month period in 2013, a total of 2,790 airmen of any weight were seen and screened. There were a total of 1,801 male and 989 female airmen
seen. Each gender was separated into two age groups; age 18 to 29 years and age 30 to 64 years, respectively. There were a total of 1,838 male and female airmen in the age 18 to 29 year group and in this group, there were 104 overweight and 93 obese airmen identified. The age 30 to 64 year group for both males and females had more overweight and obese airmen even if they had fewer total numbers of airmen in this group with 195 overweight and 218 obese airmen, respectively. From 1 May to 31 July 2013, there were 311 obese and 299 overweight airmen (a total of 610 airmen) (see Table 4).

**Overweight males.** After calculating the percentages for the 2013 three-month data, there were 6.36% overweight males in the 18 to 29 year age group and 34.2% overweight males were referred to the HAWC. There were 22.3% overweight males in the 30 to 64 year age group and 31.1% overweight males were referred to the HAWC. There were significantly fewer overweight males in the age 18 to 29 year group than the age 30 to 64 year group (6.4% vs 22.3%, p < 0.5). However, there were similar, but no significant differences in percentages of referrals to the HAWC for both overweight age groups (34%-31%).

**Obese males.** There were 5.43% obese males in the younger 18 to 29 year age group and 67.7% obese males were referred to the HAWC. There were 27.7% obese males in the older 30 to 64 year age group and 21.4% obese males were referred to the HAWC. Although there were significantly fewer obese younger men compared to older men (5.4% vs 27.7%, p < .05), there were significantly more of the younger obese men referred to the HAWC (67.7%) compared to the older obese men (21.4%), (p< .05).

**Overweight females.** There were 4.4% overweight females in the age 18 to 29 year group and 57.1% overweight females were referred to the HAWC. There were 17.3% overweight females in the 30 to 64 year group and 38.3% overweight females were referred to the HAWC.
Similar to the male group, fewer young females were overweight compared to the older group (4.4% vs 17.3%, p < 0.5), but more young overweight women were referred to HAWC than the overweight older females (57.1% vs 38.3%, p < 0.5).

**Obese females.** There were 4.4% obese females in the age 18 to 29 year group and 71.4% obese females were referred to the HAWC. There were 14.5% obese females in the age 30 to 64 year group and 36% obese females were referred to the HAWC. In a similar pattern to the overweight female group, there were significantly more referrals of obese young females compared to older obese women (71.4% vs 36%, p < 0.5), even when the latter had a higher obesity rate.

**Overall.** For the total number of airmen in the age 18 to 29 year group, 5.7% were overweight and 40.4% of these airmen were referred to the HAWC. In the age 30 to 64 year group, 20.5% were overweight and 61% were referred to the HAWC.

In the obesity category for the age 18 to 29 year group, 5.1% were obese and 68.8% were referred to the HAWC. In the obese age 30 to 64 year group, 23% were obese and 24.8% were referred to the HAWC.
Table 4

Data Set 2013

<table>
<thead>
<tr>
<th>Total May-July 2013</th>
<th>Male 18-29</th>
<th>Male 30-64</th>
<th>Female 18-29</th>
<th>Female 30-64</th>
<th>Total 2013 18-29</th>
<th>Total 2013 30-64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total screened/seen</td>
<td>1195</td>
<td>606</td>
<td>643</td>
<td>346</td>
<td>1838</td>
<td>952</td>
</tr>
<tr>
<td>Total Overweight</td>
<td>76</td>
<td>135</td>
<td>28</td>
<td>60</td>
<td>104</td>
<td>195</td>
</tr>
<tr>
<td>Percent Overweight</td>
<td>6.4</td>
<td>22.3</td>
<td>4.4</td>
<td>17.3</td>
<td>5.7</td>
<td>20.5</td>
</tr>
<tr>
<td>Percent Overweight Referred</td>
<td>34.2</td>
<td>31.1</td>
<td>57.1</td>
<td>38.3</td>
<td>40.4</td>
<td>61.02</td>
</tr>
<tr>
<td>Total Obese</td>
<td>65</td>
<td>168</td>
<td>28</td>
<td>50</td>
<td>93</td>
<td>218</td>
</tr>
<tr>
<td>Percent Obese</td>
<td>5.4</td>
<td>27.7</td>
<td>4.4</td>
<td>14.5</td>
<td>5.1</td>
<td>22.9</td>
</tr>
<tr>
<td>Percent Obese Referred</td>
<td>67.7</td>
<td>21.4</td>
<td>71.4</td>
<td>36</td>
<td>68.8</td>
<td>24.8</td>
</tr>
</tbody>
</table>

Post-Intervention Data. In 2014, there were fewer airmen screened overall. The majority of the overweight diagnosis percentages decreased in 2014 since 2013, but they were not significantly lower. From 1 May to 31 July 2014, a total of 2,183 male and female airmen were seen and screened for their height and weight (see Table 5). The newly obtained data during the timeframe of 1 May to 31 July 2014 had a total of 344 airmen who were either overweight or obese. During the 2014 three-month timeframe, each overweight or obesity group had the percentage calculated for its own respective category.

The diagnosis percentages were lower in 2014. Moreover, the percentage overweight for older males and older females decreased significantly (see Figure 3). For the younger airmen, there were fairly high referral rates before and after the screening and referral program; 60% to 70% for both males and females. There were 174 males and 45 females out of 219 identified airmen, who were overweight; 79% and 21%, respectively.
**Overweight males.** In the overweight category for males in the age 18 to 29 year group, 8% of male airmen were overweight, a significant increase since 2013 (8% vs 6.4%, p< 0.5). In the younger airmen group, 26.9% of airmen were referred to the HAWC and this was a non-significant decrease since 2013 (26.9% vs. 34.2%). In the age 30 to 64 year age group, 15.2% of airmen were overweight, a non-significant decrease since 2013 (22.3%). In the older airmen group, 24% of overweight airmen were referred to the HAWC and this was an increase since 2013 (31.1%), but it was not significant.

**Overweight females.** In the female overweight category in the age 18 to 29 year group, 4.2% were overweight, which was similar to the 2013 data and less airmen were referred to the HAWC at 43% in 2014 vs 57% in 2013, but this decrease was not significant. In the age 30 to 64 year group, 12.6% were overweight which was significantly lower than in 2013 (17.3%) and 25.8% of airmen were referred to the HAWC, which was not significantly lower than in 2013 (38.3%).

**Overweight overall.** For the changes in the percentage of overweight airmen referred to the HAWC in both gender and age groups, they were lower in 2014 and this finding was not statistically significant. Thus, there was no significant change in the referral percentages of overweight airmen. These percentage rates have been less than 50% for most overweight airmen in both age and gender groups, given the program implementation and the existing clinic guidelines for the screening and referral program for overweight.

**Obese males.** For the obesity category, there were 97 males and 28 females who were obese out of 125 identified airmen; 78% and 22%, respectively. In the male obesity category, there was a significantly smaller decrease in 2014 with 4% obese airmen in the age 18 to 29 year group (4% vs. 5.4%, p< 0.5). Moreover, there was a non-significant decrease to 58.9% for the
referred obese airmen compared to the 2013 data (58.9% vs. 67.7%) (see Figure 4). Nearly everyone in the obese younger airmen group was referred.

In regards to the percent obese diagnosed, there were significant decreases for older males. In the age 30 to 64 year group, there were significantly fewer obese airmen in 2014 compared to 2013 (9.2% vs. 27.7%, p< 0.5), but significantly more obese airmen were referred to the HAWC in 2014 than in 2013 (48.3% vs. 21.4%, p< 0.5), which was an increase of 27%.

**Obese females.** In the obesity category for females, in the age 18 to 29 year group, fewer females were obese in 2014 (3%) than in 2013 (4.35%) and 70% of them were referred to the HAWC in 2014, which was 1% less than in 2013 (71.4%). In the age 30 to 64 year group, there were more obese females in 2014 than in 2013 (7.3% vs. 14.5%) and 66.7% were referred to the HAWC, which was a significant increase in the number of referred obese females than in 2013 (66.7 vs. 36%, p<0.5%).

**Obese overall.** The obese older males had their referrals increase by 26.9% more in 2014 than in 2013 and this was statistically significant (48.3% vs. 21.4%, p<0.5). For older obese females, the percentage of referrals increased by 30.6% more in 2014 compared to 2013 and this was also statistically significant (66.7% vs. 36%, p<0.5). Overall, the percentage of referrals for obese older males and females had their referral percentages increase in 2014.
Table 5

**Data Set 2014**

<table>
<thead>
<tr>
<th>Total May-July 2014</th>
<th>Male 18-29</th>
<th>Male 30-64</th>
<th>Female 18-29</th>
<th>Female 30-64</th>
<th>Total 2014 18-29</th>
<th>Total 2014 30-64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Screened</td>
<td>973</td>
<td>632</td>
<td>333</td>
<td>245</td>
<td>1306</td>
<td>877</td>
</tr>
<tr>
<td>Total Overweight</td>
<td>78</td>
<td>96</td>
<td>14</td>
<td>31</td>
<td>92</td>
<td>127</td>
</tr>
<tr>
<td>Percent Overweight</td>
<td>*8.0</td>
<td>*15.2</td>
<td>4.2</td>
<td>*12.7</td>
<td>7.0</td>
<td>14.5</td>
</tr>
<tr>
<td>Percent Overweight Referred</td>
<td>26.9</td>
<td>23.9</td>
<td>42.8</td>
<td>25.8</td>
<td><strong>29.3</strong></td>
<td><strong>24.4</strong></td>
</tr>
<tr>
<td>Total Obese</td>
<td>39</td>
<td>58</td>
<td>10</td>
<td>18</td>
<td>49</td>
<td>76</td>
</tr>
<tr>
<td>Percent Obese</td>
<td>4.0</td>
<td><strong>9.2</strong></td>
<td>3.0</td>
<td>7.3</td>
<td>3.8</td>
<td>8.7</td>
</tr>
<tr>
<td>Percent Obese Referred</td>
<td>58.9</td>
<td>*48.3</td>
<td>70.0</td>
<td><strong>66.7</strong></td>
<td>61.2</td>
<td>52.6</td>
</tr>
</tbody>
</table>

Notes: Bolded numbers with asterisk mean the results had statistically significant change from 2013. P-value of < 0.05. Confidence level of 80%.

**Figure 3.**

Percentage Overweight Data Comparison of 2013 and 2014

![Percentage Overweight Data Comparison of 2013 and 2014](image)
Evolution of Project

**Expected and actual outcomes.** The lower percentage of airmen being diagnosed with overweight and obesity in 2014 was different from the pre-intervention data. There may have been changes in the airmen enrollment possibly due to the frequent duty station transfers by airmen that occur on an annual basis most often during the months of May to July. However, these transfers unlikely affected the demographical data of the population to affect the percentages significantly.

Although the percentage of overweight airmen referred was higher for the younger airmen and lower for the older airmen, the overall percentage of referrals decreased for both age groups in 2014. This was an unexpected finding. It was expected that the providers would have
referred more of the younger overweight airmen to the HAWC for early intervention and prevention.

The opposite occurred for the obese data. It was expected that the providers would have referred more obese older airmen, but this was not the case for all of the groups. There were fewer older obese airmen referred in 2013 and 2014, except for the obese older female group in 2014. Interestingly, there was an unexpected significant increase in the percentage of obese female airmen referrals in 2014.

At the same time, there was an unexpected decrease in the number of providers during this program for a month. The absence of two of six providers from May until June 2014. There were 607 fewer patients seen per day in 2013 compared to 2014. However, when this occurred, the preferences of patients seen at the clinic were active duty members. The brief loss in the number of providers during this timeframe was an unexpected event.

Facilitators

There were facilitators for this program that were also present in 2013. A primary method of communication between the providers and patients was face-to-face patient visits. The end of the patient visit was used to relay information to patients given by providers regarding their overweight or obesity diagnosis and the referral to the HAWC. This helped to reinforce the need for compliance with recommendations to address their overweight or obesity issues that had been offered by their provider. Having a positive learning environment may promote sharing of important knowledge and construct new knowledge for the staff and providers (Titler, 2010).

Face-to-Face. Face-to-face communication worked well for the clinic staff and providers. It was convenient and efficient when all the providers were physically present in one room during meetings to discuss the program. However, it was not feasible to do face-to-face
communication with all the providers on a daily basis. Time limitations during a duty day did not allow daily face-to-face communication amongst the providers.

**Train-the-Trainer.** The train-the-trainer method occurred on a daily method with the new MTs. This was helpful for the seasoned MTs to train them regarding the program requirements. This method of training was an ongoing process before the program in 2013. This type of brief mini training allowed the MTs to train their new subordinates who are MTs newly accessioned in the military. The train-the-trainer method was feasibly used throughout the current military health care setting to have individuals learn on the job and develop the skills necessary to master their primary duties and train new recruits. Thus, the train-the-trainer method was suggested to be helpful to improve their education and training.

**Team Huddles.** Team huddles involved discussions on having the MTs initiate reminders to providers that if there was an overweight and obese airman, they should be properly screened, diagnosed, and referred to the HAWC on the same day visit to the FHC. The providers also participated in the team huddles, which was no different than how it was being done before. This process continued on throughout the program and no changes to the team huddles were found even though it was different from the train-the-trainer method.

**Provider Meetings.** The provider only meetings offered an opportunity for the providers to ask questions or propose suggestions for improvement regarding the screening and referral program. The providers were able to ask questions and report suggestions in a private meeting room behind closed doors. It was helpful to gain insight from the providers without the other clinical staff present in the room. These meetings were present before the program was implemented and including the project topic during the meetings allowed the providers to revisit ongoing issues and recent accomplishments.
Barriers

Barriers that impeded the successful implementation of the screening and referral program were inadequate staffing of providers and MTs, federal budget constraints on the services provided by the HAWC, and time limitations. These were the major barriers identified for the program.

Staffing. There were not enough providers in the clinic to see all the patients who were enrolled at the clinic at that period of time. The providers also saw retirees, dependent family members, and members from other military branches of service during their duty day. Thus, not every patient seen during the duty day was an active duty airman. The number of staff unexpectedly decreased during the program and this caused an access to care barrier and a lost opportunity to refer more overweight and obese airmen to increase the percentage results.

HAWC Referrals. Due to current federal budget constraints, the HAWC was only accepting referrals for ADSMs and the providers were aware of this change in policy. Staffing was limited at the HAWC and weight management classes occurred less frequently from Monday through Friday to twice a week and this schedule depended on the availability of the staff. Thus, timely access to the HAWC by the airmen may have not been optimal as desired. Moreover, there was no way to track the number of times airmen actually went to the HAWC after their referrals were activated.

Time Limitations. Limited time spent with a patient during each visit was viewed as barrier to addressing more overweight and obese airmen than they already had done so, during a non-acute visit that was scheduled for another health reason. Three minutes was viewed as a large amount of time during a patient care visit. Sometimes, the airman had multiple medical
concerns during the same visit, which further limited the amount of time available to address weight issues.

Another limitation was the length of time or the duration of the program. A three-month program may not be comparable to one that has been conducted for a year or more. The short program duration to implement the program was a barrier because it may have not been operating long enough to gather enough data to compare it with other similar programs that are lengthier in duration.

**Post Program Survey**

After the three-month period an anonymous post program exit survey was distributed to the six providers and twelve MTs to evaluate their behaviors and attitudes about the screening and referral program for overweight and obese airmen (see Appendix A). No demographics were collected from the providers and MTs because this survey was anonymous.

A total of 18 surveys were returned for a 100% response rate (see Table 6). Thirteen respondents stated they screened the BMI in airmen 100% of the time. Four respondents routinely screened an airman’s BMI 50% or less of the time. There were 12 respondents who did not routinely diagnose overweight (less than 50% of the time) and only six have done so at least 50% of the time. There were 12 respondents who said they did not diagnose obesity at all and only 6 had done so. Six respondents routinely referred overweight and obese airmen to the HAWC and 12 other respondents said that it did not apply to them.
Table 6

**Percentage Question Responses**

<table>
<thead>
<tr>
<th></th>
<th>N/A</th>
<th>0% of the time.</th>
<th>25% of the time.</th>
<th>50% of the time.</th>
<th>75% of the time.</th>
<th>100% of the time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened BMI</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Diagnose Overweight</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Diagnose Obesity</td>
<td>0</td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Refer Overweight</td>
<td>12</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Refer Obese</td>
<td>12</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>24</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
</tbody>
</table>

Sixteen respondents said this program increased their awareness of overweight and obese airmen diagnoses at every patient encounter; one responded that it likely increased their awareness and one responded that it somewhat increased their awareness of the overweight and obese airmen diagnoses (see Table 7). Moreover, similar responses were obtained in the increased awareness of the importance of routinely referring overweight and obese airmen at every patient encounter through AHLTA.
Table 7

**Opinion and Attitude Question Responses**

<table>
<thead>
<tr>
<th></th>
<th>Not at all:</th>
<th>Unlikely:</th>
<th>Somewhat:</th>
<th>Likely:</th>
<th>Very:</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful to Implement</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Simple to Implement</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Increased my awareness of overweight diagnoses in airmen</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Increased my awareness of obese diagnoses in airmen</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Increased my awareness of overweight referrals</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Increased my awareness of obese referrals</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>4</strong></td>
<td><strong>6</strong></td>
<td><strong>98</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

The majority of the respondents felt it was easy to implement and that they had simple instructions to follow (see Table 8). The perception of the providers and MTs were able to complete the post-exit survey without difficulty.
Table 8

*Limiting Factors Questions Responses*

<table>
<thead>
<tr>
<th>limiting factor</th>
<th>Not at all: 1</th>
<th>2</th>
<th>Somewhat: 3</th>
<th>4</th>
<th>Very: 5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time to implement</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Remembering to implement</td>
<td>15</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unclear policy</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Complicated instructions</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Med tech/provider did not implement program</td>
<td>15</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Weight/BMI data entry and referrals was time consuming</td>
<td>12</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Problems with referral entry</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
</tbody>
</table>

The respondents had the opportunity to respond with open-ended questions (see Table 9). Not all respondents answered the open-ended questions. For the first question regarding suggestions to ensure BMI screenings are done by Med Techs, the responses were, “reminder aids by providers and physical reminders in the patient rooms help”, “implement additional and regular unit training”, and “have AHLTA automatically put in referrals for BMI greater than the indicated values”. In regards to the problems encountered to maintain consistency in BMI diagnosis by providers, the responses were “sometimes the provider may seem to forget” and “not at all limiting”. In changes to provider notification process by medical technicians, “tech should continue to remind providers if BMI is greater than 25 kg/m²”. 88
In regards to the suggestions to maintain consistency in diagnosis documentation by providers, “better referral process in the system” and “implement additional and regular unit training” was recommended. There were no suggestions to improve overweight and obese airmen referrals to the HAWC. Suggestions to consistently implement the program with every airman during a non-acute visit the responses were “make trigger referrals to the HAWC for preset BMI values automatic” and “automatic referrals for BMI greater than 25 mg/kg2”. At the end of the program, all six of the providers said that they felt rushed for time when they were trying to fit in the discussion about an airman’s weight problem during any non-acute appointment.
### Table 9

**Open-Ended Questions**

<table>
<thead>
<tr>
<th>Suggestions to ensure BMI screenings are done by Med Techs?</th>
<th>Responses</th>
<th>Responses</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reminder aids by providers and physical reminders in the patient rooms help.</td>
<td>Implement additional and regular unit training.</td>
<td>Have AHLTA automatically put in referrals for BMI greater than the indicated values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problems encountered to maintain consistency in BMI diagnosis by providers?</th>
<th>Sometimes the provider may seem to forget.</th>
<th>Not at all limiting</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Changes to provider notification process by Med Techs?</th>
<th>Tech should continue to remind providers if BMI is greater than 25 kg/m².</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Suggestions to maintain consistency in diagnosis documentation by providers?</th>
<th>Better referral process in system.</th>
<th>Implement additional and regular unit training</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Suggestions to improve overweight airmen referrals?</th>
<th>None.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Suggestions to improve obese airmen referrals?</th>
<th>None.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Suggestions to consistently implement program with every airmen during non-acute visit?</th>
<th>Make trigger referrals to the HAWC for preset BMI values automatic.</th>
<th>Automatic referrals for BMI greater than 25 mg/k².</th>
</tr>
</thead>
</table>

### Limitations

In addition to the limitations mentioned in chapter three, additional limitations were identified. An important limitation to acknowledge was the involvement of the leading FNP conducting this project. The FNP was the project leader who was one of the six providers. The FNP was also involved in the data collection process, the screening of overweight or obese airmen, and the creation of referrals to the HAWC. This limitation needs careful consideration in analyzing the results for fair interpretation. Additionally, the post-exit program survey since it
was not a scientifically validated evaluation tool. The post-exit program survey was specifically tailored for this program only and it is not generalizable to other programs.

**Summary**

This chapter presented the results and outcomes of a referral program for overweight and obese airmen in a military outpatient clinic setting. The screening and referral program led to a statistically significant increase in the percentage of referrals for the older obese male and female airmen to HAWC although there were variations in referral rates across genders and age groups. Despite this, the providers and participants reported that the program was easy to implement. Overall, a statistically significant increase in the percentage of referrals was seen in the obese older male and female airmen group in 2014.
Chapter 5 Discussion

The implementation of the screening and referral program for overweight and obese airmen was based on the Iowa Model of Evidence-Based Practice (Titler, et al., 2001). This final chapter discusses the interpretation of findings, implications and recommendations, and effectiveness of the strategic plan.

The scientific underpinnings for practice, organizational and systems leadership for quality improvement and economics, evidence-based practice and translation science, information systems and technology, health care policy and ethics, inter-professional collaboration, prevention and population health, and advanced nursing practice and education implications will be discussed. The final section includes the plan for program dissemination.

Interpretation of Findings

The quasi-experimental pre-post design was utilized to measure the impact of the screening and referral program. The percentage of airmen diagnosed with overweight or obesity and the percentage of referrals made after diagnosis were the main outcome variables.

There were four major findings from this program. The first major finding was that the referral rates improved for obese older male and female airmen, but not for the other groups. The second finding was the strong organizational support for the program. The MTs may have participated in the project duties without disagreements possibly due to the military rank structure, where officers give orders that are required to be carried out by the enlisted members. Military officers gave orders to the enlisted members to carry out those orders through a top-down approach and this may explain why there was little to no disagreement by the MTs. The third finding was that the screening and referral program was easily implemented based on the post-exit survey responses by the survey participants. The fourth finding was the confounding
results, which referral rates may have varied potentially on the basis of age and gender rather than the weight diagnosis of overweight or obesity.

The program’s objective was to obtain a statistically significant percentage improvement within the three-month period of the screening and referral program for overweight and obese airmen at this military clinic. There was an increase in the percentage of referrals for older male and female airmen who were obese. Although the percentage of airmen diagnosed with obesity was lower in 2014, the providers were much more vigilant about referring older airmen to the HAWC.

There appeared to be a potential provider preference toward the different airmen age groups. The increase in the percentage of referrals for older obese male and female airmen was possibly due to the idea of potential or existing comorbidities posing as health risks. The known comorbidities for older males and females were mostly metabolic problems such as obesity since fat-free body mass decreases by 40% from age 20 to 70 years old and thus, fat mass increases as an adult becomes older after age 20 years (Villareal, Apovian, Kushner, & Klein, 2005). Other comorbidities included, but are not limited to impaired glucose tolerance, insulin resistance, type 2 diabetes mellitus, joint and musculoskeletal problems, fatty liver disease, gallstones, gastroesophageal reflux disease, social discrimination, cancer, advanced growth and early maturity, polycystic ovarian syndrome, asthma, obstructive sleep apnea, and depression (CDC, 2013a; Hamdy, et al., 2013; Marcus, et al., 2012; National Institutes of Health, 2011; Oude, et al., 2009; Page, 2013; Shantha, Kumar, Kahan, & Cheskin, 2012; Warner, et al., 2008).

Provider awareness of these comorbidities could have influenced the percentage of referrals data. Moreover, the older adult male and female airmen may have already been diagnosed with chronic metabolic comorbidities that gained the attention of the providers such
as, but not limited to hypertension, hyperlipidemia, and type 2 diabetes mellitus. Therefore, it was suggested that research evidence and past practice experience could have influenced the providers to increase the referral rates for the older airmen group.

Although there were frequent changes of patient enrollment that could have impacted the overall enrollment numbers of airmen due to situations such as permanent changes of station (PCS) or the absence of providers, it did not affect the percentages of referrals. There were fewer airmen overall referred to the HAWC in 2014. Majority of the overweight diagnosis percentages decreased from 2013 to 2014, but they were not significantly lower even with the small sample sizes.

An unforeseen decrease in the number of providers for a month during this program occurred due to their short notice of deployment overseas. The absence of two providers likely affected the number of airmen seen in the clinic, but it did not affect the program outcome data significantly. Two providers were required to be out of the clinic to fulfill their required pre-deployment tasks and they did not see any patients for nearly a month in the later part of May 2014 until near the end of June 2014.

A significant difference in the percentage of referrals placed for older obese airmen in 2014 was found despite the fewer diagnosed airmen. All of the changes in the percentage of overweight airmen referred in both gender and age groups were lower in 2014, but this finding was not statistically significant and it was not a worthy change. Interestingly, even with the significantly lower percentage of screened obese older males, the percentage of referrals increased for this group. However, for older obese females, there was no significant change in the diagnosis rates, although it had decreased in 2014. Similar to the obese older male group, the percentage of referrals increased significantly for older obese females.
At times it was difficult for the providers to consistently screen and refer overweight and obese airmen to the HAWC on a daily basis. The providers verbally responded early on in the program about the limited time they had with the patients to cover their main health concern and add the overweight or obesity discussion at the end of the visit. Similar responses were also evident on the post program exit survey that was completed by the twelve providers and six MTs. Although the documented responses on the post-program exit survey were accurate to reflect the reported feelings and thoughts of the providers and MTs, this specific survey was not a scientifically validated instrument.

Although the percentage of referrals can be tracked in AHLTA, there was no way to track if airmen actually went to the HAWC and the number of sessions they attended. It would be interesting to track airmen for their HAWC attendance and follow up with them to reassess their weight loss goals as a future project outcome.

**Scientific Underpinnings for Practice**

The scientific underpinnings for practice of this program reflect the complexity of addressing overweight and obesity within the military health system. Providers at this clinic may now have an increased awareness to routinely screen for overweight and obese airmen and refer them to the HAWC. Thus, the program is focused on the principles of early intervention that govern the importance of the screening and referral program. The patterns of behavior amongst the providers, MTs, and other health care staff may have had an effect on human behavior within the outpatient primary care setting. With this, it allowed the project leader to continuously evaluate the screening and referral process for the desired changes that were achieved as evidence by a significant increase in the percentage of referrals for older obese airmen. This
implicates that the providers, MTs, clinical staff, and patients were working together within their clinical environments to work with patients not as objects, but as human beings.

The screening and referral program continues to evolve and future adopters of this program must explore new scientific knowledge to improve the screening and referral process. Research in weight management will continue to evolve as well and it will be an opportunity for the providers to maintain their clinical competency through ongoing education in the latest scientific findings. Moreover, the providers will develop skills to continuously evaluate their outcomes and suggest other ways to improve the quality improvement program and develop guidelines for other providers to adopt.

Utilization of scientific knowledge can translate the overweight and obesity treatment knowledge and it can quickly and effectively address the daily demands of patient care within the current practice settings. A good scientific knowledge foundation is important to maintain in order to address current and future practice concerns. The inclusion of natural and social sciences is needed to create a body of knowledge to guide this screening and referral program and expand upon the scientific underpinnings for practice. The integration of nursing science with other nursing curricula can be considered to be the highest level of nursing practice to determine the current program actions, discover methods to alleviate the program barriers, and evaluate its outcomes.

Organizational and Systems Leadership for Quality Improvement and Economics

The significant improvements in the screening and referral percentage rates for obese airmen in 2014 even with a fewer number of airmen being diagnosed signifies that the outcomes were achievable with strong organizational support from the stakeholders, providers, MTs, and clinical staff. The MTs were the backbone of the outpatient clinic who worked with the providers
to carry out the given orders for the required program components. Strong organizational support was essential to successfully implement this program and achieve the desired outcomes. This level of organizational support may not be common in other health care settings outside of the military healthcare system. It probably worked in the military healthcare setting because of the rank structure within the work environment, since the enlisted members were required to carry out the orders given by the officers.

In addition to the much-needed organizational support, the use of contemporary practice guidelines was necessary. Contemporary practice guidelines that were utilized within the clinic to implement the latest process improvement strategies in addressing weight problems for airmen while recognizing organizational, cultural, and economic perspectives of the program seemed effective. This impacted the clinic’s current process by having to re-evaluate quality improvement strategies to meet the needs of the program and its outcomes in order to sustain a change process.

**Economics.** The cost savings from decreased comorbidity rates due to early screening and intervention for overweight and obese airmen can be substantial to help contribute to the decreasing financial resources in the defense budget. Health care costs for obese individuals are $1,429 higher than those who are of normal weight (CDC, 2013a). Current estimates indicate that costs related to obesity may be well over $100 to $200 billion annually or nearly 10 percent of all annual health care related spending (Vaczy, et al., 2011). Given the risk of preventable comorbidities that continue to tax our healthcare system, offering preventive health care services through referrals for weight treatment programs that provides education on diet modification and increasing physical activity mitigates the risks of developing and worsening potential and existing comorbidities (USPSTF, 2004). Moreover, it is important to diagnose and refer based on
an overweight or obesity diagnosis and not by age and gender, even though the early intervention approach was significantly effective in the referral percentages for the older obese male and female airmen in the age 30 to 64 year group.

An article by Guettabi & Munasib (2014) has determined that obesity posed an economic burden in the United States (US). Obese individuals had a higher rate of workday loss and medical disability claims through their employers and insurance companies (Guettabi & Munasib, 2014). Moreover, their productivity at work may not be optimal compared to a non-obese individual. This can pose as a grave financial crisis if the trend continues in the upcoming years and if no intervention is done. It can also have a negative financial impact on an individual by putting him or her at an increased risk for involuntary discharge from military service (Guettabi & Munasib, 2014). Due to the increased spending on medical care, these individuals may have less financial resources that could potentially place them near the poverty level in the economy due to the loss of their job.

Personal job loss with involuntary discharge from military service has a negative impact on the individual, as well as on their families, which can affect the US economy. In 2014, nearly 20 percent of non-elderly obese patients said they had difficulty meeting regular payments of their medical bills because of multiple comorbidities and the demands of healthcare treatment. If airmen lost their jobs through discharge from military service, their financial situation may further worsen also due to the loss of medical care through the TRICARE insurance provided by the military (Guettabi & Munasib, 2014). Involuntary military discharge can have a rippling effect on an obese individual’s personal life as it affects their family, such as divorce.

Overweight and obesity could hold negative financial burdens for this outpatient clinic if no early interventions are implemented. The indirect costs of the overweight and obese airmen
problem could be due to the increase in the number of medical appointments at this clinic for their health conditions that are correlated with obesity. This can prolong an airman’s absence from their primary duty, which adds to the time away from work. It can also lead to decreases in mission productivity. Moreover, having overweight or obese airmen taking more time off from work due to comorbid health conditions are likely to worsen if airmen are not screened and referred to the HAWC early. This is important because although it is known that overweight and obese employees may develop more health problems in the future, it was critical to recognize the level of impact it had for the organization in order to categorize the priorities of the clinic to help save money (Dee et al., 2014).

These organizational and systems findings indicates the need for continuous improvement in the: 1) clinic’s plan to sustain the program through continuous screening and referring overweight and obese airmen to the HAWC, 2) current practice policies and procedures, and 3) change of clinical practice culture of the providers and MTs, particularly in regards to the issues with referring airmen by age and gender rather than by diagnosis. To achieve improvement in the screening and referral program, the clinic needs organizational, professional, and culture changes to strategically prioritize the importance of this program while being aware of the actual and potential costs. The overall emphasis was to improve upon an ongoing program in the screening and referral of overweight and obese airmen through the use of political skills, organization systems thinking, and financial business skills to analyze the cost and quality implications.

**Evidence-Based Practice and Translation Science**

Evidence-based practice efforts were implemented throughout the program to translate research findings into practice and apply this knowledge in the problem solving process. The
scholarship of research and knowledge application allowed this screening and referral program for overweight and obese airmen to become a success and find significant results. The integration of knowledge from previous research was the key to identify and develop methods to solve the wide array of complex problems of the program. An evidence-based practice approach to implementation was accomplished by utilizing the Iowa Model of Evidence-Based Practice by Titler et al. (2001) and through using some of the ideas in a program developed by the Centers for Medicare and Medicaid Services (CMS) (2011).

The screening and referral policy for overweight and obese adults had been proposed by the CMS for many years (CMS, 2011). Revenue can be generated for the clinic by the providers through reimbursements from the military health insurance agency called TRICARE and through the appropriate documentation of overweight or obesity with the use of specific ICD-9 diagnosis codes (CMS, 2011). This could improve the revenue generation for the clinic with routine program implementation.

This project could contribute to the research literature for process improvement projects since it is necessary to refine the clinic health policies that are currently in place. Further research led to a smoother process in improving the screening and referral rates. It also improved the patient outcome data for a group of airmen. Delivering more reminder aids with regular unit trainings, meetings, discussions, and the use of healthcare technology such as the electronic pop-up notifications in AHLTA could successfully sustain the program and lead to subsequent improvements in the percentage outcome data.

There is a large body of evidence that early intervention in overweight or obese adults lead to better outcomes than no intervention at all. This evidence is consistent with the recommendations given by CMS (CMS, 2011; LeBlanc et al., 2011). Working to improve the
overall efficiency and cost-effectiveness of this clinic policy is important to improve the potential for program generalizability. This was done by measuring the height and weight to calculate the body mass index (BMI) and by providing a brief weight management counseling session during each health care visit with airmen (Reilly, 2012). If the screening and referral program for overweight and obese airmen turns out to be very successful, it may be ideal to approach airmen at a larger scale through further changes in health care policy at the Air Force organizational level (Reilly, 2012).

The use of the Iowa Model by Titler et al. (2001) facilitated the application of the evidence to translate research into relevant clinical practice strategies. The Iowa Model also served to disseminate and integrate newly obtained information and knowledge for a scholarly approach in screening and referring overweight and obese airmen to the HAWC. This integration of research and knowledge to clinical practice was critical to becoming a leader in evidence-base practice. Moreover, the integration of an evidence-based model was needed to solve complex practice situations within the clinic through the translation of science to achieve reliable outcomes and evaluate its application and performance in actual practice.

More evidence is needed to explore the gaps in the referral process and the reason why providers referred more airmen based on age and gender rather than the overweight or obesity diagnosis. This was suggested and interpreted as a potentially unethical approach to treatment of overweight or obese airmen. Providers have ethical duties to screen and refer all airmen who are overweight or obese to receive the appropriate treatment by the HAWC. Some of the younger airmen may not be aware of the health risks involved with obesity or they may not be serious about the health consequences.
**Information Systems and Technology**

The providers and MTs wanted pop-up alerts in AHLTA to remind them to discuss an airman’s weight issue and make the appropriate referrals in the future. This could potentially serve as a useful frequent reminder for the providers and MTs to screen and refer overweight and obese airmen on a routine basis. The pop-up alerts could be activated in the assessment and plan section if the BMI is greater than 25 kg/m² at every non-acute visit. The provider can then easily enter overweight or obesity in the AHLTA encounter with the correct diagnosis code.

Interestingly, the clinic staff responded to the post-program exit survey with positive feedback about the pop-up notifications in AHLTA, which it could make a difference in the results and these AHLTA updates can be approached in the future. A future project proposal would be needed to have pop-up alerts integrated into AHLTA when an airman’s BMI is greater than 25 kg/m². Due the inability to obtain authorization for the pop-up to be implemented by the end of this project, the posters that were placed on the walls in the clinic rooms and the verbal reminders by MTs for the providers were found to be the quickest and the most cost-effective technology to serve as routine reminders.

**Health Care Policy and Ethics**

The screening and referral program for overweight and obese airmen provided benefits to the clinic and to the airmen involved. This program effectively identified the overweight and obese airmen and the appropriate intervention through referrals were subsequently implemented to improve the mission readiness status. It is suggested that the screening and referral program could potentially lead to fewer airmen having health problems that may interfere with their mission and their related duties such as deployments to overseas locations within a short notice.

A policy in the clinic was already in place to routinely screen and refer overweight and obese
airmen to the HAWC, but many new providers, MTs, and clinical staff may have been unaware of it being present in the first place.

The screening and referral program has the framework to facilitate the implementation of policy changes at this clinic by engaging in the health care and Air Force mission needs of airmen and advocate for ethical policies, equity, safety, and quality. Policy development needs commitment by the Advance Practice Registered Nurse (APRN) to take on the leadership role not only as an Air Force Officer, but also as a well trained nursing practice leader to address the program concerns of health care quality, delivery, and financing (AACN, 2006). Ongoing analysis of the policy process and engagement in health care policy to take action when change is needed allows proactive development and implementation of health policy at different levels within this organization.

Analyzing the clinic policy on the screening and referral of overweight and obese airmen helped to identify the critical changes that were needed to improve the program process at the local clinic level. Stakeholder involvement in policy changes was needed for active participation in providing suggestions for program improvement. Utilizing the essentials of implementing health policy in the program may have allowed for the development, evaluation, and reshaping of the clinic’s regulation and care delivery system for overweight and obese adults.

As described earlier, it was likely unethical for the providers to refer overweight and obese airmen based on age and gender instead of an airman’s diagnosis, which seemed evident by an increase in the percentage of referrals for obese older adult male and female airmen. Further exploration of this confounding result will be helpful to identify potential reasons why this may have occurred. The providers have a professional duty to routinely screen and refer overweight and obese airmen for treatment. Many of the younger airmen may not be aware of
the health risks involved with obesity. Moreover, unexpected health complications can occur to
the airman due to obesity and it can affect their duties at work.

**Inter-Professional Collaboration**

This screening and referral program depended on the inter-professional collaboration of
the disease management nurse (DMN), MTs, providers, the group practice manager, and the
clinic stakeholders. Their contribution to this screening and referral program successfully
implemented the program to obtain significant results. The participants of the program
contributed significantly to the success of the program through a strong organizational support
system. Prior to the project implementation phase, it was doubtful that this level of professional
and organizational support would be seen outside of the military health care setting. Fortunately,
based on the post program exit survey, it was simple for the participants to collaborate with each
other and implement the components of the screening and referral program.

All of the involved healthcare workers were required to collaborate at their highest ability
in order to maintain a strong team and program implementation. Effective communication
amongst the providers was critical to evaluate their current progress and identify opportunities
for program improvement. This same concept applied for the other clinical staff members. With
this, peer reviews were considered to be an important process in quality improvement
evaluations. To help sustain the screening and referral process amongst the providers and MTs,
peer reviews could be implemented in the future to include a topic section regarding screening
and referring overweight and obese airmen. The peer review form could be completed in a
checklist format that is simple to complete to ensure the primary points of the program are met.

Although the screening and referral program for overweight and obese airmen process
was easy for the providers, MTs, and clinic staff, it may have been challenging for the providers
to meet a 100% implementation rate. This is because there were potential issues with staff complacency and eventual forgetfulness in the implementation phase that could have worsened without the frequent reminders and routine evaluations.

An innovation can achieve a higher degree of adoption and sustainability through re-invention and continuous use after the diffusion program ends (Rogers, 2003). Thus, the overweight and obese airmen screening and referral program will eventually need further evaluation regarding performance ratings through peer reviews. The purpose of peer reviews is to ensure the screening and referral program is being uniformly implemented for every overweight and obese airman. Peer reviews that are already being done internally in the clinic can include this additional topic of the screening and referral process to the current checklist. It is recommended that this peer review process will take place once monthly with random healthcare encounters from AHLTA.

**Prevention and Population Health.**

Health promotion and illness prevention has come a long way to reduce risks and prevent illnesses for overweight and obese airmen (AACN, 2006). The Air Force has its agenda to continuously improve the health of their airmen through population health improvements in order to maintain the highest state of mission readiness and they are accomplishing this by addressing weight management issues within the community, environmental, cultural, socioeconomic, and occupational levels (AACN, 2006). Obtaining an improved health status for the military population is in line with the national Healthy People 2010 goal.

The goal of Healthy People 2010 is to address health promotion and disease prevention through the engagement of leadership to use an evidence-based approach for clinical prevention and population health (AACN, 2006). Biometric data involving body mass index values were
very useful to easily analyze an airman’s weight by different age and gender groups. The aggregates of this population were active duty airmen in the program who were male or female, overweight or obese, and were in two age groups. These age groups were between the ages of 18 to 29 years and 30 to 64 years.

Implementing this screening and referral program was essential in clinical prevention. Its purpose was to focus on the health of the active duty Air Force population to promote health and prevent illness. By incorporating the essential delivery strategies related to health promotion and disease prevention, this screening and referral program may have contributed to the overall effort in the management of the overweight and obesity epidemic in the Air Force (AACN, 2006).

**Advanced Nursing Practice and Education**

Advanced Practice Registered Nurses (APRN) are working in a rapidly evolving healthcare system that require innovation, sophisticated knowledge, and sometimes professional specialization to adequately address the complex weight management problem (AACN, 2006). The APRN in this capstone project was leading the program that supported and guided the other providers and clinical staff at this clinic to successfully implement the screening and referral program for overweight and obese airmen. The APRN helped other the providers and the clinical staff to learn from and revise their previous methods in working with organizational, population, fiscal, and policy issues (AACN, 2006).

A comprehensive and systematic approach to overweight and obese airmen in this screening and referral program incorporated diverse and culturally sensitive methods to obtain significant results. It was important to implement an intervention based on an evidence model and project design established in nursing science to facilitate optimal care and obtain the desired health care outcomes. Advanced clinical judgment and systems thinking allowed the APRN to
view the screening and referral program as a whole to implement the best evidence available.

The APRN was able to guide and mentor the staff at this clinic as a clinical expert in addressing overweight and obese airmen through further education and guidance regarding complex health and situational practice transitions. Therefore, the compilation of practice, organizational, population, fiscal, and policy issues was possible through the use of conceptual and analytical skills during the screening and referral program.

**Plans for Dissemination**

At this outpatient clinic, a final oral presentation will be conducted face-to-face during a professional staff meeting with all of the stakeholders, providers, MTs, ancillary staff, and other health care disciplines being present. The involvement of all pertinent personnel is essential to educate and train them and improve the utilization of evidence-based practice. The purpose of having a maximum participation rate is to improve and facilitate the dissemination of change ideas and expose the audience to the planning, testing, observing, studying of the results, and learn from previous actions that were taken (Massoud, et al., 2006).

Submission of the final paper will be considered later for potential publication in a military health care journal that focuses on primary care. This will help disseminate a scholarly article within the military healthcare community and operate as another avenue in addressing weight concerns with active duty airmen. The scholarly publication about interventions for overweight and obese airmen can easily diffuse information about the evidence-based practice process to implement change throughout other military outpatient clinics and have them tailor the program to fit their unique needs (Titler, 2010).
Summary

In this summary, the implementation of the screening and referral program for overweight and obese airmen at this clinic had the involved personnel implement the program and fulfill its requirements to obtain significant results in 2014. The overall implication of this screening and referral program for overweight and obese airmen specifically at this clinic was that early intervention for overweight and obese airmen could save the military money through proper health promotion and illness prevention strategies. Promoting this evidence-based practice program in the primary care setting was important to achieve the best outcome to help overweight and obese airmen to improve their weight management goals through the interventions offered at the HAWC, reduce the risk developing comorbidities, and improve the mission readiness of our Air Force.
References


http://www.cdc.gov/obesity/data/adult.html


fundedstates/georgia.html


20Therapy%20for%20Obesity&bc=ACAAAAAAIAAAA&NCAId=253


N. (2007). Cost associated with being overweight and with obesity, high alcohol consumption, and tobacco use within the military health system's TRICARE prime-enrolled population. *Am J Health Promot, 22*(2), 120-139.


Fitzgerald, K. R. (2013). Review of article: Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010 by Katherine M. Flegal, PhD; Margaret D. Carroll,
MSPH; Brian K. Kit, MD; Cynthia L. Ogden, PhD (JAMA 2012;307:491-7). J Vasc Nurs, 31(3), 131-132. doi: 10.1016/j.jvn.2013.06.004


Marcus, C. L., Brooks, L. J., Draper, K. A., Gozal, D., Halbower, A. C., Jones, J., . . . Shiffman,


Page, L. (2013). Getting paid for treating obesity, now that it’s a “disease”. *Medscape*. 

114


Appendices

Appendix A. Post Program Exit Survey

Thank you for participating in Captain Wang’s BMI project. Please use this anonymous survey to provide feedback about implementation, barriers, and suggestions for the future. As a summary, Captain Wang’s BMI project took place from 1 May 2014 and 31 July 2014. The project included routine screening, diagnosing, and referring all overweight and obese airmen to the Health and Wellness Center (HAWC) during a non-acute visit. This process included several steps starting from when the medical technician (MT) screened an airman’s height and weight and via AHLTA, the airman’s BMI was calculated to make a diagnosis. A diagnosis of overweight defined as a BMI of 25.0 kg/m² to 29.9 kg/m² (ICD code 278.02) and obesity is defined as a BMI of 30.0 kg/m² and above (ICD code 278.00). Clinic providers informed the airman of the diagnosis of overweight or obese and referred the airman to the HAWC and instructed them to make an appointment within a week. If a question does not apply to you, please select “N/A” (not applicable) as your response.

1. How often did you screen the BMI in airmen in AHLTA? (Circle one)

<table>
<thead>
<tr>
<th>Never</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0%</td>
</tr>
</tbody>
</table>

2. How often did you diagnose overweight in airmen in AHLTA? (Circle one)

<table>
<thead>
<tr>
<th>Never</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0%</td>
</tr>
</tbody>
</table>

3. How often did you diagnose obesity in airmen in AHLTA? (Circle one)

<table>
<thead>
<tr>
<th>Never</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0%</td>
</tr>
</tbody>
</table>

4. How often did you refer overweight airman to the HAWC? (Circle one)

<table>
<thead>
<tr>
<th>Never</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0%</td>
</tr>
</tbody>
</table>

5. How often did you refer obese airman to the HAWC? (Circle one)

<table>
<thead>
<tr>
<th>Never</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opinion/Attitude Questions</th>
<th>Not at All 1</th>
<th>2</th>
<th>Somewhat 3</th>
<th>4</th>
<th>Very 5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. This was a useful program to implement in the family health clinic.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
7. This was a simple program to implement in the family health clinic.  

8. This program increased my awareness of the importance of **routinely diagnosing overweight** airmen at every patient encounter in AHLTA.  

9. This program increased my awareness of the importance of **routinely diagnosing obese** airmen at every patient encounter in AHLTA.  

10. This program increased my awareness of the importance of **routinely referring overweight** airmen at every patient encounter through AHLTA.  

11. This program increased my awareness of the importance of **routinely referring obese** airmen at every patient encounter through AHLTA.  

<table>
<thead>
<tr>
<th>11. How limiting were each of the following factors to you over the last 3 months (May 1 – July 31)?</th>
<th>Not at all Limiting 1</th>
<th>Somewhat Limiting 2</th>
<th>Very Limiting 5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Lack of time to implement program.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>b. Remembering to implement the program.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>c. Program policy not clear enough (not ready for change, ready for change, meeting guidelines).</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>d. Program instructions too complicated to follow.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>e. Medical tech/provider did not implement the program as instructed.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
12. Open-ended questions for the BMI program implemented 1 May 2014 to 31 July 2014. Please circle “N/A” if a question does not apply to you.

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>f. Weight/BMI data entry into AHLTA and ordering HAWC referrals was time consuming.</td>
<td></td>
</tr>
<tr>
<td>g. Problems with HAWC referrals entry into AHLTA.</td>
<td></td>
</tr>
<tr>
<td>l. Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

N/A. What suggestions do you have to ensure the initial BMI screening processes done by the Med Techs are being done?

N/A. What problems did you run into when trying to maintain consistency in the BMI diagnosis documentation process done by the providers?

N/A. What changes would you make in the provider notification process of an airman’s BMI by Med Techs?

N/A. What suggestions do you have to maintain consistency in the diagnosis documentation process in AHLTA by providers?

N/A. What suggestions do you have on improving the process of referring overweight airmen to the HAWC by providers?

N/A. What suggestions do you have on improving the process of referring obese airmen to the HAWC by providers?

N/A. What suggestions do you have on improving the process of referring overweight airmen to the HAWC by providers?

N/A. What suggestions do you have on improving the process of referring obese airmen to the HAWC by providers?

N/A. What suggestions do you have on improving the process of referring overweight airmen to the HAWC by providers?

Thank you for completing the survey. Please place your survey in the yellow envelope after completion located in the family health conference room. Please do not put your name or any other identifying information on the survey.
Appendix B. Attention Active Duty Military Members

If you are diagnosed with overweight or obesity, you will be counseled about weight management by your primary care manager (PCM) and referred to the Health and Wellness Center (HAWC) for further intervention with intensive behavioral therapy (IBT) classes.

How is overweight or obesity diagnosed?
- Body mass index (BMI) is calculated by height and weight.
  - Overweight = BMI 25.0-29.9 kg/m2.
  - Obesity = BMI 30.0 kg/m2 and over.

How can this affect your health?
- Diabetes: Impaired glucose tolerance, insulin resistance, type 2 diabetes mellitus
- Joint and musculoskeletal problems and increased pain
- Fatty liver disease, gallbladder stones,
- Gastroesophageal reflux disease (GERD) or acid reflux
- Social discrimination
- Higher risk for certain cancers
- Advanced growth and early maturity
- Polycystic ovarian syndrome (PCOS) in women
- Adult onset of various asthma related problems
- Obstructive sleep apnea
- Depression

How does this affect you and the Air Force?
- You will be counseled about weight loss by your PCM at the end of each visit.
- Help with managing your weight better and prevent further health problems.
- Prevent physical fitness test (PT) failures.
- Gets you in better shape.
- Improve the physical fitness status of our nation’s fighting force.
- It may help you to keep your job and avoid PT failures.
- Maintain good health and reduce health care costs from overweight and obesity complications.
- May reduce future lower back and lower extremity problems.

Why is this program being implemented?
- Numbers of PT failures are rising within the Air Force due to health complications from being overweight and obese.
- To reduce costs of health care.
- To keep you healthy and fit to fight and win our nations wars!

Talk to your PCM and Contact the HAWC 478-327-8480 after you have received your referral from TRICARE and attend your weight management classes today!