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Improving VA/DoD Obesity Clinical Practice Guideline Compliance Among Primary Care Providers

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Uniformed Services University of Health Sciences

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Abstract

Improving VA/DoD Obesity Clinical Practice Guideline Compliance Among Primary Care Providers

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Project Site Location: Keesler Air Force Base, Mississippi

Background: Despite clinical practice guidelines (CPG) development on weight management, obesity continues to rise in the U.S., posing a threat to operational readiness due to its associated comorbid conditions and increased healthcare costs. The VA/DoD CPG for screening and management of overweight and obesity aids providers' decision-making; however, resistance to change exists among providers with implementation.

Purpose: The purpose of this project was to improve primary care providers' compliance of the VA/DoD Obesity CPG with the utilization of a multifaceted implementation strategy including a feedback-and-audit tool and CPG education.

Project Design: The ACE Star Model of Knowledge Transformation was used as the organizing framework during quality improvement project development. A pre- and post-intervention retrospective record review was conducted; obesity and body mass index (BMI) international classification of diseases (ICD)-10 diagnoses, provider plan of care interventions, and referrals were collected. Results were analyzed and disseminated to facility stakeholders with recommendations.

Analysis of Results: 100 pre- and 100 post-intervention records produced an overall improvement in CPG compliance among primary care providers. The documentation of obesity and BMI ICD-10 codes increased by 26% and 32%, respectively. Plan of care interventions and referral recommendations each increased by 15%. There was a statistically significant difference ($p<.05$) in pre- and post-intervention compliance factors.

Organizational Impact: Enforcement of CPG compliance with an audit-and-feedback tool improved clinical practice and management of obese patients. Multidisciplinary care plans benefitted individual patients and population health; thereby, supporting DoD directed military readiness. Accurate coding to capture the population's obesity incidence rate met the 2018 DHA stakeholder guidance, contributing to the organization's value-based incentive care.

Improving VA/DoD Obesity Clinical Practice Guideline Compliance Among Primary Care Providers

Obesity, defined as an abnormal or excessive accumulation of fat that impairs health, is increasing to historically high levels among adults with rates more than tripled over the last four decades (World Health Organization [WHO], 2018; U.S. Department of Health and Human Services [HHS], 2014). The National Center for Health Statistics reported rates of adult obesity in the United States rose from an estimated 36.5% in 2014 to an estimated 39.8% in 2016 (Hales, Carroll, Fryer, & Ogden, 2017). Specifically, the state of Mississippi (MS) ranks 2nd among U.S. states for obesity. Additionally, Mississippi ranks second for diabetes and fourth for hypertension (The State of Obesity, 2017). Of the 27,000 enrollees and 80,000 beneficiaries assigned to the 81st Medical Group at Keesler Air Force Base (AFB), Biloxi, MS, 35.8% of adults are obese (see Appendix A for definitions) (Keesler AFB, 2012; Defense Health Agency [DHA], n.d.).

Obesity is associated with co-morbid conditions that includes cardiovascular disease, diabetes, musculoskeletal conditions, and cancer. For the obese patient, inadequate provider intervention results in added healthcare costs (Center for Disease Control and Prevention [CDC], 2018; WHO, 2018). Numerous guidelines provide evidence-based recommendations for obesity management and treatment (Garvey et al., 2016; National Heart, Lung, and Blood Institute, HHS, 2013). The development of clinical practice guidelines (CPG) standardizes treatment and optimizes the quality of care via with precise instructions or algorithms thereby improving patient outcomes (Graham & Harrison, 2005). The Department of Veteran Affairs [VA] & Department of Defense [DoD] (2014) established the *VA/DoD Clinical Practice Guideline Screening and Management of Overweight and Obesity* to systematically aid providers' decision-

making for obesity management. Despite the development of CPGs and current evidence, numerous studies show variations with implementing evidence into practice and a resistance to change among primary care providers (Farran, Ellis, & Barron, 2013). The purpose of this process improvement project is to assess the impact of a multifaceted implementation strategy on compliance with the VA/DoD overweight and obesity CPG among primary care providers.

Significance of the Problem

Overweight and obesity has a negative impact to the overall health of the population and is associated with the following conditions: cardiovascular disease, hypertension, type 2 diabetes, cholelithiasis, respiratory problems, and specific cancers (HHS, 2014; Tsai, Williamson, & Glick, 2011). Excess body fat, a hallmark of obesity, requires increased amounts of nutrients and oxygen to exist. In order to meet the increased demand, adipose tissue undergoes angiogenesis (Corvera & Gealekman, 2014). This formation of new blood vessels escalates blood circulation and vessel pressure, ultimately increasing the workload of the heart. According to Grundy (2002), the combination of high blood pressure, diabetes, and several other factors increase the incidence for atherosclerosis by ten-fold in obese people as compared to those who are not obese. The risk for diabetes development rises with an increased body weight. The prevalence of diabetes in obese persons is two to seven times greater than those who are not overweight (Eckel et al., 2011). Obesity also induces poor mental illness outcomes, diminished quality of life, declined physical function, and osteoarthritis (CDC, 2018). Most importantly, it is the leading cause of mortality in the United States (CDC, 2018).

The treatment of obesity and its associated chronic illnesses adds an additional $147 billion annually to healthcare costs in the United States (CDC, 2018). Compared to normal body mass index (BMI) individuals, overweight individuals show, on average, a $266 increase in

medical cost over ten years. Obese individuals with BMIs greater than 40, pay an additional $3,012 when compared to an individual with a normal BMI (Tsai, Williamson, & Glick, 2011). The yearly national productivity cost of obesity-related absenteeism is estimated at $3.38 to $6.38 billion (CDC, 2018).

Reducing obesity rates would not only improve health outcomes and healthcare costs, it would also decrease the burden on nursing workload. Alghamdi (2016) categorized nursing workload into five categories: nursing time, nursing competency level, direct patient care, physical exertion, and complexity of care. Obesity affects each category to some extent. Obese patients often present with several comorbidities that require additional time for clinical assessments and a higher level of nursing competency related to the complexity of disease processes. The most obvious burden is the level of physical exertion experienced by nurses due to the increased habitus of obese patients (Alghamdi, 2016; Camden, 2009). Combined, these factors are detrimental to overall workload. Furthermore, obesity equates to longer lengths of hospital stay (Schafer & Ferraro, 2007). Extended stays due to complexity of diagnoses and/or comorbid conditions extend the length of care, demanding more from clinical staff caring for these patients. The available resources and staff are finite, which highlights the significance for clinicians to provide weight loss referrals or interventions.

The use of CPGs is a well-utilized method for translating evidence into practice; however, many barriers exist regarding CPG implementation and influencing change among providers for increased adherence. Evidence supports that to ensure the highest degree of implementation, CPGs must be evidence-based, easy to understand, and supported by key clinical staff (Francke, Smit, De Veer, & Mistiaen, 2008; Almazrou Mazrou, 2013). Common barriers associated with the implementation of clinical guidelines include lack of provider

training, unawareness of CPG existence and disagreement with the CPG recommendations (Francke, Smit, De Veer, & Mistiaen, 2008; Almazrou Mazrou, 2013; Chan et al., 2017).

Tackling obesity is a way to help improve the health of a population. The Institute of Medicine's (IOM's) 2012 Report on Obesity Prevention suggests a multitude of ways to manage obesity, such as evidence-based guidelines in the deterrence, diagnosis, and treatment of obesity, community health involvement, and policy advocacy (McGuire, 2012). Primary care providers should be responsible for screening and treating obesity and its associated co-morbid conditions. The VA/DoD (2014) overweight and obesity CPG provides evidence-based recommendations for screening and management of obese patients. In a recent study, one-third of patients reported receiving counseling on obesity management; however, all the patients had expectations of primary care physicians to address the diagnosis and establish tailored weight management plans (Torti et al., 2017). Although CPGs exist, implementation into practice requires the presence of strategies proven to increase adherence among providers.

Implementation strategies provide various methods for dissemination and adoption of CPGs. Two leading approaches for integration of interventions are educational methods and peer audit tools (see Appendix A for applicable definitions). Prior, Guerin, and Grimmer-Somers (2008) found that an education meeting or interactional education session yielded at least a 39 percent compliance of clinical guidelines. In a systematic review of implementation strategies, more than two-thirds of the reviewed articles on audit and feedback as a core intervention proved to be effective with improving the quality of care and clinical outcomes via increasing provider adherence to clinical guidelines (Chan et al., 2017). A multifaceted approach with more than one strategy to implement CPGs also produced increased implementation and

adherence rates (Grimshaw et al., 2004), suggesting that the combination of education and peer audit is effective.

Clinical Question

Among primary care providers, does a multifaceted implementation strategy utilizing an educational intervention and a feedback and audit tool increase compliance of the VA/DoD obesity clinical practice guideline?

Focus Areas

Four focus areas exist for this project: evaluation of current BMI assessment and documentation via ICD-10 diagnostic codes, obesity documentation via ICD-10 codes diagnostic codes, documented plan of care for education and counseling of nutrition and physical fitness recommendations, and appropriate referral recommendations to nutritional medicine and a comprehensive weight management program of the Keesler MOVE or Better Body, Better Life programs. The VA/DoD *CPG for Screening and Management of Overweight and Obesity* (2014) provides recommendations based on reports specific to the military and veteran community. The Evidence Based Practice (EBP) Working Group intends for the framework to foster individualized care stemming from the provided algorithms (VA/DoD, 2014). Information was gathered through the Armed Forces Health Surveillance Center, Army Obesity Study of 2012, and national studies (VA/DoD, 2014). The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system rates the level of evidence by strength and overall quality, so clinicians understand the amount of support behind a practice suggestion (Guyatt et al., 2008). GRADE assigns letter symbols A through D, whereas A category represents a high quality of information and D is a very low value of evidence (Guyatt et al., 2008). In order to answer the clinical question and utilize the highest level of evidence possible,

the focus of implementation is category A guidance of the 2014 VA/DoD CPG. One exception is the screening and assessment portion, as BMI is the best screening available for obesity but is not maximally supported as a quality indicator.

Two process measures endorsed by the National Quality Forum and the Centers for Medicare and Medicaid Services quality improvement programs focus on the documentation of BMI in adults over 18 years old as a screening tool for preventative care and an established plan of care for patients identified as having a BMI greater than 25 for adults aged 18 to 64 (Zvenyach & Pickering, 2017). Directed by category B evidence, BMI measurement must be documented at each appointment. Since it is imperative to record and utilize this data for the clinical question, it will be the outlying category B suggestion accompanying the category A guidelines implemented to answer the clinical question.

The CPG's 41 recommendations center around comprehensive weight management. Obese patients should be offered physical activity options with measurable movement goals such as physical activity for greater than 150 minutes per week with continuous components and intermittent bursts. (VA/DoD, 2014). A variety of evidence-based diets can be presented for selection. Principles of dietary modification equate to daily caloric deficit of 500 to 1000 kcal, which nets one-half to two pounds per week and overall five to ten percent reduction of weight in a six-month period (VA/DoD, 2014). Comprehensive intervention and educational program referrals are encouraged, enabling specially trained professionals to assist patients (VA/DoD, 2014). Pharmacotherapy is suggested in the CPG; however, they are not on formulary at most DoD facilities because beneficiary insurance does not cover pharmaceuticals for weight loss (Tricare, 2018). Bariatric surgery, suggested for BMI greater than 40 or greater than 35 with

comorbidities, is another consideration which is available only to non-active duty patients within the DoD (VA/DoD, 2014).

Project Short and Long-Term Goals

Our short-term goals are to determine the current compliance with the VA/DoD CPG for Screening and Management of Overweight and Obesity among providers assigned to the Family Health Clinic (FHC) at Keesler AFB, MS. After implementation of the multifaceted intervention strategy, the short-term goal is to improve providers' adherence to the clinical guideline recommendations by increasing documentation of BMI diagnosis, education and counseling of physical activity and nutrition recommendations, and recommendations or referrals to a comprehensive weight management and nutritional medicine. Long-term goals include a decrease in patients diagnosed as obese and an increase in weight loss among Keesler beneficiaries. A reduction in obesity diagnoses has the potential to also decrease associated medical conditions, reduce medical costs, and improve overall fitness & morale, which all contribute to increased mission readiness. The accomplishment of these goals will additionally result in improved patient-provider communication, clearer expectations, and decreased provider workload as patients become healthier.

Relevance to Military Nursing

Obesity remains a concern for mission readiness. From 2009-2012, the number of overweight active duty members increased to 54.3%, while non-active duty adult members' rates remained the same at 32.4% (Eilerman et al., 2014). The DoD has mandated service members maintain physical readiness and an optimal body fat composition through nutrition and physical fitness (DoD, 2002). The Army Obesity Study of 2013 stated 49% of Army active duty soldiers, 63% of adult beneficiaries, and 89% of retirees are overweight (VA/DoD, 2014). In 2006, Dall

et al. (2007) estimated the military used $1.1 billion for medical expenses related to obesity. In addition to costs, increased chronic illnesses related to obesity pose a threat to military operational readiness (VA/DoD, 2014).

Ensuring utilization of current evidence-based practices among primary care providers that aid in the effectiveness of a comprehensive weight loss program, can have a global impact. Over 4,500 Active Duty service members were discharged from the military in 2008 for not meeting weight standards (Tanofsky-Kraff et al., 2013). The military incurs a cost of about $75,000 to replace each service member lost to active duty (Tanofsky-Kraff et al., 2013). This financial burden reduces funds that could be used to maintain our national defense and upgrade essential military equipment. Successful obesity management will result in the retention of trained and fit military forces that can be deployed around the world, maintaining our global military footprint.

Organizing Framework

The Academic Center for Evidence Based Practice (ACE) Star Model of Knowledge Transformation is the organizing framework for this project (see Appendix B). Originating from University of Texas, the ACE model uses five points of a star to indicate the phases of transformation of knowledge into evidence-based practice (Stevens, 2013). The five points are discovery, evidence summary, translation, integration, and evaluation (White, Dudley-Brown, & Terhaar, 2016). Point one, discovery, applies to the collection of information the team will accomplish during the literature review. The second point, summary, is implemented by organizing the literature review finding into the data table to identify multifaceted implementation strategies targeted for CPG compliance among providers. Third, translation occurs by cross-walking the findings of literature with the identified local facility CPG

compliance and obtaining an audit tool that corresponds to the VA/DoD CPG obesity guidelines. This step requires synthesis and combination of our findings, described by White, Dudley-Brown, & Terhaar (2016) as repackaging and summarizing while developing clinical recommendations based on findings.

Points four and five, integration and evaluation, are crucial to the model and to overall EBP in order to maximally affect program outcomes and effectively use EBP (Stevens, 2013). Point four, integration, is the implementation phase of the interventions of conducting a pre-retrospective chart review and leading an CPG education session with peer audit feedback. A post-retrospective chart review and dissemination of findings to healthcare leaders meet the criteria for the final evaluation point. Targeted outcomes from these steps can be managed by the obesity CPG champion using the audit and feedback tool for continuous assessment.

Project Design

General Approach

Our doctor of nursing practice (DNP) team performed a process improvement pre- and post-intervention retrospective chart reviews targeting the four CPG focus areas to establish compliance rates among primary care providers. The DNP team conducted a systematic literature review to analyze primary care provider's adherence to obesity clinical guidelines after implementation of intervention strategies prior to completing a six-month pre-intervention chart review. Project leaders held an educational session detailing the obesity CPG recommendation and presented the updated audit and feedback tool with inclusion of obesity CPG requirements. Unit leaders assessed the data from the audit tool and provided monthly feedback to primary care providers on compliance. After three months, a post-intervention retrospective chart review

analyzed data finding for comparison to pre-intervention findings. Key stakeholders received an analysis of results with organizational recommendations.

Evidence Evaluation

PubMed and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases were searched to access articles related to CPG compliance among primary care providers. Search strategies utilized the terms: *clinical guideline, peer audit, audit and feedback, evidence to practice, and primary care*. Dates searched in each database were from database creation to 8 Sep 2018. No limitations were set for the databases. The "similar articles" feature from the PubMed database search provided four additional studies related to the clinical question.

Inclusion criteria encompassed research studies focused on peer audit and education implementation strategies of clinical guidelines and providers' adherence to clinical guidelines, implementation in the primary care practice setting. The population of focus was adults, aged 18 years or older. Due to the lack of studies regarding obesity or weight management adherence to guidelines, multiple co-morbid disease processes associated with obesity were included. Excluded studies included obstetrics, gynecologic, or pediatric-related studies along with studies that exclusively targeted adherence to medication or physician prescribing. Exclusion also included studies not written in the English language or pertaining to computer support implementation strategies.

Identified records were equally divided amongst two reviewers and a single reviewer assessed the titles and abstracts for applicability to the PICOT with a second reviewer check. Full title abstracts had a single reviewer with a second reviewer verifying inclusion and exclusion criteria. All four reviewers discussed discrepancies regarding PICOT applicability and

analysis for record synthesis. After analysis of the articles utilizing inclusion and exclusion criteria, 11 full-text articles met the eligibility criteria for inclusion. The systematic reviews compiles information from 171 articles, giving the search results insight into 178 studies through the 11 chosen articles (see Appendix C for search strategy).

Based on Melnyk & Fineout-Overholt's (2011) Hierarchy of Evidence Rating System, four articles were level I systematic reviews, four articles were level II randomized control trials (RCTs), one article was a level II evidence literature review, and two were level VII process improvement (PI) and EBP evaluation projects. After interventions, each study provided chart review and/or audits after measuring guideline adherence items such as diagnosis coding, documentation of patient teaching, and referrals. The most common interventions were staff education, audit and feedback tools, and reminder mechanisms or practice aids. Educational techniques were often not specified. In two studies, active versus passive education was examined. One study compared educational effectiveness of providers versus support staff. Some of the studies included outcomes for interventions such as provider incentives and appointed change leaders.

Five studies were identified as "high quality", five studies rated "good quality", and one "low quality" based on the John Hopkins 2007 Nursing Evidence-Based Practice Appraisal Tool. Chan et al. (2017) and Chauhan et. al (2017) were systematic reviews appraised with a high level of quality. RCTs with high quality were Harris et al. (2015), Sinnema et al. (2015), and Schectman et el. (2003). The Ornstein et al. (2004) RCT was labeled as "good quality". Two systematic reviews: Prior, Guerin, and Grimmer-Somers (2008) and Boaz, Baeza, Fraser, and European Implementation Score Collaborative Group (EISCG) (2011) along with two PI projects: Barnes, Theeke, and Mallow (2015) and Kirkman, Williams, Caffrey, and Marrero

(2002) were appraised as “good quality”. Christl, Lloyd, Krastev, Litt, and Harris (2011) was “low quality” being a single literature review, although useful because of the similar research question and scale of review as our project.

Synthesis of the results reflect similar information indicating the general effectiveness of provider education on improvement of guideline adherence in diagnosis coding and management documentation. Prior, Guerin, and Grimer-Somers (2008) spanned over 700 studies of mixed implementation strategy. They found passive education and information dissemination ineffective but interactive education effective with 68% improvement. Reminder systems were up to 71% effective and audit and feedback moderately increased compliance, while financial incentives were inconclusive. Boaz, Baeza, Fraiser, and EISCG (2011) further detail variable strategies in their systematic review of over 330 primary studies, noting practitioners’ increased response to audit and feedback, while clinic nurses were statistically receptive to educational initiatives. Chauhan et al. (2017) overview primary care provider behaviors in a systematic review of over 3,000 studies. It considered mixed interventions and disease targets but specifically extracted obesity identification improvement through staff education. Chan et al. (2014), a 55-article systematic review, derives positive outcomes of educational outreach for providers. Audit and feedback tools were categorized as generally effective, while provider reminders and incentive strategies had mixed outcomes. Sinnema et al. (2015) and Schectman, Schroth, Verme, and Voss (2003) echo that educational efforts and audit and feedback work together to increase provider guideline adherence, while Christl, Lloyd, Krastev, Litt, and Harris (2011) add that educational components are more generalizable, but audit and feedback is most beneficial when baseline adherence rates are low.

Varying study populations could have an impact on the application to the clinical question. One project that matches the desired adult obesity population is Barnes, Theeke, & Mallow (2015). Five studies concentrate on implementation of CPGs regardless of focus area, and the remaining studies focused on translation of evidence to practice with conditions such as low back pain, chronic vascular disease, diabetes, preventative care, and anxiety and depression. In order to answer our obesity related clinical question, we applied general CPG implementation studies and compiled findings to reach a resounding implementation method.

The studies extracted data utilizing electronic health record sampling which was randomized or convenience. Multiple practices and clinics were considered for most studies, lending generalizability of findings to other clinics. A majority conducted comparative analysis of pre and post-intervention measures of compliance. Very few studies included control groups with the post-intervention timeframe creating a cross-sectional limitation which did not indicate if clinical climate, personnel turnover, or other variables influenced compliance versus intentional intervention. Additionally, most studies examined multiple interventions simultaneously, making it impossible to attribute change to a specific variable.

See Appendix D for the synthesis table.

Setting

This process improvement project occurred in the FHC, located on the ground floor, at Keesler Medical Center at Keesler AFB, MS. This clinic provides care for active duty service members, veterans, and dependents. The FHC has three patient-centered medical home (PCMH) teams: Mockingbird, Pelican, and Oak. A total of 13 providers, 20 medical technicians, six nurses, three disease managers, one behavioral health optimization psychologist, and one behavioral health optimization nurse provide care to over 27,000 enrollees and 80,000

beneficiaries seeking services with 44 percent being obese or overweight (Keesler AFB, 2012). This equates to about 11,800 enrollees and 35,200 beneficiaries that are in the obese and overweight category, respectively. Project leaders collected retrospective record review data of adult obese beneficiaries from the Defense Health Agency's (DHA) Military Health System (MHS) CarePoint information portal, the Comprehensive Ambulatory/Professional Encounter Record (CAPER) for the MHS Mart (M2), and the Armed Forces Health Longitudinal Technology Application (AHLTA) electronic health record system.

Procedural Steps

The DNP team conducted pre- and post-intervention retrospective chart reviews to assess provider compliance of four focus areas from the VA/DoD obesity CPG. A power analysis was utilized to gather the appropriate sample size based on the study's focus areas. To determine the expected accuracy to report the prevalence of documentation, as the prevalence is unknown, the DNP team estimated the prevalence of documentation, p, of 0.50. Using the Lwanga and Lemeshow (1991) method, results indicated a sample of 97 records pre and 97 records post-implementation, to detect a prevalence of 0.50 ± 0.10 at a 95 percent confidence level.

BMI ICD-10 codes, obesity ICD-10 codes, and referral recommendation documentation were assessed using G*Power Version 3.1.3 (Faul, Erdfelder, Lang, & Buchner, 2007) for goodness-of-fit tests. Results indicated 97 pre- and 97 post-implementation records required to achieve a power of approximately 0.80 to detect a large effect size of 0.20 at $\alpha = 0.05$. The DNP team reviewed 100 hundred pre-and 100 post-intervention records for the study (see Appendix F for sample size analysis).

Pre-intervention Chart Review: The DNP team initially analyzed data using BMI rates of beneficiaries identified as obese and seen in the FHC during January 2018 to June 2018 from

the DHA's CarePoint portal and the CAPER M2 application. Calculation of BMI rates greater than or equal to 30 were auto-calculated in AHLTA upon entry of height and weight by clinic staff at initiation of each patient visit. A convenience sample of randomly selected charts of the total obese population seen in the FHC were abstracted by the coder and healthcare integrator at Keesler AFB, MS. The coder and healthcare integrator removed all patient protected health information and provider identification prior to providing an Excel spreadsheet of results to the project investigators records. The Research Randomizer (Urbaniak & Plous, 2019) tool randomly assigned numbers corresponding to the CarePoint and CAPER/M2 pre-intervention reports of obese beneficiaries seen in the FHC. The group practice manager and healthcare integrator provided a separate list with the 100 randomly selected beneficiaries for the DNP team to conduct a retrospective chart review from the AHLTA electronic health record of the identified focus areas in the VA/DoD Obesity and Overweight Management CPG utilizing a chart review tool (see Appendix E for CPG quality indicators chart review tool).

Multifaceted Implementation Strategy: The current audit and feedback tool utilized in the FHC was updated to include the focus quality indicators to assess provider compliance to the VA/DoD Overweight and Obesity CPG recommendations. A pilot study of the adapted audit-and-feedback tool was conducted to ensure feasibility of the updated assessment procedures among providers in a similar clinic with PCMH teams servicing adult beneficiaries at Keesler AFB, MS.

After approval of the audit-and-feedback tool, the DNP team conducted an educational intervention during the medical facility training day in October 2018 highlighting the VA/DoD overweight and obesity guideline recommendations. The team also introduced the obesity focus quality indicators added to the audit-and-feedback tool. The educational intervention included

the FHC leadership, primary care providers, nurses, and medical technicians. All attendees signed an attendance sheet and absent members were provided one-on-one education prior to start of the process improvement project. Providers also received an electronic copy of the 2014 VA/DoD overweight and obesity CPG.

Each provider conducted a total of ten chart audits each month of other providers in the clinic based current unit practices and a pre-assigned schedule. The FHC medical director compiled the feedback from the chart review and sent the corrective documentation information to each audited provider from November 2018 to January 2019. After three months, the project investigators conducted a post-intervention retrospective review.

Post-intervention Chart Review: A second retrospective chart review accomplished three months after completion of the multifaceted implementation strategy intervention used the same process for abstracting records, compiling data, and analyzing the information among providers assigned to the FHC as the pre-intervention process. The DNP team, with assistance from the facility statistician, compared the results of the pre- and post-intervention retrospective chart review for analysis and dissemination to key stakeholders utilizing SPSS version 22.

The four key focus areas: obesity and BMI ICD-10 coding, plan of care documentation, and referral were recorded as "yes" or "no" responses for provider compliance. Chi-square tests and odds ratios provided assessment on the significance of obesity ICD-10, BMI ICD-10, and plan of care documentation compliance. Documentation of referral compliance was analyzed using chi-square tests and relative ratio calculation. Descriptive statistics and t-tests statistics were used to analyze demographic data (gender, age, BMI, weight, and height) among the total obese and sample population seen in the FHC pre- and post-intervention. A Pearson chi-square

sig. value of smaller than 0.05 ($p<0.05$) was considered to indicate a significant association between variables (Pallant, 2013).

HIPAA Concerns

This retrospective process improvement study identified implementation strategies that address CPG compliance among primary care providers assigned to the FHC at Keesler AFB, MS. Personal identifiable information was not used or stored throughout this project. With the assistance of the FHC healthcare team, healthcare integrator, and group practice manager staff, information regarding patient's age, gender, height, weight, BMI, and obesity management were collected from the DHA MHS CarePoint and AHLTA electronic health record. The group practice manager and healthcare integrator provided de-identified information in the excel spreadsheet and provided a numerical (one, two, three, etc.) system for randomly selected charts. Data reviewed in the AHLTA EHR by the DNP team was recorded on the CPG quality indicators chart review tool. The 81st Medical Group Institutional Review Board (IRB) followed a protocol checklist, and determined this project met all the requirements for exemption and further board approval was not required.

Project Results

Demographics

Retrospective chart reviews and application reports indicated a total of 3,666 patient records for an obese population seen in the FHC during the pre- and post-intervention timeframes. Of the total population, 49.5% were male and 50.5% female. The record reviews also revealed 2,223 patient records during the six-month pre-intervention phase and 1,443 patient records during the three-month post-intervention phase. Among the sample 200 records reviewed, the average age was 48 years old, BMI was 34, weight was 222.5 pounds, and height

was 67 inches. All pre- and post-intervention data revealed close similarities among demographic indicators (see Appendix G for project results of the mean demographic).

Focus Areas Outcomes

After three months of implementing multifaceted implementation strategies with education and peer feedback, finding resulted in an overall increase in CPG compliance among FHC providers for the four target areas. The BMI ICD-10 assessment and documentation increased from three percent pre-intervention to 35 percent post-intervention ($p = .00$, OR = 17.41) and obesity ICD-10 documentation raised from five percent to 31 percent ($p = .00$, OR = 8.54). The plan of care documentation assessing for patient education of weight management interventions increased by 15 percent ($p = .00$, OR = 10.04). Referral documentation also improved post-intervention by 15 percent from a zero percent baseline ($p = .00$, RR = 1.18).

Secondary data comparing the three PCMH teams: Mockingbird, Oak, and Pelican was analyzed using chi-square, odds ratios, and relative risk statistics for BMI and obesity compliance. Due to the small sample sizes, Fisher's exact tests were used in addition to the odd ratio and relative risk for plan of care and referral compliance data assessment. Secondary outcomes comparing the data findings among the three PCMH teams within the FHC found consistent results of increases among BMI, obesity, plan of care, and referral compliance among primary care providers. The BMI compliance rose to a high of 25.7 percent for the Mockingbird team, 36.1 percent by the Oak team, and 33.8 percent in the Pelican team. Additional findings noted an increase among CPG compliance for obesity in each clinic by 22.5 percent, 29.6 percent, and 25.9 percent. Plan of care provider compliance rose 19.4 percent, 8.3 percent, and 15.6 percent among each of the FHC teams. Compliance of referrals pre-intervention was zero

among all three FHC teams and increased to 21.9 percent, 8.3 percent, and 15.6 percent, respectively. See Appendix G for project results.

Analysis of Results

The aim of this project was to influence Keesler AFB primary care provider compliance with the VA/DoD CPG on obesity with specific attention to ICD-10 coding of BMI and obesity as well as appropriate plans of care, with referral to specialists as necessary. Our analysis of the literature and review of the results of this project identified several components that contribute to increased compliance in CPG compliance among primary care providers. In particular, the use of multifaceted interventions, such as education and audit and feedback, as was used for our project, was shown to be effective in the overall improvement of compliance. A systematic review by Chan et al. (2017), support the project findings as it was found that use of educational interventions, specifically an audit and feedback tool, were found to be generally effective (greater than 2/3 of studies had improved process of care outcomes) while provider reminders and incentive strategies had mixed outcomes (1/3 to 2/3 with positive effects after the intervention).

A systematic review by Chauhan et al. (2017), showed similar results. Though the primary focus of this review was not solely obesity and/or obesity related ailments, it did review the use of a multifaceted approach, such as education and an audit and feedback tool, and found them to be effective in the compliance with and implementation of guidelines. Additionally, a multifaceted approach was shown to be effective in the identification of obesity and the development of plans of care to address this, as well as improved clinical outcomes and decreased adverse events (Chauhan et al., 2017). Finally, a systematic review by Prior et al. (2008), also found that the use of a multifaceted intervention led to increased guideline

compliance and behavioral change up to 60 percent; particularly the use of an audit and feedback tool showed an effectiveness of up to 63 percent and interactive education up to 39 percent. Similar to the findings in the literature, after the three-month post-intervention period, our project resulted in an overall increase in CPG compliance among FHC providers in the four target areas, which will be discussed separately below.

Each of the four focus arms of our project showed an increase in providers' compliance with the CPG in the post-intervention period, ranging from 15 to 32 percent improvement. Documentation via ICD-10 coding of obesity and BMI increased from 5 percent to 31percent and 3 percent to 35 percent, respectively, following the 3-month post-intervention period. A cluster RCT from 2015, that utilized a six-month pre- and six-month post-intervention chart audit, following provider education and implementation of audit and feedback, looking at the diagnosis of anxiety and/or depression, found that documentation increased following the intervention and was higher than the control group by 11 percent. Secondarily, symptoms of anxiety and depression were recognized and received more mental health care among the intervention group versus the control group (Sinnema et al., 2015). Though this study did not focus on obesity, as our project does, it does show that educational intervention, along with use of an audit and feedback tool are beneficial in increased recognition of and documentation of medical conditions. A retrospective quality improvement project, which shared several similarities with our project, found that after educating providers and utilizing an audit and feedback tool, documentation of BMI increased by 13 percent (Barnes, 2015). Every focus area of our project was not directly analyzed in each study; however, as secondary findings, there were modest improvement found in the additional focus areas.

Plan of care documentation increased from 2% to 17% following the three-month post-intervention period. A literature review by Christl, Lloyd, Krastev, Litt, and Harris (2011) found that use of audit and feedback were best for implementation of preventative plans of care, especially when baseline adherence was low. Though plan of care documentation was not necessarily a major focus of much of the evidence we utilized for this project. Secondary findings did show increases in compliance with guidelines to include documentation of plans of care following the use of a multifaceted intervention strategy (Boaz, Baeza, Fraser, & EISCG, 2011; Chauhan et al., 2017; Harris et al., 2015; Kirkman et al., 2002; Ornstein et al., 2004; Schectman, Schroth, Verme, & Voss, 2003; Sinnema et al., 2015).

Referral documentation following our three-month post-intervention period, increased from 0% to 15%. There was not much in the literature that focused on the improvement in referral documentation following the utilization of a multifaceted intervention approach. However, a RCT by Sinnema et al. (2015), looking at the guideline adherence of the recognition and management of patients with the signs/symptoms of anxiety and depression, found a significant increase in the receipt of mental health care in the patients whose providers received education and use of audit and feedback.

Limitations

Though the literature is generally favorable in regard to the use of an audit and feedback tools towards CPG compliance, this project and supporting literature have several limitations. There is limited literature that is obesity-specific; however, the approaches utilized in the studies that we reviewed were extremely similar to the methods we used in our project with similar results. The most significant limitation is that it was conducted at a single site with no comparison to outside facilities. Although many military treatment facilities (MTF) possess

similar patient populations, a single site project could limit the applicability to other MTF primary care clinics. Second, although the sample size was statistically representative of the obese population receiving care at Keesler AFB, utilizing a larger sample size may have served to provide a stronger statistical analysis. Additionally, though it was not a primary focus of the project, patient follow up and follow through in regard to development of plans of care and referral to specialists could serve to better evaluate the effectiveness of the educational interventions. Due to time constraints during primary care visits, management of obesity by PCP's may not be feasible and thus this project highlights the importance of identification and diagnosis of obesity in patients, along with proper plan of care and follow up with specialists, in order to receive effective intervention and quality care.

Organizational Impact

Enforcement of CPG compliance with an audit-and-feedback tool in the Keesler FHC improved clinical practice and management of obese patients in all four focus areas. On a micro level, multidisciplinary care plans benefitted individual patients, increasing participation in preventative measures to reduce multisystem disease processes. At the organizational level, the project highlighted awareness of and participation in weight management initiatives for Keesler beneficiaries, supporting DoD directed military readiness. The project also increased coding accuracy to capture the obesity incidence rate. In order to address an obesity epidemic, the magnitude of the problem needs established through statistical evidence. There will be a better population overview from improving provider compliance of ICD-10 documentation of BMI and obesity.

On a macro level, Keesler is a Phase I transition site for the DHA healthcare overhaul of DoD care delivery systems (DHA, 2018). Groundwork for obesity CPG compliance aligns with

the 2017 DHA Stakeholder Report guidance which pinpoints obesity as a value-based incentive care component (DHA, 2017). Our project addresses a fundamental population health need while connecting local efforts to DHA guidance, garnering benefit on multiple levels for maximum impact.

From an audience level, the DNP group made small improvements in provider compliance and considered the project a successful implementation. The group identified a challenge in presenting the initiative to leadership and quantifying the cost-saving impact of preventative measures in order to obtain buy-in. The DNP group noted small improvements after several months of effort, indicating a slow change climate within the institution. The variables for this are unknown, but many providers cited competing interests and lack of time for non-adherence. Specific learning styles are possibly altered depending on staff needs and care environment. Moving forward, the group is interested in the investigation of educational approach differences and its impact on provider compliance to the CPG.

Research and Practice Future Directions

Further research is needed to evaluate the prolonged effect of project implementation. The education showed an increase in proper coding of obesity, BMI, use of educational tools, and nutrition and weight management referrals over a three-month period. With continued maintenance and education, project assessment areas may continue to improve.

Further evaluation is needed to determine the prolonged effects of educating FHC staffing and to see if project is sustainable in the FHC setting due to clinic access and 20-minute appointment times. Currently, at Keesler FHC, providers find it difficult to provide a comprehensive evaluation of obesity and accompanied comorbidities. Increasing appointment times and reassessing project assessment areas should show a continued improvement in

documentation and referrals. Another area for improvement for this project is developing ways or incentives to obtain better buy into adhering to the obesity clinical practice guidelines. Data needs to be obtained to determine whether there was an improvement in patient weight management for the providers that adhered to the CPG compared to the providers that did not meet the recommended standard of care. Data should also be obtained comparing clinical appointment frequency and FHC staff workload comparing CPG adherence versus non-CPG adhering providers. This data would be beneficial in obtaining provider buy in and incentivizing weight management care.

Additional research is needed to validate the reducibility and generalizability of results. Currently, this project was implemented in a single clinic within the MTF. To improve in this area, a larger sample size with multiple sites can be used to determine sustainability of results. Additionally, more research is needed on improving provider's adherence to weight management obesity CPG and implementation of a multifaceted plan to improve compliance to weight management obesity CPG. The literature search for this topic yielded one article by Dr. Barnes, Dr. Theeke, and Dr. Mallow that targeted providers treating obesity.

Conclusion

Obesity is a disease which threatens the status of the nation's health and military. Provider CPG compliance is necessary to address proper documentation, tracking, and appropriate treatment. Based on literature, our DNP project measured compliance results after implementation of education and provider audit and feedback. The mainstay of prioritizing obesity care within the FHC was staff engagement. The goal was to elevate CPG adherence above the many tasks that plague primary care providers. The project successfully increased compliance; however, the sustainability can be questioned as the implementation period was

brief. Multiple barriers exist, such as time constraints, educational styles, patient adherence, and presence or absence of an obesity champion. Overall, CPG compliance can be best improved through multifaceted primary care provider efforts to address and treat the obesity diagnosis.

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Appendix A

Applicable Definitions

Audit and Feedback	A summary of health workers' performance over a specified period, given to them in a written, electronic, or verbal format that may include recommendations for clinical action[1]
Body Mass Index (BMI)	the main measurement used to assess overall body composition and is calculated with weight in kilograms over height squared[1]
Clinical Practice Guidelines	Systematically developed recommendation statements to assist healthcare providers and patients on decision making for appropriate health care clinical circumstances[1]
Education Materials	Distribution to individuals or groups of educational materials to support clinical care[1]
Educational Meeting	Courses, workshops, conferences or other educational meetings[1]
Educational Outreach Visit	Personal visit by trained personnel to health workers in their own settings to provide information with the aim of changing practice[1]
Overweight	Classified as a BMI of 25.0 to 29.9[2]
Obesity	Classified into three classes: Class I is a BMI from 30.0 to 34.9, class II consists of a BMI from 35.0 to 39.9, and extreme obesity or class III maintains a BMI of 40.0 or greater[2]

Note. Adapted from "EPOC Taxonomy" by EPOC, 2015 and "Overweight and obesity" by the National Heart, Lung, and Blood Institute, 2014.
Sources: ([1]Effective Practice and Organisation of Care [EPOC], 2015; [2]HHS, 2014).

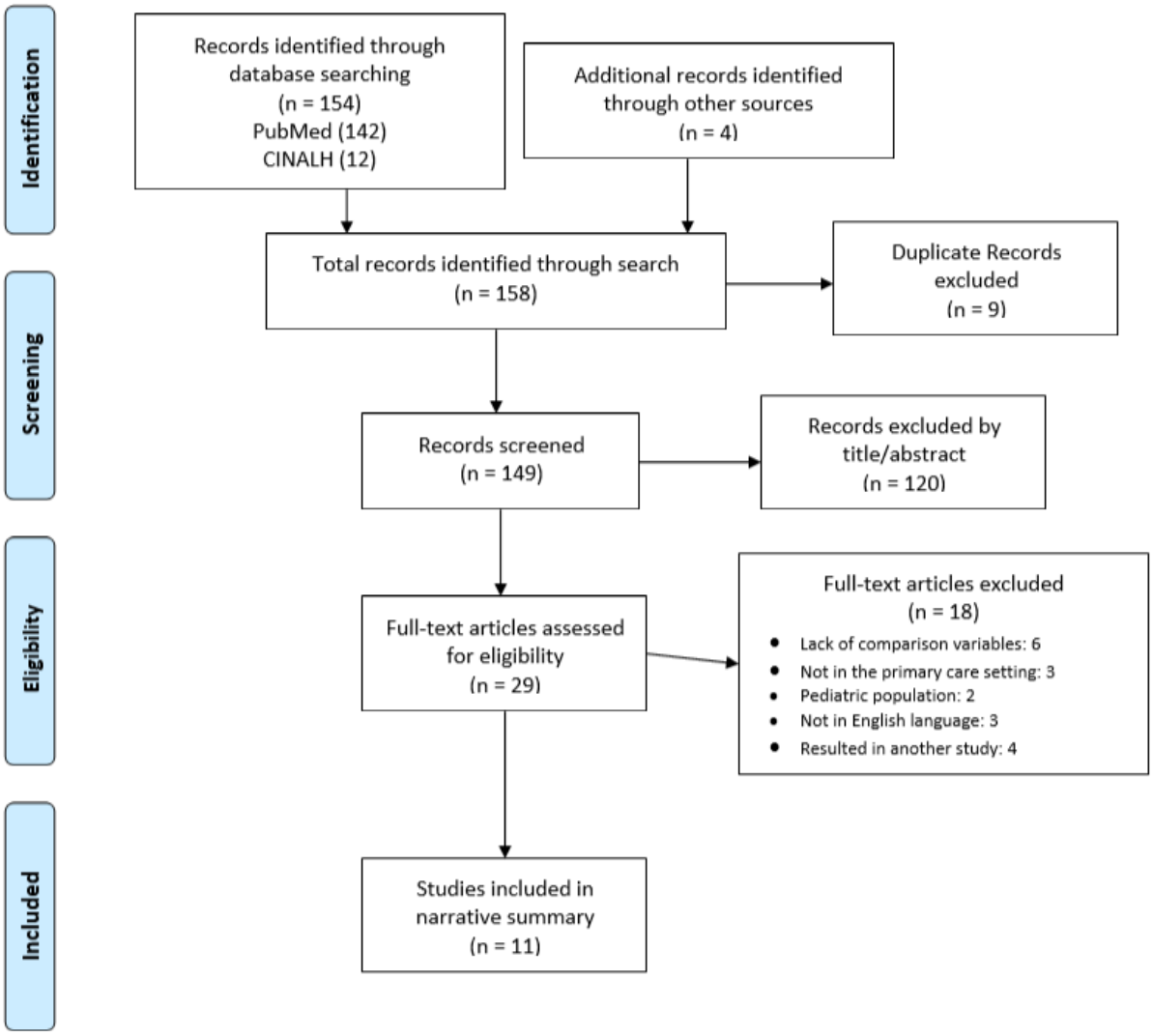
Appendix B

Stevens Star Model of Knowledge Transformation

Note. Reproduced with permission from Stevens, K. R. (2012). Star Model of EBP: Knowledge Transformation. Academic Center for Evidence-Based Practice. University of Texas Health Science Center at San Antonio.

Appendix C

PRISMA Flow Diagram



Note. Adapted from "Preferred reporting items for systemic reviews and meta-analyses," by Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009.
Source: (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009)

Appendix D

Table D1

Systematic Evidence Evaluation Table

Citation	Relevance to PICOT	Design Type	Sample / Size	Outcome Variables & Definitions	Measures	Analytical Approach	Findings	Limitations	Evidence Rating/ Level of Quality
Barnes (2015)	++++	Retrospective quality improvement project	Convenience sample; 100 medical records of adults (18-64 yrs old) in an academic health center	IV: PHAT-G intervention (education, reminder audit and feedback) DV:physician obesity guidance adherence	Electronic medical record retrospective review pre- and post-intervention; chart audit checklist of quality indicators with yes or no responses, ratio, and interval data	SPSS v 21. 0 used for descriptive and comparative data analysis	BMI documentation increased 13%; no statistical difference in documentation of the weight loss plan, co-morbid conditions, calculated BMI, systolic blood pressure, diastolic blood pressure, fasting glucose, or HDL levels.	Possible selection bias r/t convenience sample; risk for generalizability due to small sample size and single clinic setting; no control group or cross-sectional sample prevents the establishment of a causal relationship.	VII/Good
Boaz (2011)	+++	Systematic review	13 systematic reviews (313 primary studies with 21 duplicates: 9 max quality score 7, one score of 6, two scored 5, and one scored 4)	IV: selected intervention strategies (audit and feedback, opinion leaders, computer decision support, multifaceted (incentives, audit and feedback, education and reminders)). DV: effective translation into practice-setting	Adapted quality checklist used by two team researchers to determine article quality. Systematic review of publications from 1998-2009.	No statistical analysis performed due to identified flaws among selected reviews: lacked search method clarity and comprehensiveness, potential article bias with selection, and failure to report methods used to combine findings.	Multifaceted interventions consistently promoted the use of evidence into practice but with small to moderate effect. Practitioners respond differently to varying types of interventions with nurses being receptive to educational interventions and both physicians and nurses responding to feedback and audit. Active interventions more effective than passive interventions (handouts). Other findings did not relate to PICOT	The authors identified many flaws in the selected reviews. No report of statistics reported among selected reviews. Possible inter-rater reliability bias. Some studies possibly relate to obstetrics or medication prescribing that is excluded from our study inclusion. Inclusion of using repetitive articles in research findings. Multifaceted interventions with co-intervention due to use of varied strategy combinations.	I/Good

Chan (2017)	+++	Systematic review	55 articles (23 good quality, 16 fail quality, and 7 poor quality ratings)	IV: varying intervention strategies (educational, reminders, audit and feedback, provider incentive, multifaceted) DV: practice setting or health professional categories effectiveness	Use of the Assessment of Multiple Systematic Reviews (AMSTAR) tool used to determine quality of articles by 2 independent raters; Use of an independent contractor to conduct a supplemental search	Effectiveness of interventions based on a count of studies with positive outcomes regardless of statistical significance. Effectiveness categorized as generally effective (>2/3 positive interventions), mixed effectiveness (1/3 to 2/3 positive interventions), and generally ineffective (<1/3 positive interventions); general observations about contextual factors obtained thru identified themes from post hoc analyses	Educational outreach generally effective for process-of-care outcomes, but lower rates reported increased clinical effectiveness; audit and feedback generally effective for process-of-care (particularly clinical adherence to guidelines) and clinical outcomes; reminders showed mixed effectiveness for process-of-outcome but generally effective for prescribing behaviors; provider incentive had mixed effectiveness for both process-of-care and clinical outcomes. The other clinical questions assessed in the study were not applicable to our PICOT but displayed an education and provider incentive interventions as being generally effective in reducing costs. Barriers to intervention strategies success included time, human resources, skepticism about guidance evidence, lack of guideline, knowledge, timing and effectiveness of guidelines. Success factors for intervention implementation: short and simple guidelines, assistance of stakeholders to implement guidelines, leadership support and enthusiasm, multifaceted interventions, and workflow and timing.	Lack of statistical power analysis among selected reviews. Possible inter-rater reliability bias. Varied intervention strategies processes for implementation; limited information on clinical effectiveness and cost outcomes. Possibility of double counting reviews and thus listed results.	I/High
Chauhan	+++	Systematic	138 reviews with	IV: intervention	Use of the	Findings emerged from	Education to improve	Inclusion of computer	I/High

(2017)		review	3,502 articles (68 high quality, 60 moderate, and 11 poor quality) providers in primary care centers	strategies (education, persuasion, incentivization, training, restriction, environmental restructuring, modeling and enablement) DV: effectiveness on professional practice	Assessment of Multiple Systematic Reviews (AMSTAR) tool used to determine quality of articles by 2 independent raters for publications from Jan 2005 to Jul 2015; Use of DistillerSR, v2 used for study selection, data extraction, and project management.	subjective judgement of the author's conclusions, qualitative data, quantitative data, and methodological quality. PRISMA guidelines used to report systemic review.	knowledge and skills, academic detailing, and continuing education effectively improved knowledge, prescriptions, screening rates, and patient outcomes. Multifaceted interventions increased guideline implementation, antibiotic prescribing, and detection of cancer, dementia, and skin lesions. Other findings included improved provider's obesity identification, assessment, prevention, and management in pediatrics.	support tool and pediatric studies among findings. Varied intervention strategies processes for implementation; Risk for co-counting reviews resulting in bias with study findings. Possible selection bias due to authors not being able to confirm data from each review.	
Christl (2011)	+++	Literature review	Literature search from 2 databases	IV: interventional strategies (educational, opinion leaders, reminders, audit and feedback, financial incentive, academic detailing,) DV: provider effectiveness of guideline implementation	Snowballing from relevant articles or recommendations from investigators as search strategy.	No data provided on statistical tests.	Review had 3 focus areas and two (barriers and enablers to guideline implementation and the role of theory in forming intervention strategies were not related to our PICOT and not included in the findings. The third focus area was the relative effectiveness of interventions to support guideline implementation which found that interactive education interventions in small groups that provided feedback to participants and included objective assessments were effective. Leader opinion was effective when multifaceted and combined with education or audit and feedback. Audit and feedback was the best for implementation of preventative care and when baseline adherence was low.	Failure to identify number of reviews included in literature search or search methods/strategy. No statistical information provided. Possible selection bias r/t convenience sample; risk for generalizability due to general practices setting.	V/Low
Harris (2015)	+++	Cluster randomized	27 urban general practices with 70	IV: practice interventions	Baseline and post-intervention 12-	Univariate statistical tests compared practice and	Clinical record audit revealed at least a 10%	Possible selection bias r/t convenience sample	II/High

		controlled trial	general practitioners and 27 practice nurses	(small group education, feedback and audit, facilitation visits, and education materials) DV: guideline adherence for primary care providers	month questionnaire adapted from the Preventative Medicine Attitudes and Activities Questionnaire. Chart audits conducted using the PENCAT clinical audit software at baseline and 12 months reviewing smoking status, alcohol use, BMI, waist circumference, BP, fasting blood glucose, lipids, and absolute CV risk.	provider characteristics between control and intervention groups. Primary analysis evaluated the change in recording of risk factors and levels of risk factors. Evaluation of change in self-reported assessment and confidence in assessment used secondary analysis. $x^2$and t tests examined differences between baseline and follow-up, and between intervention and control groups for outcome variables at P<0.05. Multilevel logistic regression models examined significance in outcomes of univariate analyses.	improvement in assessment and recording of all risk factors except smoking which was increased at the start. Improvements seen with waist circumference and systolic BP post-intervention. Overall likelihood to change was greater in the intervention group for waist circumference, alcohol consumption, smoking status, and CV risk. Other findings not applicable: providers' self-reported quality of care in which post-intervention clinicians reported increased confidence in assessment of absolute CVD risk and patient readiness for change. Change in patient outcome provided no significant findings.	and inability to blind practitioners used in the study; risk for generalizability due to urban setting for general practices; Co-intervention bias related to the multiple intervention strategies; lack of ability to control for the accuracy of documentation in the EHR posing a risk to content validity.	
Kirkman (2002)	+++	Process improvement project	7 physicians, 275 patient records in a primary care center	IV: intervention strategies (audit and feedback, development of local consensus guidelines, education, and practice aids) DV: diabetes guideline compliance	1-year pre-intervention with follow-up and intervention at 1-year and 2-year periods chart reviews using ICD-9 diabetes diagnosis codes. Random sampling was used to identify charts to audit based on a list of diabetic patients seen by providers within 6-months of intervention.	SAS v 8.2 analyzed data. Baseline patient characteristics, diabetes complication, comorbidities, and guideline adherence at baseline to one follow-up audit. T and x2 tests assessed means of continuous and categorical variables. Wilcoxon's sign-rank test assessed continuous variables when distributional assumptions were not met. Logistic regression model tested changes in adherence over time. Paired t tests assessed blood pressure changes and sign-rank tests accounted for LDL and HbA1C because of a non-normal distribution.	Within the first-year post-intervention, statistically significant improvement seen in BP screening by 12%, foot exams by 23%, HbA1C by 11% and annual eye exams by *%. No statistical significance seen with eye care referrals and no changes with self-monitoring blood glucose, lipid testing, or microalbumin testing. The 2-year post-intervention period found improvement with BP monitoring by 22% and foot exams by 25%. Eye exams, eye referrals, and HbA1C did not sustain or produce improvements.	Possible selection bias r/t convenience sample; risk for generalizability due to small sample sizes; Co-intervention bias related to the inclusion of multiple intervention strategies; lack of ability to control for the accuracy of documentation in the EHR posing a risk to content validity; loss of patient follow-up during each audit causing possible loss of statistical power to detect improvements	VII/Good
Orstein (2004)	+++	Cluster randomized	44 physicians, 17 mid-level provides,	IV: intervention strategies	1-year pre-intervention and 1-	Data analyzed using SAS v. 9.0. A combination of	The intervention group improved from 11.3% to	Possible selection bias r/t convenience	II/Good

		control trial	200 staff members (87,291 patient records)	(education, audit and feedback, education sessions) DV: guideline adherence of quality indicators	year post-intervention retrospective chart audit reviewing 21 quality indicators.	mixed effects regression models and generalized mixed-effects regression models were used to analyze comparisons between continuous and categorical patient characteristics among control and intervention groups. A randomization test analyzed the comparison of improvement in the percentage of targets reached by the end of the study.	33.7% in indicators that were at or above target and the control group improved 6.3% to 22.7%. The intervention group had greater improvement versus the control group in 18 of 21 quality indicators. The targets for blood pressure control, total cholesterol, HDL screening, hyperlipidemia diagnosis in CHD, elevated LDL in CHD, beta-blocker use in MI, LDL in DM, and HbA1C in DM improved by 40% in the intervention group.	sample; risk for generalizability due to small sample size; co-intervention bias related to the multiple intervention strategies; lack of ability to control for the accuracy of documentation in the EHR posing a risk to content validity. Study does not relate directly to obesity.	
Prior (2008)	+++	Systematic review	33 articles covering 714 primary studies (22.512 clinicians)	IV: implementation strategies DV: provider adherence guidelines	Use of the Assessment of Multiple Systematic Reviews (AMSTAR) tool used to determine quality of articles by 2 independent raters with one author reviewing all studies and another randomly reviewing one-third for inter-tester reliability.	The two reviewers differed less than 10% for item scoring supporting appraisal consistency of the primary reviewer.	Multifaceted intervention consistently produced improvement in guideline compliance and behavioral change up to 60%. Audit and feedback produced effectiveness of process or compliance ranging from a 17% decline to 63% effective. Interactive education produced 1-39% effectiveness. Traditional education with passive education was not effective. Other findings not related: education outreach – 68% improved process or compliance; mass media and distribution strategies - ineffective; guideline content and construction - good for provider behavior change; reminder and decision support tool – improvement up to 71.8%; financial incentives - inconclusive; and local opinion leader - variable effect.	Possible selection bias r/t not including grey literature and only including systematic reviews; lack of ability to control for the accuracy of findings in reviews lending to bias with content validity; possible inter-rater reliability due to potential errors in interpreting the data and data extraction with only one review being involved; possibility of duplicate articles being used.	I/Good
Schectman (2003)	+++	Randomized control trial	14 urban group practice sites, 120	IV: intervention strategies	1-year pre-intervention and 1-	SAS v 9=8.02 used to analyze data. Descriptive	The intervention group highly used radiographic	Possible selection bias r/t convenience	II/High

			providers and 100 chart audits in 2 group model HMO practices	(education and feedback) DV: provider guideline adherence for low back pain	year post intervention retrospective chart audits using back pain or spinal disorder diagnosis codes. Trained chart abstractors blinded to group assignment reviewed charts for eligibility. Two independent investigators reviewed 100 blinded charts to confirm reliability of chart audit. Patient and clinician survey also conducted 3 months after the patient encounter. Clinicians with at least 8 back pain encounters completed a survey about guideline and patient education perceptions.	modes evaluated patient characteristics. A two-tailed p value of .05 was the statistical significance criteria for outcome measurement. Power analysis indicated a >80% probability of detecting a 10% difference between groups.	and speciaity services during the baseline period. Intervention effectiveness increased provider guidelines behavior to receive education and feedback. At the physician level, adherence increased by 5.4% in the intervention group versus a 2.7% decrease in the control group. Patient education alone produced no effect. Outcomes not related to the clinical question included: 80% of surveyed physicians reported awareness of education materials for patients; however, only 33% provided them. All providers in the intervention group increased guidelines knowledge and confidence.	sample; risk for generalizability due to urban setting for general practices and small sample size; Co-intervention bias related to the multiple intervention strategies; lack of ability to control for the accuracy of documentation in the EHR posing a risk to content validity. The study focused on low back pain and not obesity.	
Sinnema (2015)	+++	Cluster randomized control trial	46 general practitioners in 23 general practices over a 5-month period (444 patients)	IV: intervention strategies (audit and feedback and education) DV: guideline adherence for anxiety and depression	6-month pre-intervention and 6-month post-intervention chart audit conducted by two researches blinded to group assignments for inter-rater reliability. Baseline, 3-month, and 6-month questionnaires completed for secondary outcomes with the 4DSQ scale for severity of anxiety and depressive symptoms assessment; the	SPSS v 19 analyzed data. Descriptive statistics characterized practices, practitioners and patients. T tests and x2 analyzed comparisons between intervention and control groups continuous and categorical variables. Multi-level regression used for outcome variables. Strata v12 analyzed multi-level regression analyses.	Primary outcome measure was the proportion of patients diagnosed with anxiety or depression. The study found the intervention documented and diagnosed higher than the control group by 11%. Symptoms of anxiety and depression were recognized and received more mental health among the intervention group 1.06 vs 0.64 in the control group. No differences between the findings on the 4DSQ but the intervention group had decreased depressive symptoms at 3-month post-test. The intervention group had more positive	Possible selection bias r/t convenience sample; risk for generalizability due to small sample size; Co-intervention bias related to the multiple intervention strategies; lack of ability to control for the accuracy of documentation in the EHR posing a risk to content validity. The study focused on low back pain and not obesity. Study not related to obesity and focused on anxiety and depression.	II/High

					WHO's Disability Assessment Scale II for functional impairment; the Quality Of care Through the Eyes for patient's experiences of practitioners' provision of care for mental health problems		patient-reported experiences at 6 months.		

Appendix D

Table D2

Abbreviated Systematic Evidence Evaluation Table

Citation	Subject	Implementation Strategy	Overall guideline adherence/ knowledge	Diagnosis	Preventative Care/Plan of Care	Referral	Clinical Outcomes	Other
LEVEL 1								
Boaz (2011)	Systematic Review	Multifaceted (A&F, education, reminder, incentives)	↑					
		A&F	—	—	↑↓			
		CDS			↑			
		Opinion leader	↑					
Chan (2017)	Systematic Review	Multifaceted (Education, A&F, reminder, incentives)	↑					
		Education	↑					
		A&F	↑				↑	
		Reminder	↑—					
		Incentives	↑				↑	
Chauhan (2017)	Systematic Review	Multifaceted (Education, reminder, A&F, academic detailing, CDS)	↑		↑		↑	↓ Potential Adverse effects
		Education	↑					
		Education and A&F	↑		↑		↑	
		Incentives	—		↑			
		CDS	↑		↑		↑	↓ Potential Adverse effects
Prior (2008)	Systematic Review	Multifaceted	↑					
		Education	↑—↓					
		A&F	↑—↓					
		Academic detailing	↑					
		Mass media distribution	↓					
		Local consensus guideline development	↑—↓					
		Reminder or CDS	↑					

		Incentive	—					
		Opinion leader	↑—					
Level II								
Harris (2015)	Chronic vascular disease	Multifaceted (Education session and aids, A&F, facilitation visit)	↑		↑—			
Orstein (2004)	Cardiovascular	Multifaceted (Education, A&F)	↑		↑			
Schectman (2003)	Low back pain	Multifaceted (Education, A&F)	↑		↑			
Sinnema (2015)	Anxiety/Depression	Multifaceted (Education, A&F)	↑	↑	↑	↑	↑	
LEVEL V								
Christl (2011)	Literature Review	Multifaceted (Education, A&F)	↑					
		Multifaceted (Education, A&F, opinion leaders)	↑					
		A&F			↑			
		Reminder			↑			
		CDS	↑				↑	
		Incentive	↑					
		Academic detailing			↑			
LEVEL VII								
Barnes (2015)	Obesity	Multifaceted (Education, A&F, reminder)		↑	—			
Kirkman (2002)	Diabetes	Multifaceted (Local guideline consensus development, A&F, education, CDS for nutritional f/u)	↑		↑—			

Key:
↑ - increase compliance
↓- decrease compliance
— - no significant change
↑—↓ - varied responses

- **Overall adherence** - general, not specific

Diagnosis – documentation via ICD-X coding
Preventative/plan of care – care interventions, diagnostics, labs, screening exams
Referral – specialty care
Clinical outcomes – patient outcome of care
A&F – audit and feedback
CDS – computer decision support tool

Appendix E

CPG Quality Indicators Chart Review Tool

VA/DoD Overweight and Obesity CPG Provider Adherence DNP Project Data Analysis Chart Review Tool		
Instructions: The principle investigators will review all information gathered from AHLTA electronic health record data extraction. Nominal variables, recorded as "yes" or "no", will document provider compliance of CPG recommendation pre- and post-intervention. The following data points will be reviewed: age, sex, weight, height, BMI per the vital sign flowsheet, obesity ICD-10 diagnosis code, BMI ICD-10 diagnosis code, obesity counseling, weight management referrals.		
AGE:_____ SEX:_____ WEIGHT:_____ HEIGHT:_____ BMI:_____		
Quality Indicators	**YES**	**NO**
Was the patient screened for obesity and BMI documented? CPG recommendation: screen adult patients to establish a diagnosis of overweight or obesity by calculating BMI and document in the medical record at least annually GRADE: A	[redacted]	[redacted]
Is the BMI documented on the vitals screen flowsheet?		
Is the BMI documented as an ICD-10 diagnosis (within 12 months)?		
Does the patient have a corresponding obesity ICD-10 diagnosis code (within 12 months)?		
Is a documented weight loss plan of care established? CPG recommendation: Offer patients with BMI>30 comprehensive lifestyle intervention for weight loss to improve lipid levels, blood pressure, and/or glucose control. GRADE: A	[redacted]	[redacted]
Documented weight loss goals CPG recommendation: Plan a net deficit of 500-1,000 kcal/day addressing both diet and physical activity to achieve a weight loss of 0.5 to 2 pounds per week, resulting in a 5-10% reduction in body weight over 6 months. GRADE: A		
Physical fitness recommendation CPG recommendation: Offer physical activity elements (home fitness, lifestyle, or structured/supervised physical activities) that can be combined to produce a caloric deficit leading to weight loss. GRADE: A 2) Offer physical activity options that included short intermittent bursts (at least 10 minutes) as well as longer continuous exercises GRADE A 3) Offer, as part of a comprehensive lifestyle intervention,		

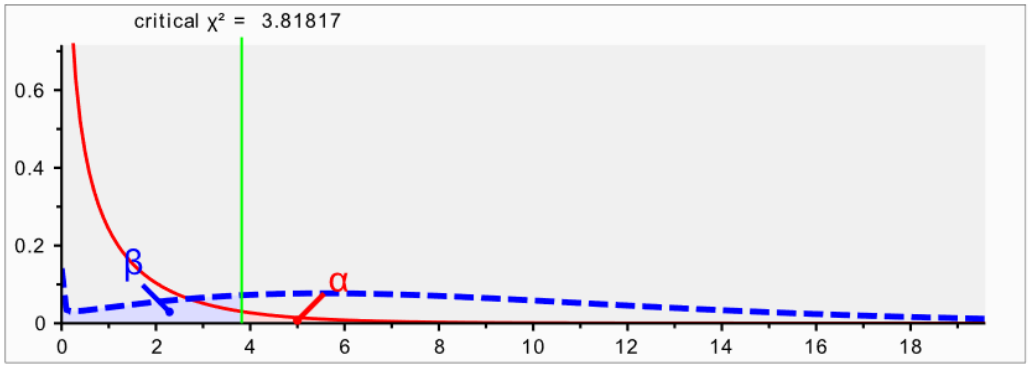
moderate-intensity physical activity performed for 150 minutes/week to result in weight loss GRADE: A		
Nutrition recommendation CPG recommendation: Offer any of several diets that produce a caloric deficit and have evidence for weight loss efficacy and safety (low-carb, DASH, low-fat). GRADE: A		
For BMI>30, is a referral to disease management/weight management program placed? Note: Keesler MOVE! Program or BBBL program		
Is a referral to nutrition placed?		
Note: All chart audits completed for adult patients (>18 years old) considered obese (BMI>30). Only GRADE A recommendations assessed. Excluded GRADE A pertain to meal replacements (not available at Keesler AFB), pharmacotherapy options (not on formulary at Keesler AFB), and bariatric surgery (not approved for Active Duty personnel).		

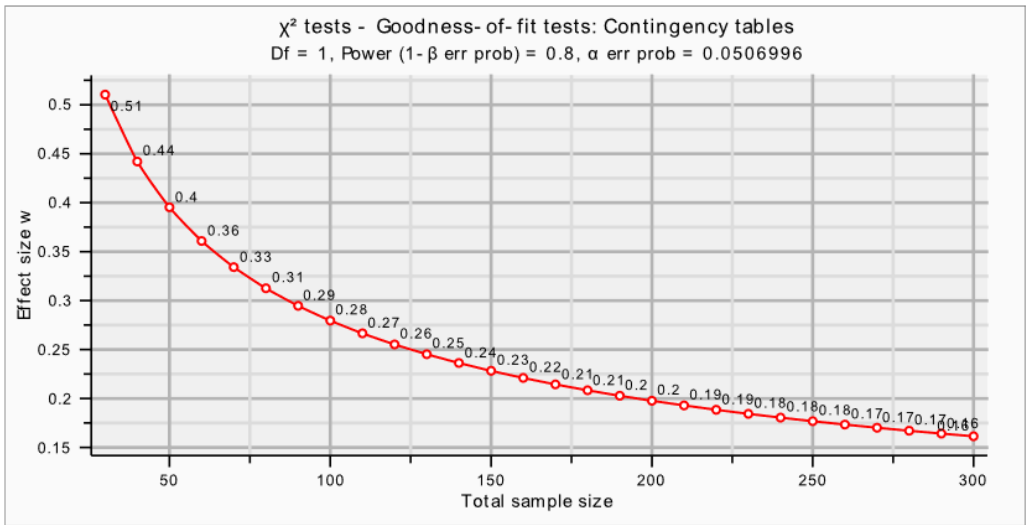
Note. Adapted from "VA/DoD Clinical Practice Guideline Screening and Management of Overweight and Obesity" by VA/DoD, 2014.
Sources: (VA/DoD, 2014)

Appendix F

Sample Size Analysis Charts

Input:	Effect size w	=	0.2
	β/α ratio	=	4
	Total sample size	=	194
	Df	=	1
Output:	Noncentrality parameter λ	=	7.7600000
	Critical χ²	=	3.8181702
	α err prob	=	0.0506996
	β err prob	=	0.2027983
	Power (1-β err prob)	=	0.7972017





Note. Adapted from Lwanga SK and Lemeshow S. Sample Size Determination in Health Studies: A Practical Manual. WHO. 1991, pg 2 and Faul F, Erdfelder E, Lang A-G, Buchner A. G*Power 3: A flexible statistical power analysis program for the social,behavioral, and biomedical sciences. Behavior Research Methods. 2007; 39 (2): 175-191

Appendix G

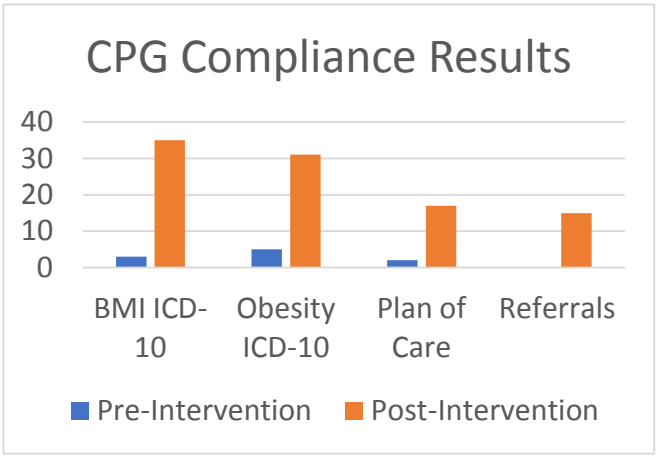
Project Results Analysis Charts

DEMOGRAPHICS				
Quality Indicators	**Total Pre-Intervention N=2223**	**Total Post-Intervention N=1443**	**Sample Pre-Intervention N=100**	**Sample Post-Intervention N=100**
Gender	M = 49.5; F = 50.5	M = 49.2; F = 50.8	M = 48; F = 52	M = 47; F=53
Age	50.02 (SD = 11.87)	49.32 (SD = 12.21)	48.09 (SD = 11.63)	48.11 (SD = 12.41)
BMI	34.93 (SD = 6.60)	34.90 (SD = 6.39)	34.62 (SD = 4.18)	34.83 (SD = 4.70)
Weight	223.91 (SD = 37.13)	224.01 (SD = 35.73)	223.07 (SD = 37.08)	222.21 (SD = 31.82)
Height	67.16 (SD = 4.31)	67.2 (SD = 4.31)	67.19 (SD = 3.94)	67.01 (SD = 3.59)

Note. Statistics presented as mean scores and standard deviations, except gender which is percentages
SOURCE: (SPSS v22).

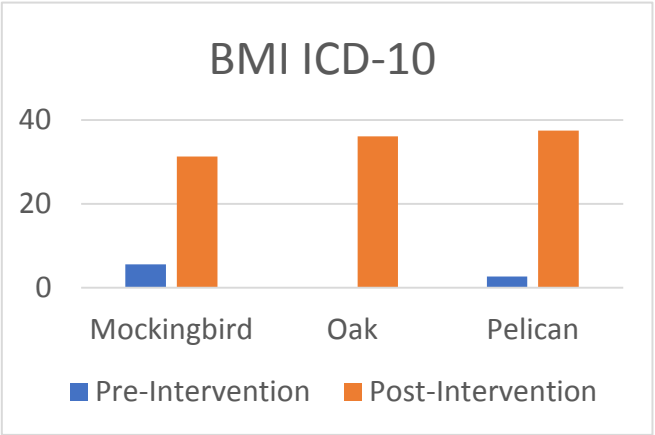
CPG Compliance by Focus Areas		
Documentation	**Pre-Intervention**	**Post-Intervention**
BMI ICD-10 (OR = 17.41; 95% CI, 5.1-58.9)	3	35
Obesity ICD-10 (OR = 8.54; 95% CI, 3.2-23.1)	5	31
Plan of Care (OR = 10.04; 95% CI, 2.3-44.7)	2	17
Referrals (RR = 1.18; 95% CI, 1.1-1.3)	0	15

Note. Statistics presented as percentages; p <0.001
SOURCE: (SPSS v22).



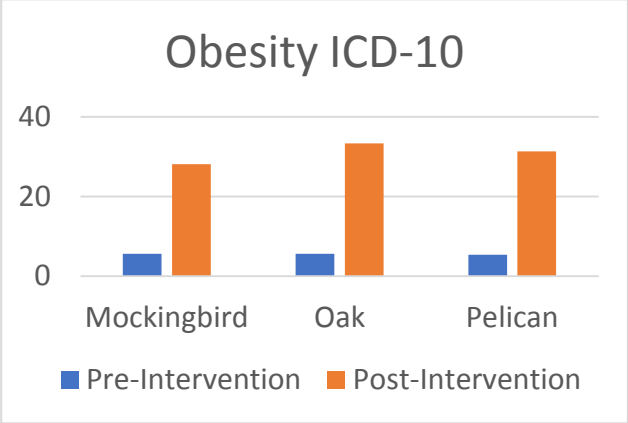
BMI ICD-10 Compliance by FHC Team		
PCMH Team	**Pre-Intervention**	**Post-Intervention**
Mockingbird (OR = 7.73; 95% CI, 1.5-38.7)	5.6	31.3
Oak (RR = 1.57; 95% CI, 1.2-2.0)	0	36.1
Pelican OR = 21.60; 95% CI, 2.6-178.5)	2.7	37.5

Note. Statistics presented as percentages; p <0.001
SOURCE: (SPSS v22).



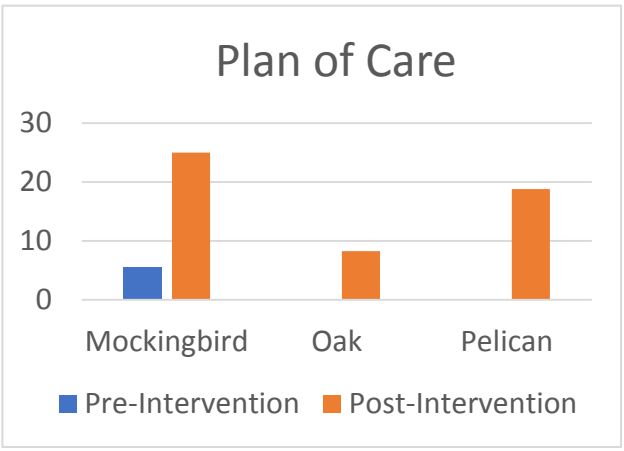
Obesity ICD-10 Compliance by FHC Team		
PCMH Team	**Pre-Intervention**	**Post-Intervention**
Mockingbird (OR = 6.65; 95% CI, 1.3-33.6)	5.6	28.1
Oak (OR = 13.00; 95% CI, 1.6-107.7)	5.6	33.3
Pelican (OR = 7.96; 95% CI, 1.6-39.8)	5.4	31.3

Note. Statistics presented as percentages; p <0.05
SOURCE: (SPSS v22).



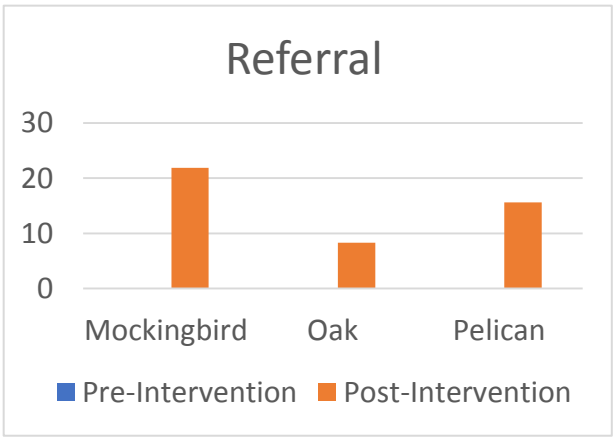
Plan of Care Compliance by FHC Team		
PCMH Team	**Pre-Intervention**	**Post-Intervention**
Mockingbird (OR = 5.67; 95% CI, 1.1-29.1)	5.6	25
Oak (RR = 1.10; 95% CI, 1.0-1.2)	0	8.3
Pelican (RR = 1.23; 95% CI, 1.2-1.5)	0	18.8

Note. Statistics presented as percentages; p <0.05 for Mockingbird and Pelican, but >0.05 for Oak (Fisher Exact Test)
SOURCE: (SPSS v22).



Referral Compliance by FHC Team		
PCMH Team	**Pre-Intervention**	**Post-Intervention**
Mockingbird (RR = 1.28; 95% CI, 1.1-1.5)	0	21.9
Oak (RR = 1.10; 95% CI, 1.0-1.2)	0	8.3
Pelican (RR = 1.19; 95% CI, 1.0-1.4)	0	15.6

Note. Statistics presented as percentages; p <0.05 for Mockingbird and Pelican, but >0.05 for Oak (Fisher Exact Test)
SOURCE: (SPSS v22).



Appendix H

CITI Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Derrick Bailey (ID: 5741127)
- **Email:** derrick.bailey@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Phone:** 813-468-0331

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20622161
- **Completion Date:** 27-Aug-2016
- **Expiration Date:** 27-Aug-2019
- **Minimum Passing:** 80
- **Reported Score*:** 94

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	26-Aug-2016	3/3 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	27-Aug-2016	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	27-Aug-2016	5/5 (100%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	27-Aug-2016	No Quiz
History and Ethics of Human Subjects Research (ID: 498)	26-Aug-2016	7/7 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	26-Aug-2016	5/5 (100%)
Informed Consent (ID: 3)	26-Aug-2016	4/5 (80%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	26-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	27-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	27-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Children (ID: 9)	27-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	27-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	27-Aug-2016	4/5 (80%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	27-Aug-2016	4/5 (80%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	27-Aug-2016	No Quiz
Assessing Risk - SBE (ID: 503)	26-Aug-2016	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: https://www.citiprogram.org/verify/?f12be395-4873-44e7-a88a-3c98996b486b

CITI Program
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Derrick Bailey (ID: 5741127)
- **Email:** derrick.bailey@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Phone:** 813-468-0331

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20622161
- **Report Date:** 27-Aug-2016
- **Current Score**:** 93

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethics of Human Subjects Research (ID: 498)	26-Aug-2016	7/7 (100%)
Informed Consent (ID: 3)	26-Aug-2016	4/5 (80%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	26-Aug-2016	4/4 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	26-Aug-2016	5/5 (100%)
Records-Based Research (ID: 5)	27-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	27-Aug-2016	4/5 (80%)
Assessing Risk - SBE (ID: 503)	26-Aug-2016	5/5 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	27-Aug-2016	3/3 (100%)
Privacy and Confidentiality - SBE (ID: 505)	26-Aug-2016	5/5 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	27-Aug-2016	3/3 (100%)
Research with Prisoners - SBE (ID: 506)	27-Aug-2016	4/5 (80%)
Research with Children - SBE (ID: 507)	27-Aug-2016	4/5 (80%)
FDA-Regulated Research (ID: 12)	27-Aug-2016	4/5 (80%)
Internet-Based Research - SBE (ID: 510)	27-Aug-2016	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	27-Aug-2016	4/4 (100%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	27-Aug-2016	No Quiz
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	27-Aug-2016	4/5 (80%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	26-Aug-2016	3/3 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	26-Aug-2016	5/5 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	27-Aug-2016	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	27-Aug-2016	5/5 (100%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	27-Aug-2016	No Quiz

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COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Michael Humphrey (ID: 5745977)
- **Email:** michael.humphrey@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Phone:** 907-231-5664

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20633387
- **Completion Date:** 29-Aug-2016
- **Expiration Date:** 29-Aug-2019
- **Minimum Passing:** 80
- **Reported Score*:** 92

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	28-Aug-2016	3/3 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	29-Aug-2016	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	29-Aug-2016	5/5 (100%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	29-Aug-2016	No Quiz
History and Ethics of Human Subjects Research (ID: 498)	29-Aug-2016	7/7 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	29-Aug-2016	5/5 (100%)
Informed Consent (ID: 3)	29-Aug-2016	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	29-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	29-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	29-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Children (ID: 9)	29-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	29-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	29-Aug-2016	5/5 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	29-Aug-2016	5/5 (100%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	29-Aug-2016	No Quiz
Cultural Competence in Research (ID: 15166)	29-Aug-2016	1/5 (20%)

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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Michael Humphrey (ID: 5745977)
- **Email:** michael.humphrey@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Phone:** 907-231-5664

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20633387
- **Report Date:** 29-Aug-2016
- **Current Score**:** 98

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethics of Human Subjects Research (ID: 498)	29-Aug-2016	7/7 (100%)
Informed Consent (ID: 3)	29-Aug-2016	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	29-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	29-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	29-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Children (ID: 9)	29-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	29-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	29-Aug-2016	5/5 (100%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	29-Aug-2016	No Quiz
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	29-Aug-2016	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	28-Aug-2016	3/3 (100%)
Cultural Competence in Research (ID: 15166)	29-Aug-2016	5/5 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	29-Aug-2016	5/5 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	29-Aug-2016	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	29-Aug-2016	5/5 (100%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	29-Aug-2016	No Quiz

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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Julie Thompson (ID: 5744782)
- **Email:** julie.thompson@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Phone:** 740-409-1349

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20630620
- **Completion Date:** 28-Aug-2016
- **Expiration Date:** 28-Aug-2019
- **Minimum Passing:** 80
- **Reported Score*:** 94

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	28-Aug-2016	3/3 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	28-Aug-2016	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	28-Aug-2016	5/5 (100%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	28-Aug-2016	No Quiz
History and Ethics of Human Subjects Research (ID: 498)	28-Aug-2016	7/7 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	28-Aug-2016	5/5 (100%)
Informed Consent (ID: 3)	28-Aug-2016	4/5 (80%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	28-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	28-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	28-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Children (ID: 9)	28-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	28-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	28-Aug-2016	4/5 (80%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	28-Aug-2016	4/5 (80%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	28-Aug-2016	No Quiz
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	28-Aug-2016	4/4 (100%)

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COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Julie Thompson (ID: 5744782)
- **Email:** julie.thompson@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Phone:** 740-409-1349

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20630620
- **Report Date:** 28-Aug-2016
- **Current Score**:** 94

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethics of Human Subjects Research (ID: 498)	28-Aug-2016	7/7 (100%)
Informed Consent (ID: 3)	28-Aug-2016	4/5 (80%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	28-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	28-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	28-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	28-Aug-2016	4/4 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	28-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	28-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	28-Aug-2016	4/5 (80%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	28-Aug-2016	No Quiz
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	28-Aug-2016	4/5 (80%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	28-Aug-2016	3/3 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	28-Aug-2016	5/5 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	28-Aug-2016	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	28-Aug-2016	5/5 (100%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	28-Aug-2016	No Quiz

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Michelle Woodie (ID: 5741548)
- **Email:** michelle.woodie@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Institution Unit:** USAF
- **Phone:** 301-295-9561

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20628650
- **Completion Date:** 28-Aug-2016
- **Expiration Date:** 28-Aug-2019
- **Minimum Passing:** 80
- **Reported Score*:** 92

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	28-Aug-2016	3/3 (100%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	28-Aug-2016	4/5 (80%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	28-Aug-2016	4/5 (80%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	28-Aug-2016	No Quiz
History and Ethics of Human Subjects Research (ID: 498)	28-Aug-2016	7/7 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	28-Aug-2016	4/5 (80%)
Informed Consent (ID: 3)	28-Aug-2016	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	28-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	28-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	28-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Children (ID: 9)	28-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	28-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	28-Aug-2016	4/5 (80%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	28-Aug-2016	5/5 (100%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	28-Aug-2016	No Quiz
Avoiding Group Harms - International Research Perspectives (ID: 14081)	28-Aug-2016	3/3 (100%)

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COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Michelle Woodie (ID: 5741548)
- **Email:** michelle.wcodie@usuhs.edu
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Institution Unit:** USAF
- **Phone:** 301-295-9561

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 20628650
- **Report Date:** 28-Aug-2016
- **Current Score**:** 92

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethics of Human Subjects Research (ID: 498)	28-Aug-2016	7/7 (100%)
Informed Consent (ID: 3)	28-Aug-2016	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	28-Aug-2016	4/4 (100%)
Records-Based Research (ID: 5)	28-Aug-2016	3/3 (100%)
Genetic Research in Human Populations (ID: 6)	28-Aug-2016	4/5 (80%)
Vulnerable Subjects - Research Involving Children (ID: 9)	28-Aug-2016	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	28-Aug-2016	3/3 (100%)
FDA-Regulated Research (ID: 12)	28-Aug-2016	4/5 (80%)
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	28-Aug-2016	No Quiz
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	28-Aug-2016	5/5 (100%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	28-Aug-2016	3/3 (100%)
Avoiding Group Harms - International Research Perspectives (ID: 14081)	28-Aug-2016	3/3 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	28-Aug-2016	4/5 (80%)
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	28-Aug-2016	4/5 (80%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	28-Aug-2016	4/5 (80%)
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	28-Aug-2016	No Quiz

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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Appendix I

USU Form 3202N

USUHS FORM 3202N
DANIEL K. INOUYE GRADUATE SCHOOL OF NURSING
EVIDENCE-BASED PRACTICE/PERFORMANCE IMPROVEMENT PROPOSAL

VPR Date Stamp

Project Number: GSN-61-10257 (VPR will assign)

Project Title: Implementing an Evidence-based Practice Guideline to Manage Obesity

SECTION A: STUDENT POC INFORMATION

1. Name (Last, First, MI): Woodie, Michelle F. Student E-mail: michelle.woodie@usuhs.edu
2. Home Address [redacted]

SECTION B: COMMITTEE CHAIR / SENIOR MENTOR INFORMATION

3. Name (Last, First, MI): Cruthirds, Danette
4. Telephone: 301-295-1154 Fax: 301-295-1707 E-mail: danette.cruthirds@usuhs.edu
5. USUHS Building/ Room No.: E1017

SECTION C: PROJECT INFORMATION

6. Attach the Abstract for the proposal, including the following sections: Site Location of the Project, Title, Authors, Background or Problem/Issue, Clinical Question/Purpose, Project Design, Anticipated Organizational Impact/Implications for Practice and also include the Proposed Timeline. Single space the abstract and use Times New Roman font, size 12.
7. Is this proposal related to an active research project of the Chair/Senior Mentor identified in Section B? ☐ Yes ☒ No
   If yes, complete below; if no, proceed to Part 8.
   Project Number: _____
   Project Title: _____
   Project Start Date: _____ Project End Date: _____
8. Anticipated period of performance: Project Start Date: 4/15/2018 Project End Date: 4/15/2019
9. Performance Site(s):
10. Does this project involve any classified information? (Contact the USUHS Security Office for guidance) ☐ Yes ☒ No
11. Do you have a funding source for this project? ☐ Yes ☒ No ☐ NA
    If yes, specify the funding agency and the amount provided:

SECTION D: SIGNATURES

The following signatures attest to the validity of the above information:

[redacted]

Student (Project Point of Contact for the Group)	(Signature and Date)	Chair/Senior Mentor	(Signature and Date)
[redacted]			
Chair/Program Director	(Signature and Date)	Chair/Program Director	(Signature and Date)
[redacted]			
DNP Project Director or PhD Director	(Signature and Date)	Associate Dean for Academic Affairs, GSN	(Signature and Date)
[redacted]			
Associate Dean for Research, GSN	(Signature and Date)	Dean, DKI Graduate School of Nursing	(Signature and Date)

[redacted] is approved.

[redacted] 30 Nov 2018

USUHS Vice President for Research Date

USUHS Form 3202N (VPR) - Revised Sep 2015 v1.2
Previous versions are obsolete

Appendix J

Keesler AFB IRB Exempt Determination

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 81ST TRAINING WING (AETC)

9 October 2018

MEMORANDUM FOR MAJ WOODIE

FROM: 81 MDSS/SGSE

SUBJECT: Initial Determination of Exempt Research Proposal

1. On 2 October 2018, your proposal entitled, "Improving VA/DoD Obesity Clinical practice Guidelines Compliance among Primary Care Providers" was reviewed by the 81 MDG Institutional Review Board Chairperson, Col Rita Duboyce. Based on the information provided in the proposal and other proposal related documents, she determined that this study meets all the necessary criteria for an exemption and is hereby designated as "exempt" under 32 CFR 219, Section 101, (b), (4). Therefore, you are now authorized to begin your study. The number assigned to your proposal is **FKE20180015E**. Please use this number as a reference in all correspondence to the Clinical Research Laboratory.

2. If you need to make any modifications to your study, you will need to submit an amendment form for review and approval before implementing. As always, you are responsible for complying with all required policies and procedures.

3. If you need funding in support of your research to procure supplies, you will need to submit a Request for funding letter to the Director of the Clinical Research Laboratory. At no time are you authorized to procure supplies through channels other than the Clinical Research Laboratory.

4. If you submit any manuscripts, abstracts, and/or posters for publications or presentations, you will need to contact the CRL to obtain the paperwork for the required review and clearance.

5. As this study is designated as exempt, no further oversight is required from our office unless you need to make an amendment to the study. There are no annual progress reports required for continuation and a final report for closure is not required. If you have any questions, please contact me at (228) 376-4901 or DSN 591-4901. Thank you.

EARNEST M. MANN, GS-08
Clinical Research Associate
Keesler AFB MS

cc:
Protocol Folder

Appendix K

PAO Clearance

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

23 April 2019

MEMORANDUM FOR 81 MDG GME/USUHS DNP STUDENTS

FROM: 81 TRW/PA

SUBJECT: Public Affairs Clearance of Doctor of Nursing Practice (DNP) Project

1. This memorandum authorizes the release of project results in the following venues:

   a. Abstract that is to be submitted for Uniformed Services University (USU) Research Days

   b. Poster that will be presented during USU Research Day events

   c. Oral presentation of the results of the final report during USU Research Day events

   d. Final Report that will be archived in "USU Archives"

[redacted]

DAVID J. MURPHY, Capt, USAF
Chief, 81st Training Wing Public Affairs

Appendix L

DNP Completion Verification Form

DOCTOR OF NURSING PRACTICE PROJECT
Completion Verification Form

The DNP Project titled: Improving VA/DoD Obesity Clinical Practice Guideline Compliance Among Primary Care Provider was completed at Keesler AFB, MS by the following student(s):

(type student name)	*(signature)*	*(date)*
Derrick Bailey, Capt	[redacted]	3 May 2019
Michael Humphrey, Capt		3 May 2019
Julie Thompson, Maj		3 May 2019
Michelle Woodie, Maj		3 May 2019

The DNP Practice Project Team verifies that the following components of the DNP project, accomplished by the above students, is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation:

- Presentation of DNP project to the leadership/stakeholders at the Phase II Site,
- Abstract/Impact Statement (*Appendix F*), and
- DNP Project written report.

Verified by:

(type name)	*(signature)*	*(date)*	
Raymond Bonds, CDR	[redacted]		Senior Mentor
Jennifer Varney, Maj		3 May 19	Team Mentor & Phase II Site Director

Form Version: 26 Aug 2017