Reducing Risk for Cardiovascular Disease in African American Women

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Approved May 2018 by the faculty of UMKC in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice

Abstract

In the United States, African American women are at significant risk for cardiovascular disease, influenced by factors such as obesity, hypertension, sedentary lifestyle, and low socioeconomic status. This Doctor of Nursing Practice project aimed to reduce cardiovascular disease risk in middle-aged, overweight African American women through education on diet, exercise, and weight loss. This quasi-experimental, pretest and posttest study took place at an urban primary care clinic. Education was provided to 39 patients regarding diet, exercise, and weight loss to decrease their risk for cardiovascular disease. Additional education was provided based on the patient's individual risk assessment score which was determined using the Atherosclerotic Cardiovascular Disease (ASCVD) risk assessment tool, and the presence of additional modifiable risk factors. The anticipated outcome was a decrease in cardiovascular risk as a result of improved diet, physical activity, and weight loss within the intervention period. There was an improvement in cholesterol and self-reported diet as a result of the three-month educational intervention completed by 22 participants. Interventions aimed at decreasing risk for cardiovascular disease in African American women not only impact health care costs and prevent deaths but also improve the overall health and quality of life for this population.

Keywords: cardiovascular disease, African American women, education, diet, exercise, weight loss, ASCVD risk assessment tool

Reducing Risk for Cardiovascular Disease in African American Women

Cardiovascular disease (CVD) can significantly impact a person's quality of life. According to Heo, Lennie, Okoli, and Moser (2009), patients' definitions of quality of life were focused around their ability to perform physical and social activities. Several factors affect quality of life in patients with CVD including physical symptoms such as chest pain or shortness of air, and psychological symptoms such as anxiety and depression (Heo et al., 2009). Cardiovascular disease can lead to heart failure, heart attack, or stroke, and this not only affects quality of life but can also cause significant mortality (Office of Disease Prevention and Health Promotion [ODPHP], 2016). Gender, race, ethnicity, age and family history are all considered non-modifiable risk factors for CVD (National Lung, Heart and Blood Institute [NLHBI], 2014). Modifiable risk factors include blood pressure, smoking, diet, cholesterol, blood sugar, physical activity, and weight (NLHBI, 2014). Risk for CVD increases with the number of risk factors present and can be prevented through improvements in modifiable risk factors (NLHBI, 2014).

Significance

Cardiovascular disease is the most common cause of death in the United States (US) and accounts for more than 17 million deaths per year (American Heart Association [AHA], 2014). In 2012, the U.S. spent over 200 billion dollars providing care for those with CVD (Mozaffarian et al., 2013). Furthermore, this cost is expected to exceed 1,200 billion dollars annually by 2030 (Mozaffarian et al., 2014).

Cardiovascular disease is the number one cause of death in Missouri with morbidity and mortality rates higher than the national average (Murphy, Kockanek, Xu, & Heron, 2015). In 2012, the rate of cardiovascular disease in Missouri was 193.4 per 100,000 people, compared to 170.5 per 100,000 people for the U.S. (Murphy et al., 2015). Additionally, CVD caused 13,742

deaths in Missouri that same year (Murphy et al., 2015). Also, the second largest county in Missouri is Jackson County where the rate of CVD was 181.7 per 100,000 people in 2014 (Mid-America Regional Council Research, n.d.).

According to the American Heart Association (AHA), African Americans consistently have the highest prevalence of CVD, related to high rates of hypertension and obesity (Feairheller et al., 2014). Mozaffarian et al. (2013) states that 48.9% of African American women have CVD. Additionally, Mozaffarian et al. (2014) and AHA (2014) state that more than 45% of African American women have hypertension and 70% are overweight or obese with 30% of all U.S. adults denying participation in physical activity and only 1% of adults meeting the AHA's recommendations for a heart-healthy diet.

Problem and Purpose

African American women are at a high risk for CVD, further influenced by factors of obesity, hypertension, and sedentary lifestyle. Cardiovascular disease is a significant cause of morbidity and mortality for African Americans at continually increasing rates. However, interventions aimed at increasing knowledge and promoting change of modifiable risk factors such as diet, exercise, and weight loss are effective in reducing risk for CVD. Therefore, the primary purpose of this Doctor of Nursing Practice (DNP) project is to use the atherosclerotic cardiovascular disease (ASCVD) risk calculator to guide educational interventions to improve risk factors related to CVD for African American women. A secondary purpose of this DNP project is to increase knowledge of CVD and contributing risk factors.

Barriers, Facilitators and Potential

The facilitators for this project consisted of nurse practitioners, physicians, nurses and medical assistants that worked at the primary care clinic. The providers assisted with identifying

if a patient met the inclusion criteria for the project's desired population. If criteria was met, the student investigator (SI) was notified and calculated the patient's ASCVD risk assessment score before providing the educational intervention during the patient's clinic visit. The SI also completed telephone follow-up and followed the patient during the three-month intervention period at which point the patient was supposed to return to the clinic for a follow-up appointment. This project also required support from the primary care clinic administration in order to be successfully implemented.

There were also potential barriers to this DNP study. Cost was a potential barrier but efforts were taken to ensure that costs remained minimal. The anticipated costs for this project included the cost of labs and educational materials (see Appendix A). At the project site, many of the patients were uninsured and receive health care funded by the federal government. Whether the patient was insured or not, their most recent lipid panel and hemoglobin A1C level was recorded and used to determine CVD risk scores at the start of the intervention. Then, at the end of the three-month intervention period, lipid panels and possibly hemoglobin A1C levels were rechecked, if determined reasonable by the patient's provider. However, if it was deemed unnecessary to check labs after the three-month intervention, then the other outcome measures were used to determine the impact of the intervention. Therefore, the anticipated lab costs for this project (see Appendix A) reflect costs accrued if each participant's lipid panel and hemoglobin A1C was assessed pre- and post-intervention. However, actual costs were expected to be much less.

To cover the cost of educational materials, it was estimated that each participant would receive approximately 25 pages of paper with a cost of $0.11 per page (see Appendix A). Because the intervention was to occur during a previously scheduled visit with the primary care

provider at the clinic, costs for co-pays and site supplies were not factored into the project expenses. Lastly, the SI conducted the educational intervention so provider or educator salary costs were not factored into expenses for this project.

A second potential barrier was the individual's resistance to change in regard to improving their individual risk factors like diet, exercise, and weight. It was also important to recognize that safety and access may be barriers for patients in their ability to obtain recommended physical activity or a healthy diet in effort to change modifiable risk factors. Finally, patients may have limited access to transportation and telephones which were necessary to facilitate successful interventions and ensure they could be reached for follow-up.

Sustainability depends on several factors. Providers must see the importance of using the ASCVD risk calculator to tailor educational interventions. The providers must feel like the intervention is beneficial enough to continue to take the time to perform ASCVD risk calculations and use the risk score to guide their discussions and decisions. They can also take this intervention one-step further and use the ASCVD risk calculator to guide pharmacological recommendations as well. Evidence-based guidelines do support the use of ASCVD risk scores by providers to guide interventions.

Review of Evidence

PICOTS

The PICOTS question for this DNP project stated, in middle-aged, overweight, African American women, does the use of the ASCVD risk calculator to guide education about diet, exercise, and weight loss during routine office visits, as compared to no formal risk calculation, improve cardiovascular disease risk scores, body mass index (BMI), blood pressure, waist

circumference, lipids, and hemoglobin A1C within three-months at a primary care clinic at a primary care clinic?

Literature Search Strategies

A literature search was conducted using the following databases: PubMed, CINAHL through Ebsco, and Medline. Information was also gathered from professional organizations. The following key words were used in the literature search: African American women, cardiovascular disease, risk assessment tool, lifestyle modification intervention, diet education, exercise education, and educational intervention. The search resulted in over 2,000 articles, and the evidence was then narrowed to the research studies and evidence-based practice guidelines that most closely aligned with the project.

Inclusion criteria consisted of studies published between year 2000 until current time, studies that focused on reducing cardiovascular disease risk for African American women, and studies that addressed interventions targeting diet or exercise modifications to reduce risk for CVD. Also, studies that assessed the impact of educational interventions aimed at promoting behavioral change and studies that utilized a risk assessment tool to measure the impact of behavior change were also reviewed. This resulted in the following number of research studies and EBP guidelines with associated level of evidence according to Melnyk and Overholt (2015, adapted): five evidence-based practice guidelines; one quantitative systematic review level I study; twelve quantitative level II randomized control trials; three quasi-experimental level III studies; two case-control or cohort level IV studies; two qualitative level VI studies; and two mixed method studies (see Appendix C).

Evidence

Lifestyle factors such as diet and exercise are considered to be modifiable and important determinants of CVD risk. Lipid levels, blood pressure, and weight are also known to be associated with CVD risk and are susceptible to changes in diet and exercise. Educational interventions in the primary care setting have shown to motivate patients to improve their diet and increase their amount of physical activity, which have the potential to promote weight loss and improve their overall health. Both the Framingham risk assessment tool and the ASCVD risk calculator are effective in the determination of CVD risk and measurement of lifestyle educational interventions. The following sub-topics are discussed: diet and risk for CVD (nine studies), exercise and risk for CVD (eight studies), CVD risk assessment tool (six studies), and educational interventions and risk for CVD (twelve studies).

Diet and risk for cardiovascular disease. Evidence shows that diet, both alone and in conjunction with other lifestyle modifications, has a significant impact on CVD risk (Appel et al., 2003; Carter et al., 2016; Chu, Pandya, Salomon, Goldie, & Hunink, 2016; Elmer et al., 2006; Kulick et al., 2013; Lee et al., 2011; Maruthur, Wang, & Appel, 2009; Parra-Medina et al., 2011). Various methods have been used within the studies to assess patients' diets. Some of the methods used include the 52-item New Leaf Dietary Risk Assessment, National Cancer Institute's 5-A-Day Better Healthy Instrument, The Fruit and Vegetable All-Day Screener, Fat Screener, Diet History Questionnaire, Fruit and Vegetable Log, Rate-Your-Plate Questionnaire, and 24-hour Dietary Recall Logs (Carter et al., 2016; Kulick et al., 2013; Lee et al., 2011; Parra-Medina et al., 2011). However, it is unclear whether one assessment tool is superior to another when assessing patients' diets.

Various diet effects on modifiable CVD risk factors have been studied (Appel et al., 2003; Carter et al., 2016; Chu et al., 2016; Elmer et al., 2006; Kulick et al., 2013; Lee et al.,

2011; Maruthur et al., 2009; Parra-Medina et al., 2011). Chu et al. (2016) specifically studied the impact of a Mediterranean diet intervention on 10-year CVD risk and found the Mediterranean diet had a positive impact on reducing CVD risk in African American women. According to Eckel et al. (2014), the 2013 AHA/ACC Guideline on Lifestyle Management to Reduce Cardiovascular Risk explains a diet that is sufficient in fresh fruits and vegetables, whole grains, low-fat dairy products, poultry and fish, legumes, vegetable oils, and nuts is effective at lowering LDL cholesterol. However, in order to be successful, one must also limit the amount of sweets, sugary beverages, and red meats, as well as restrict caloric intake from saturated and trans fats (Eckel et al., 2014). Additionally, to reduce blood pressure, daily sodium intake needs to be limited to no more than 1500-2400 mg per day (Eckel et al., 2014).

Several studies supported the use of the Dietary Approaches to Stop Hypertension (DASH) diet and found it to be successful in reducing risk for CVD (Appel et al., 2003; Eckel et al., 2014; Elmer et al., 2006; Maruthur et al., 2009). The DASH diet focuses on restricting intake of total and saturated fat while increasing the consumption of fresh fruits and vegetables (Appel et al., 2003; Eckel et al., 2014; Elmer et al., 2006; Maruthur et al., 2009). Appel et al. (2003), Elmer et al. (2006), and Maruthur et al. (2009) completed three different studies with the same patient sample. The studies assessed 810 patients with either untreated prehypertension or stage one hypertension who were randomized into three intervention groups: an advice-only group, an intervention group that received information about established lifestyle recommendations, and an intervention group who received both lifestyle recommendations as well as information about the DASH diet. All three studies found that the intervention group and the intervention plus DASH group experienced significant weight loss, improved fitness, and lowered sodium intake at six and 18 months (Appel et al., 2003; Elmer et al., 2006; Maruthur et al., 2009). Furthermore,

Appel et al. (2003) specifically assessed the impact on 10-year CVD risk and found both the intervention group and the intervention plus DASH group significantly reduced their estimated 10-year CVD risk compared with the advice only group.

Exercise and risk for cardiovascular disease. It is well known that levels of physical activity are directly related to risk for CVD (Carter et al., 2016; Chu et al., 2016; Feairheller et al., 2014; Huffman et al., 2012; Lee et al., 2011; Parra-Medina et al., 2011; Schulz et al., 2015; Wilbur et al., 2016). Eckel et al. (2014) explains that recommended physical activity includes 40 minutes of moderate-to-vigorous intensity exercise, at least three to four times a week. Similar to dietary assessments, numerous tools are used to assess physical activity levels including Community Health Activities Model Program for Seniors Questionnaire, Physical Activity Readiness Questionnaire, and International Physical Activity Questionnaire (Carter et al., 2016; Lee et al., 2011; Parra-Medina et al., 2011; Schulz et al., 2015). Furthermore, several exercise programs have shown to be successful in improving CVD risk factors such as lipid levels and weight in six-months (Feairheller et al., 2014; Huffman et al., 2012; Wilbur et al., 2016). Even Huffman et al. (2012) argue that aerobic exercise alone can improve CVD risk without any changes in diet.

Carter et al. (2016), Chu et al. (2016), and Schulz et al. (2015) found that soul dancing, yoga, and walking are forms of aerobic exercise that are culturally sensitive, achievable and successful at reducing CVD risk. Wilbur et al. (2016) determined that group meetings are powerful methods used to increase physical activity. Also, several studies have found that lifestyle interventions aimed at increasing levels of exercise can be effectively delivered in primary care settings in effort to reach African American women with known CVD risk factors (Feairheller et al., 2014; Parra-Medina et al., 2011).

Cardiovascular disease risk assessment tool. There are several EBP guidelines that recommend the use of risk assessment tools, such as the Framingham risk tool and the ASVCD risk assessment tool, to assess CVD risk and guide intervention efforts (Goff et al., 2013; Lim, Haq, Mahmood, & Hoeksema, 2011; Stone et al., 2013). The ASCVD risk assessement tool is effective in measuring CVD risk in African American women, ages 40-79 years old (Goff et al., 2013; Stone et al., 2013). Additionally, Karmali, Goff, Ning, and Lloyd-Jones (2014) found the ASCVD risk assessment tool improves accuracy in determining CVD risk over the Framingham risk tool.

The EBP guidelines recommend that individuals at high or intermediate risk for CVD may benefit from intensive risk factor modification (Lim et al., 2011; Stone et al., 2013). Furthermore, Lim et al. (2011) does not recommend screening the general adult population using expensive or invasive methods such as electrocardiogram, computed tomography, exercise testing, carotid intima medial thickness, ankle-brachial index, or other risk factors such as the high-sensitivity C-reactive protein to assess for CVD risk. Therefore, EBP guidelines support the use of risk assessment tools such as the Framingham risk tool and the ASCVD risk assessment tool to screen for CVD risk.

There are several studies that have used the Framingham risk assessment tool to measure the impact of educational interventions, comparing those interventions against current methods of education (Parra-Medina et al., 2011; Saffi, Polanczyk, & Rabelo-Silva, 2014). Saffi et al. (2014) used Framingham risk assessment scores to determine the impact of 15-month, systematic, nurse-led counseling sessions, both in-person and over the telephone, for patients with CVD. Framingham risk assessment scores were calculated pre and post-intervention to determine the impact of the lifestyle counseling sessions on estimated risk, and the researchers

discovered a significant decrease in risk score for those in the intervention group (Saffi et al., 2014).

Educational interventions and risk for cardiovascular disease. Various educational and counseling interventions have been studied and determined to promote a healthy diet and encourage regular physical activity in order to reduce CVD risk in African American women (Eckel et al., 2014; Khare et al., 2014; LeFevre, 2014; Maruthur et al., 2009; Parra-Medina et al., 2011; Saffi et al., 2014). The USPSTF recommends offering adults who have known CVD risk factors lifestyle counseling to promote a healthy diet and encourage regular physical activity for the prevention of CVD (LeFevre, 2014). Therefore, lifestyle interventions seeking to reduce CVD risk have shown to be beneficial (Khare et al., 2014; LeFevre, 2014; Maruthur et al., 2009; Parra-Medina et al., 2011; Saffi et al., 2014).

Several methods of interventions have demonstrated success. Wilber et al. (2016) found group meetings are successful at promoting physical activity. Additionally, Parra-Medina et al. (2011) discovered the use of telephone follow-up and newsletters were successful at creating lifestyle change. Chow, Redfern, and Hillis (2015) determined text messages were associated with significant improvements in CVD risk factors, and Kulick et al. (2013) found emails were an effective means of education.

Furthermore, Appel et al. (2003) and Elmer et al. (2006) studied the impact of various educational interventions and found interventions that were more in-depth and included education about weight loss, limiting of sodium, physical activity, and alcohol targets, with or without education about the DASH diet specifically, were more successful at promoting behavioral change. Thompson et al. (2011) completed a systematic review and found strong evidence supporting the use of motivational interviewing to promote behavior change.

Additionally, several studies supported the belief that lifestyle interventions should be discussed and encouraged by providers in primary care settings (Feairheller et al., 2014; Kulick et al., 2013; Parra-Medina et al., 2011).

Theory

The change process theory selected for this DNP project was the Bandura's Social Cognitive Theory (SCT), also known as the self-efficacy theory (see Appendix D). Within this theory, the foundational concepts of self-efficacy and outcome expectations are used to explain human behavior (Polit & Beck, 2012). Self-efficacy is described as the confidence a person has to take action in regards to their health habits; outcome expectations represent a person's perception of the possible consequences that could occur from either behaving or not behaving in a particular way (Young, Plotnikoff, Collins, Callister, & Morgan, 2014). Parra-Medina et al. (2011) completed a study with African American women in effort to improve physical activity and diet, which was grounded in the SCT (Parra-Medina et al., 2011). Key behavioral strategies such as self-regulation, enhancing self-efficacy, seeking social support, and building behavioral competence were used to promote long-term lifestyle changes (Parra-Medina et al., 2011). The study completed by Parra-Medina et al. (2011) is one of the most foundational studies for this DNP project.

Methods

Approval, Ethics, and Funding

This DNP project was an evidence-based quality improvement project that aimed to implement the evidence with an expansion of knowledge (Peterson, n.d.). The project was classified as Not Human Subjects Research because it did not aim to create new knowledge but rather sought to implement evidence and improve processes (see Appendix J). Additionally, the

University of Missouri-Kansas City IRB committee was the primary IRB. A site facilitator agreed to assist the SI with the implementation of this DNP project and permission from site administration was obtained.

To be ethically sound, this study used resources appropriately, gained continual support to deem its necessity of the project, and kept risks to human subjects low. A detailed and rigorous process was followed to ensure that the study's findings were valid, and an IRB committee reviewed the project prior to implementation to assess for and minimize any potential conflicts of interest. Subjects were selected based on scientifically supported inclusion and exclusion criteria to eliminate bias in sampling.

In order to minimize risks and optimize gains, the project took measures to respect patient privacy and confidentiality, and beneficence and nonmaleficence were promoted by providing patients with the most safe and effective clinical care possible. Informed consent was obtained by all of the project's participants in order to respect patient autonomy. Last, it would seem unethical to implement this EBP project with some participants while continuing the traditional care to other patients; therefore, there was no control group for this project. Instead this project was a pre- post-intervention design, and various measures were compared before and after the intervention period to assess potential impact.

Setting and Participants

This DNP project took place at a primary care office setting. The project's participants met the following inclusion criteria: female, African American, 40-65 years old, and BMI equal to or greater than 25. Exclusion criteria included participants at low-risk for heart disease determined by several risk factors in addition to CVD risk assessment score or already meeting optimal heart disease risk factor modification through compliance with both pharmacotherapy and behavior

change. Potential participants were identified based on inclusion criteria using the electronic health record (EHR) and then excluded based on the presence of exclusion criteria. A convenience sampling technique was used to select participants for this project, and participants were recruited based on the presence of particular characteristics and risk for CVD. This DNP project aimed for a goal of 50 participants to receive the initial intervention in hopes that at least 34 participants would return at the intervention's completion to ensure results were statically significant.

Intervention

The site facilitator for this DNP project was a nurse practitioner in an adult primary care clinic. He was willing to assist with identification of potential participants for the project. Patients that presented to the clinic and met the project's inclusion criteria were identified using the EHR. A flyer was also handed out to all physicians and nurse practitioners at the clinic explaining the project's purpose, inclusion criteria for participants, and directions for how to refer a patient for the project (see Appendix I).

The primary project implementer was the SI. The SI was available at the clinic two days a week for four to six weeks at the start of the project. Providers were made aware of the days that the SI was in clinic, and if they believed that one of their patients met inclusion criteria and might benefit from the study, then they notified the SI. The SI also had access to the EHR and could monitor who had appointments and if they met necessary criteria for participation.

A formal informed consent was not needed for this Not Human Subjects Research project. Patients were notified of the project details and agreed to participate prior to receiving the educational intervention. Prior to meeting with the potential participant, the SI calculated the patient's CVD risk score and gathered other objective outcome measures including blood

pressure, BMI, lipid levels, hemoglobin A1C, smoking status, age, applicable medication list, and insurance status from the EHR. Upon meeting the patient, the SI obtained self-reported diet and physical activity information and measured the patient's waist circumference.

The SI provided education to the patient during the primary care visit using motivational interviewing as the basis for the evidence-based educational intervention. Education for every patient focused on diet, exercise, and weight loss. Additional education was provided if other risk factors such as smoking, presence of co-morbidities, and medication non-compliance were identified prior to or during the patient visit. The SI also followed up with the patient via telephone once monthly during the three-month intervention period. This follow-up served to encourage positive lifestyle changes based on individually set goals during the initial visit.

At the end of the three months the participants returned to the clinic to see their primary care provider. The SI was present at this visit as well so that project outcome measurements could be obtained. In order to complete the patient's ASCVD risk score at the conclusion of the intervention, a lipid panel was drawn when possible. The lipid panel and possibly hemoglobin A1C were ordered if the patient's provider deemed it appropriate at the project's completion. The SI discussed lab necessity with the patient's provider at the time of the follow-up visit. Whether the lipid panel was drawn or not, other objective outcome measures and self-reported diet and physical activity data was collected to determine the impact of the intervention (see Appendix E, F, G, and H).

Change Process and EBP Model

The change process theory selected for this DNP project was Kotter and Cohen's Model of Change, an eight-step process for creating successful change (Kotter & Cohen, 2012). Kotter and Cohen believe that individuals are more likely to make positive and lasting change if they

are given information that appeals to their emotions rather than just given particular facts or analyses (Kotter & Cohen, 2012). The first step is about creating a sense of urgency, which then leads to building a leadership team and casting a vision (Kotter & Cohen, 2012). The focus then goes to gaining the support of other leaders, removing barriers, and empowering people to change (Kotter & Cohen, 2012). Both short-term and long-term success is vital to fostering authentic and lasting behavior change (Kotter & Cohen, 2012). Therefore, the Kotter and Cohen Model was foundational to this DNP project, which sought to create the behavior change necessary to reduce risk for CVD for African American women.

The Evidence-based Practice (EBP) Model for this project was the Model for EBP Change. This is a six-step model used to create clinical practice change that is rooted in EBP: assess need for practice change, connect problem interventions to outcomes, synthesize the evidence, implement practice change, monitor change in practice, and sustain change (Rosswurm & Larrabee, 1999). Rosswurm and Larrabee (1999) believe that providers must know how to obtain, interpret, and apply evidence in order to improve patient and health care outcomes. They also think this model can be very useful for providers seeking to provide patient care grounded in EBP, which is the goal of this DNP project (Rosswurm & Larrabee, 1999). This DNP project could be sustainable if providers choose to take the time to provide intensive behavioral counseling to their patients in effort to reduce CVD risk.

Study Design

This DNP study was a quasi-experimental, pretest and posttest study design. The identified participants had ASCVD calculations determined before and after the intervention period when possible. They received one-on-one education about diet, exercise, and weight loss, as well as additional education tailored towards their individual ASCVD risk score and other

associated risk factors. The intervention sought to decrease individual risk scores and improve BMI, waist circumference, blood pressure, lipids, hemoglobin A1C, and self-reported diet and exercise.

Validity

Internal validity for this project was indicated by a decrease in heart disease risk with a subsequent increase in the participant's amount of physical activity and weight loss, as well as an improvement in diet. The education provided focused on methods to improve diet and physical activity level and promote weight loss. Both objective outcome measures and subjective self-reported physical activity and diet data were used to assess the impact of the intervention. This also promoted awareness and transparency during the intervention period. Educational materials from professional organizations such as the American Heart Association were provided to the participants so they could have quick and convenient access to accurate information. There were several threats to internal validity known as history or testing that could have affected the study. However, measures such as participant inclusion criteria and both subjective and objective outcome measures were used to minimize these threats and uphold the integrity of the research conducted.

The findings of this study are generalizable to middle-aged, overweight African American women. The study was restricted by age, weight, and ethnicity; therefore, the results are not widely generalizable to all women, but restrictions were made to limit threats to the study's internal validity. The study's external validity was also weakened in that participants were selected from a single primary care practice and needed access to telephone and transportation for follow-up phone calls and visits.

Outcomes

The primary outcome for this DNP project was decreased CVD risk as a result of the educational intervention. The secondary outcome was an improvement in the patient's lipid panel, BMI, waist circumference, blood pressure, hemoglobin A1C, and self-reported diet and exercise. The ASCVD risk calculator was used to determine a patient's individual CVD risk based on gender, race, age, total cholesterol, HDL, smoking status, presence of diabetes, and current use of hypertensive medications. This calculation was completed at the beginning and end of the intervention. Other outcome measures including change in smoking status, change in hypertensive medications, and the individual's ability to meet their previously set goal were also obtained post-intervention.

Measurement Instruments

The ASCVD risk assessment calculator is a tool designed and recommended for use by the American College of Cardiology (ACC) and the AHA. This tool accounts for age, gender, race, total cholesterol, HDL cholesterol, systolic blood pressure, use of blood pressure medication, presence of diabetes and smoking status (see Appendix K). This data is then used to make an estimate of 10-year risk for ASCVD and lifetime risk for ASCVD. Internal validation for this instrument was determined and results yielded an average C-statistic of 0.8142 for African American women (Goff et al., 2013). External validation was also determined using two external cohort studies, The Multi-Ethnic Study of Atherosclerosis and the Reasons for Geographic and Racial Differences in Stroke Study, and results yielded an average C-statistic of 0.8182 for African American women (Goff et al., 2013). Reliability information was not available for this instrument. Use of this instrument does not require permission. This instrument was used to determine risk for CVD at the beginning and the end of the intervention period.

Other outcome measures were collected, and pre- and post-intervention comparisons were completed.

Quality of Data and Statistical Analysis

The participant's identifiable medical information was kept securely within their medical chart. Patient's confidentiality was maintained and respected throughout the project. The SI collected the outcome data and calculated CVD risk, and the participants were notified of their individual risk score during the educational intervention in effort to motivate change. The SI educated the patients and collected the data so a rigorous scientific data collection process was used with verifiable data entry to avoid possible bias. The Healthy People 2020 Goal for deaths related to CVD is 103.4 deaths per 100,000 (ODPHP, n.d.). However, the rate for African Americans was 114.8 deaths per 100,000 people in 2014, which indicated significant room for improvement (ODPHP, n.d.).

A power analysis was completed and showed a minimum of 34 participants was needed for the study to have high power (0.8), medium effect (0.5), and an alpha value of .05. A Wilcoxon Signed Ranks test was performed to determine if there was any significant difference in CVD risk prior to and after the educational intervention geared at improving diet, physical activity levels, and weight loss. A Wilcoxon Signed Ranks was also used to analyze the outcome measures such as lipid levels, blood pressure, BMI, waist circumference, and hemoglobin A1C, as well as some of the self-reported diet and exercise data. A Wilcoxon Signed Ranks test was used to analyze changes in hypertension treatment and type of exercise. To compare the study's participants and generalize the results, descriptive statistics were used to display age, insurance information, change in smoking status and if the patient's goal was met or not (see Appendix L & M).

Results

Setting and Participants

Between August 2017 and January 2018, thirty-nine patients received the initial education and were included in the project. All 39 participants were female and African American. The participants were between 40 and 65 years old with an average age of 52.97 years old (see Appendix M, Table 1.2). Additionally, most of the patients (76.9%) in the project were uninsured (see Appendix M, Table 1.1).

Intervention Course

Between August and September 2017, thirty-nine patients who met inclusion criteria were included in the project and received the initial educational intervention. These 39 participants received monthly follow-up telephone calls from September through December 2017. Follow-up appointments were scheduled with the patient's primary care provider three months after the initial intervention. Between November 2017 and January 2018, thirteen participants completed the project and attended the scheduled follow-up visits. Twenty-six participants did not complete the project because they either did not participate in the follow-up phone calls or attend the follow-up appointment. Therefore, no outcome measurement data could be collected post-intervention. Two attempts to foster follow-up visits were made to the participant when possible. Nine of the 26 participants who did not complete the project had another appointment around the time of the project's completion so limited objective data was collected from the EHR.

Outcome Data

There was a statistically significant difference pre- and post-intervention between servings of fruit and vegetables daily ($p<0.05$; see Appendix M, Table 2.2.1-2.2.4). There were

nine of 13 participants who increased their daily intake of fruits and vegetables during the intervention period (see Appendix M, Table 2.2.1-2.2.4). The difference pre- and post-intervention for total cholesterol and servings of lean meat weekly approached statistical significance ($p<0.05$). Additionally, five of 13 participants increased their weekly intake of leans meats and five of five people decreased their total cholesterol during the intervention period.

Other factors such as ASVCD risk assessment score, BMI, LDL cholesterol, HDL cholesterol, hemoglobin A1C, waist circumference, systolic blood pressure, minutes of exercise weekly, and frequency of eating out weekly had no statistically significant difference pre- and post-intervention (see Appendix M, Table 2.2.1-2.2.4). However, four of five participants decreased their LDL cholesterol during the intervention period. There was also no statistically significant difference between hypertension treatment and exercise type pre- and post-intervention (see Appendix M, Table 2.1).

There were 22 participants of whom post-intervention data regarding change in smoking status was collected. Ten of those participants (45.5%) reported they did not change their smoking status as a result of the intervention. One participant (4.5%) reported a decrease in the amount smoked, and 11 of the 22 participants (50.0%) remained non-smokers at the end of the intervention (see Appendix M, Table 1.4). Additionally, at the beginning of the project, the patients were asked to make a goal that they intended to meet at the completion of the project. There were 18 participants assessed for goal completion, and eleven of those participants (61.1%) met their goal after the intervention period and seven of the 18 participants (38.9%) did not meet their goal (see Appendix M, Table 1.3).

Discussion

Successes

The project's main success was that participants were able to improve their diet and decrease their cholesterol as a result of the intervention. It was helpful that the intervention was not dependent on any of the providers at the clinic to be implemented or continued during the intervention period. The SI educated the patients and followed up with them over the telephone and in clinic. The ability to collect pre-intervention and post-intervention outcome data during clinic visits was essential. It was beneficial if patients participated in follow-up telephone calls so that information could be reinforced and goal achievement could be monitored and encouraged. Telephone follow-up was necessary as it allowed the SI to schedule follow-up visits for patients with their primary care provider and served to remind the patients of scheduled appointments.

Study Strengths

The strength of this project is that the project site serves a large African American patient population so it was not difficult to find participants who met inclusion criteria for the project at the clinic. Additionally, the clinic serves a primarily low-income and uninsured population so many patients are limited in their resources or ability to access healthy food options, transportation, telephones, and exercise areas. By having the SI present on site twice a week for six weeks during the initial intervention phase, it allowed patients with both scheduled appointments and same-day appointments to be included in the project. This was helpful as the clinic has a high rate of patient's not showing for their scheduled appointments.

Another highlight was the project's site facilitator, who assisted with identifying potential participants, gaining additional staff support, and completing follow-up visits with patients. His support of this project was vital to its success. Additionally, the SI had previously completed clinical rotations so she had access to patient's charts.

Once potential patients were identified, the initial education was easy to complete and convenient for the patient as they were already present in the clinic. The disruption to the patient's provider while in clinic was minimal. However, the telephone follow-up and follow-up visits varied in their degree of success. There was a significant reduction in the number of participants who completed the project due to the lack of willingness to participate in telephone follow-up or attend their follow-up visits in clinic.

Results Compared to the Evidence

The results of this project varied with those found in the evidence. This project resulted in improvements in modifiable risk factors such as total and LDL cholesterol, daily servings of fruits and vegetables, and weekly servings of lean meat, while there was no difference in other outcome measures pre- and post-intervention. Additionally, there were only five participants who had lab work completed after the intervention, which limited the ability to determine post-intervention ASCVD risk scores and compare cholesterol values pre- and post-intervention. The evidence showed an easier time obtaining post-intervention lab work which was necessary to determine the project's full impact. A majority of the evidence reviewed had success decreasing ASCVD risk scores, cholesterol values, and BMI with changes in diet and exercise. The evidence also had more success with follow-up telephone calls and visits, as well as a longer intervention period than three months to allow for more significant behavior change. However, the evidence still supports using the ASCVD risk assessment score to guide education as a means of targeting modifiable risk factors in highly susceptible patients.

Limitations

Internal and External Validity Effects

Internal validity was affected by biases in how the information was presented during the initial education which may have influenced the participant's responses post-intervention. The use of self-reported diet and exercise data aimed to promote transparency while also allowing room for bias and dishonesty. Internal validity was improved through the use of reliable and accurate educational materials from professional organizations which helped ensure there were minimal inconsistencies in the education.

Using participants who met the inclusion criteria characteristics for age, weight, and ethnicity influenced external validity. Therefore, the project's results are not widely generalizable to all women, but restrictions were made to limit threats to the study's internal validity. The study's external validity was also weakened because participants were selected from a single primary care clinic and required access to telephones and transportation for follow-up phone calls and visits.

Sustainability of Effects and Plans to Maintain Effects

Behavioral counseling about diet, exercise and weight loss is a necessary discussion for providers and patients to have during every patient care visit. Observed improvements in diet and cholesterol in this project have the potential to weaken over time. Lifestyle behavior change is slow to occur, but encouragement and accountability is needed for positive change to continue beyond this project's completion. This project intended to help providers recognize the importance of determining ASCVD risk scores for patients and using those scores to guide educational and pharmacological interventions.

Efforts to Minimize the Study Limitations

This project has several limitations including a small sample size and a limited project site and time of intervention. Participation in the project was voluntary and patients could decide

to not participate at any point during the three-month intervention period. There were 39 participants that received the initial intervention and only 22 participants were included in the post-intervention analysis. Additionally, each of those 22 participants varied significantly in which outcome measurements were collected post-intervention. This skewed the project data. The project was also limited in a target population in that only one primary care clinic was used, and the duration was restricted in time to three-months. It often takes longer than three months for behavioral change to occur.

Interpretation

Expected and Actual Outcomes

The expected primary outcome for this DNP project was decreased CVD risk as a result of the educational intervention. The secondary expected outcome was an improvement in the patient's lipid panel, BMI, waist circumference, blood pressure, hemoglobin A1C, and self-reported diet and exercise. The primary outcome was not achieved and only five participants had pre- and post-intervention ASCVD risk scores completed due to a lack of necessity for lab work post-intervention. There was an improvement in total and LDL cholesterol and self-reported diet for patients as the result of the educational intervention, but no improvement in other outcome measures.

Intervention Effectiveness and Revision

This project was effectively implemented and an appropriate site was located based on the project's desired population. The results of this project would have been more significant if it was able to be completed during a single patient visit and did not require monitoring over several months and reliance on patient follow-up. Intervention modifications that might improve the attainment of the project's outcomes would be more consistent patient follow-up. Difficulty with

patient follow-up was a perceived barrier at the beginning of the project and is a known barrier to care at the project site. The project may have resulted in more statistically significant change in additional outcome measures if follow-up was consistent.

Expected and Actual Impact to Health System, Costs, and Policy

This project was expected to have a greater impact on reducing CVD risk for the project's participants than was shown in the data. This may be due to a small number of participants completing the project. The project costs were minimal so the SI covered the cost of printing the educational materials. The costs associated with sustaining this project are low as most providers are able to print educational handouts for patients at the clinic and have access to the ASCVD risk calculator free of cost.

Conclusions

This DNP project was expected to have a direct impact on decreasing CVD risk. Targeting modifiable risk factors such as diet, exercise, and weight through an educational intervention has positive health outcomes. Providing education geared at improving diet, exercise and weight loss is both practical and useful in the primary care setting. Providers need to be reminded of the importance of taking time to provide behavioral counseling to patients, which improves their health. This is a sustainable project, and providers knew the benefits of calculating CVD risk scores and using them to assist with both pharmacotherapy and behavioral counseling interventions. This DNP project was presented at the Association of Missouri Nurse Practitioner conference in August 2017 as a synthesis of evidence poster presentation. Educational interventions used to promote a healthy diet, exercise, and weight loss are expected to decrease CVD risk which will impact health care costs, prevent deaths related to CVD, and improve overall health and quality of life for African American women.

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Appendix A

Cost Table

Costs	**Dollar Amount**
Educational handouts	$0.11 (per page at Office Depot) x 25 pages x 50 participants= $137.50
Labs	$20 (lipid panel) + $30 (hemoglobin A1C) x2 (pre- and post-intervention) x50 participants=$5,000
Total:	
Direct Costs	**$137.50**
Indirect Costs	$5,000*

*Labs costs were determined using the average costs for a lipid panel and hemoglobin A1C. Most insurance companies, such as Medicaid and Medicare, cover the cost of labs such as a lipid panel and hemoglobin A1C within three months, especially if lifestyle modifications have been made in between. Additionally, those who qualify for a discount program due to lack of insurance will not accrue costs for labs, as these are covered by the federally-funded program. The site facilitator believes the clinic will absorb the cost of labs for the participants as long as it is deemed reasonable by the patient's provider.

Appendix B

Definition of Terms

Overweight: BMI >25

Middle-aged: 40-65 years old

Body Mass Index (BMI): calculation of body fat in relation to height and weight (NHLBI, n.d.).

Lipids: a lab test that measures cholesterol, triglycerides, low-density lipoprotein, and high-density lipoprotein in the blood (WebMD, n.d.b).

Hemoglobin A1C: a blood test that determines the average of blood glucose during the previous two to three months (WebMD, n.d.a).

Appendix C

Synthesis of Evidence Table

First author, Year, Title, Journal	Purpose	Research Design[1], Evidence Level[2], Variables & Subtopics	Sample & Sampling, Setting	Measures & Reliability (if reported)	Results & Analysis Used	Limitations & Usefulness
Parra-Medina, D (2011). Results of the Heart Healthy and Ethnically Relevant Lifestyle Trial: A Cardiovascular Risk Reduction Intervention for African American Women Attending Community Health Centers. American Journal of Public Health.	Intervention attempting to improve physical activity and dietary fat intake among AA women at high risk for CVD.	Quantitative/experimental, randomized control trial. Level 2. Standard care vs. standard care plus 12 month telephone counseling and newsletters; Diet and heart disease risk; Exercise and heart disease risk; Guidelines and recommendations.	266 African American women who were over age 35 and met eligibility criteria and completed the initial interventions /baseline measurements. Consecutive sampling. South Carolina community health centers	41-item Community Health Activities Model Program for Seniors physical activity questionnaire, 52-item New Leaf Dietary Risk Assessment, self report.	Modest improvements were observed in the comprehensive group. An improvement was not seen in total physical activity. chi-square test, multinomial logistic regression analysis	First, overall study attrition was high. Second, self-report can be subject to overreporting and underreporting. Third, postintervention maintenance of behavior change was not measured. Lifestyle interventions can reach underserved, disadvantaged women through community-based primary care settings
Feairheller, D.L. (2014). Effects of Moderate Aerobic Exercise Training on Vascular Health and Blood Pressure in African Americans. The Journal of	Clinical practice guidelines suggest lifestyle interventions as 1st line treatment. Six-month trial of aerobic exercise in AA	Quantitative/experimental, pre-post intervention study. Level 3. Six-month aerobic exercise training. Exercise and risk for heart disease.	26 African American adults who met inclusion criteria and underwent training. Consecutive sampling. Philadelphia area recruited through advertisements.	24-hour ambulatory blood pressure, flow-mediated dilation, nitroglycerin-mediated dilation, carotid artery intima-media	Six months of aerobic exercise training showed a significant improvement in carotid artery IMT, brachial artery FMD, circulating EMP levels and plasma NO, but no	Population was small and mostly female. It is recommended that FMD percentages are normalized to each individual shear flow rate, but this study did not do that. Third, the technique for measurement

Clinical Hypertension.	adults.			thickness, plasma nitric oxide levels and levels of endothelial microparticles.	improvements in BP or NMD. Distribution of variables examined using Shapiro-Wilk test of normality; nonparametric tests were used; paired samples t test and paired samples Wilcoxon signed-rank test; repeated-measures analysis of variance.	of EMPs has yet to be standardized. Finally, there is no control group so it is difficult to prove a causal relationship. Six months of aerobic exercise training is enough to cause improvements in vascular structure and function in AA, even w/o BP improvements or NMD.
Cole, J.A. (2013). Do practitioners and friends support patients with coronary heart disease in lifestyle change? A qualitative study. Bio Med Central Family Practice.	In-depth exploration of patient factors affecting lifestyle behavior change within an intervention designed to improve secondary prevention for patients with CHD in PC.	Qualitative, Phenomenological Study, Level 6. Motivations, barriers to lifestyle change and information utilized by patients. Barriers and Incentives to Change.	45 patients were interviewed from 23 practices that were used in the SPHERE study. From these 23 practices, participants were invited to participate. Judgmental sampling.	There were four main themes identified: facilitators of change, barriers to change, personal beliefs, and information.	Participants reported factors that motivated them towards healthy lifestyle decisions included: professional support, enjoyment, goal setting, fears, and social groups. Barriers to change were identified as lack of professional support,	Some of the interview questions asked participants to reflect on experiences from years ago, may have influenced some details. Study participants included more men than women. Participants spoke less about barriers than incentives, so findings may reflect bias. Interviewer knew

					unhelpful social contacts, temptations and treats, and personal problems. Interviews were transcribed and analyzed.	participants' lifestyle scores before meeting them for the interview. Intervention development in supporting lifestyle change needs to address patients' difficulties in overcoming negative social influences and maintaining interest in living healthily.
*Saffi, M. L. (2014). Lifestyle interventions reduce cardiovascular risk in patients with coronary artery disease: A randomized clinical trial. European Journal of Cardiovascular Nursing.	Evaluated the effect of systematic, nurse-led individual lifestyle counseling sessions on the reduction of 10-year cardiovascular risk scores in patients with CAD.	Quantitative, Experimental, randomized clinical trial. Level 2. Five face-to-face sessions and telephone contact over the course of one year, three months after hospital discharge. Educational intervention and heart disease risk.	74 participants with coronary artery disease recruited from a teaching hospital in Southern Brazil. Inclusion criteria include: 18 years of age or older, diagnosis of CAD by catheterization, and treatment of acute coronary syndrome at the teaching hospital between January 2008-December	Framingham Risk Scores; Demographic and clinical data. Lipid profile, triglycerides, blood glucose, and glycated hemo-globin were measured. Weight, BMI, waist circumference, waist-to-hip ratio, blood glucose, and BP were also measured. Morisky	In one year, a nurse-led counseling intervention reduced 10-year cardiovascular risk factor scores by 1.7 points for the intervention group. Weight and BP also decreased in intervention group. Pearson's chi-square test and student's t-test and analysis of variance and analysis of covariance were performed	Patients with cognitive deficits or neurological disorders, those in other intervention studies, those who had a new cardiac event or those who died before randomization occurred were excluded from study. Participants may have received additional education from other health care providers. Also, smoking was assessed, but was not reported. reported. Lastly, lack of

			2010. Judgemental sample.	scale, a four-item adherence measure was designed to evaluate medication adherence.	also. A generalized estimating equation was used to assess long-term variation in the intervention group.	transportation limited participation. Structured and systematic nurse-led lifestyle counseling effectively reduced cardiovascular risk score.
*Maruthur, N.M., (2009). Lifestyle Interventions Reduce Coronary Heart Disease Risk: Results from the PREMIER Trial. Circulation.	Study the effect of 2 multicomponent lifestyle interventions on estimated CHD risk relative to advice alone and among subgroups defined by baseline variables.	Quantitative, Experimental, randomized clinical trial. Level 2. Lifestyle recommendations. Diet and heart disease risk. Educational intervention and risk for heart disease.	810 participants with prehypertension or stage 1 hypertension who met criteria, as well as over age 25, BMI 18.5-45, SBP 120-159, and DBP 80-90. Sample from previous PREMIER study. Convenience sampling.	Three groups: advice only control group, established (EST) intervention group and EST + DASH diet group. BP and weight were measured. Glucose, total cholesterol, HDL measured. Smoking status, medication use and demographic information gathered via questionnaire. Median estimated	EST +DASH and EST saw a significant reduction in estimated 10-year CHD risk, compared with advice only group. The EST and EST +DASH had similar effects on CHD risk. Means and SDs were calculated for continuous variables and proportions were calculated for categorical variables. Multiple logistic regression and relative risk ratios were also completed.	Adherence to intervention was incomplete for the EST and EST +DASH groups. Smoking status was not available at 6 months. Current Framingham risk equations did not include diabetes and those equations may overestimate absolute risk in some populations. Both the EST group and the EST plus DASH diet group saw a substantial reduction in CHD risk.

				10-year CHD risk at baseline and 6 months.		
Lim, L.S.; American College of Preventive Medicine (2011). Atherosclerotic cardiovascular disease screening in adults: American College of Preventive Medicine position statement on preventive practice. American Journal of Preventive Medicine.	EBPG. CHD risk can be estimated using the Framingham Risk Score, which helps identify high-risk adults who may benefit from preventative treatments.	Review of published meta-analyses and expert consensus. Level 1 and level 7. Guidelines and recommendations.	Searches of electronic databases. PubMed was searched for current guidelines and meta-analyses prior to July 2010 for the following topics: atherosclerotic cardiovascular disease, coronary heart disease, carotid artery stenosis, peripheral artery disease and abdominal aortic aneurysm. Number of sources not listed. Guidelines were compared to other major professional and health organizations guidelines.	Expert consensus was used to assess quality and strength of evidence.	ACPM recommends use of coronary heart disease risk assessment tool (ex. Framingham Risk Score) to assess CHD risk and guide risk-based treatment for asymptomatic men and women with no history of CHD or CHD risk equivalents. Individuals with high risk of CHD (>20% for 10-year) benefit from intensive risk factor modification and appropriate chemoprophylaxis. The ACPM does not recommend routine screening of the general	The type of supporting evidence was not specifically stated for each recommendation. The College of Preventative Medicine recommends clinicians use CHD risk assessment tool such as the Framingham Risk Score to assess CHD risk and to guide risk-based therapy.

					adult population using more invasive and expensive techniques. Individuals with intermediate risk of CHD (10-20% over 10 years) should consider hs-CRP testing to determine need for intensification of therapy or pharmacotherapy.	
Huffman (2012). Exercise effects on lipids in persons with varying dietary patterns—does diet matter if they exercise? Responses in studies of a targeted risk reduction intervention through defined exercise	To determine if, across a range of dietary patterns, there were variable lipoprotein responses in an aerobic exercise training intervention.	Quantitative, Experimental, randomized clinical trial. Level 2. Three different aerobic exercise programs and observed diet patterns. Exercise and risk for heart disease.	The sample included 204 subjects from a larger study, STRRIDE I, at high risk for developing CVD. Inactive men and women between 40 to 65 years old, overweight obese and had lipid abnormalities. Convenience sampling.	Participants were randomly assigned to either a 6-month non-exercising control group or 1 of the 3 exercise training groups: low-amount/moderate-intensity, low-amount/vigorous-intensity, and high amount/vi	Mixed models to determine whether diet z-scores changed significantly. Linear models to evaluate the effects of diet pattern, exercise, and the interaction between diet pattern and exercise on lipids relative to the control group. The aerobic exercise	The study was not designed to examine a specific dietary intervention. There was a very slight amount of weight loss in the exercise groups, attributed to exercise. No relationship was found between weight change and caloric intake change over time. The dietary z-score does not account for every dietary influence on

(STRRIDE) I. American Heart Journal.				gorous intensity aerobic exercise training. Participants also had to keep a log of food and beverages and do a recall of one days intake.	intervention, without significant weight loss, improves lipid profiles, and diet composition does not need to be changed.	lipids. Findings are based on dietary self-report measures. The sample size was moderate. Even in sedentary individuals whose habitual diets vary, a rigorous, supervised exercise intervention can achieve significant beneficial lipid effects.
Goff, D.G. (2013). 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk: A Report of the American College of Cardiology /American Heart Association Task Force on Practice Guidelines. Circulation.	In collaboration with the NHLBI, to develop clinical guidelines for assessment of CV risk, lifestyle modifications to reduce CV risk, and management of blood cholesterol, overweight and obesity in adults.	EBPG. Review of published meta-analyses, systematic reviews, and expert consensus. Levels 1-7. Guidelines and recommendations.	Searches for systematic reviews or meta-analyses based on inclusion/exclusion criteria sponsored by the NHLBI.	Work group reviewed the studies to assess the quality and strength of evidence.	NHLBI grading format, ACC/AHA Class of Recommendation/Level of evidence. It is reasonable to assess traditional ASCVD risk factors every 4-6 years in adults 40 to 79 years of age free of CVD. The race- and sex- specific Pooled Cohort Equations* to predict 10-year risk for a first hard ASCVD event should	Evidence quality varies from low to medium. More limited in scope and focus based on selected CQs in each topic, compared to other evidence-based guidelines. Helps provide guidance for assessment of CVD risk through the recommendation of a formal tool.

					be used in nonHispanic African Americans and nonHispanic Whites, 40 to 79 years of age.	
Schulz, A. J. (2015). Effectiveness of a Walking Group Intervention to Promote Physical Activity and Cardiovascular Health in Predominantly Non-Hispanic Black and Hispanic Urban Neighborhoods: Findings from the Walk Your Heart to Health Intervention. Health Education and Behavior.	To evaluate the effectiveness of the Walk Your Heart to Health intervention: Pathways to Heart Health intervention designed to promote physical activity and reduce CV risk among non-Hispanic Black and Hispanic residents.	Quantitative/Experimental, randomized clinical trial. Level 2. Physical Activity and Indicators of CV risk (lipids, BMI, and blood pressure). adherence, number of sessions and consistency. Exercise and heart disease risk.	Thirty WYHH groups, 15 paired groups, at 11 sites in Detroit. Residents aged 18 or older after completion of a Physical Activity Readiness Questionnaire. Consecutive sampling. Detroit, Michigan.	Continuous measures of WYHH Steps, non-WYHH Steps, and overall steps, on the pedometer. Health risk assessments, Clinical, anthropometric, and physiological data. Number of sessions attended and consistency of participation.	Participants in the intervention group increased steps significantly more during the initial 8-week intervention period, compared with the control group. Frequencies, means, and variances for key variables. Bivariate analysis of crude associations, with odds ratios for categorical and correlation coefficients for continuous variables.	Retention was high at 8 weeks, but fell at 32 weeks, which may have led to some potential retention bias. Interventions like these can contribute to reductions in racial, ethnic, and socioeconomic inequities in cardiovascular mortality.
James, D., (2014). Health	To examine the	Mixed methods; explanatory	Seven focus groups and a survey of 413	Measures included dieting	Women with adequate health	A convenience sample was used, limiting

literacy issues surrounding weight management among African American women: a mixed methods study. Journal of Human Nutrition and Dietetics	association between health literacy and sources of dieting information, the weight loss methods used and the information needed to manage weight among AA women.	designs; quantitative level II and qualitative level VI. Barriers and incentives to Change.	African American women; nested sampling strategy was used with a convenience sample. Various low-income workplaces, gathering places and homes.	information, strategies for weight loss and necessary information. Demographic information was collected, BMIs were calculated, and health literacy was assessed.	literacy (AHL) were more likely to increase physical activity and use the internet to lose weight. Quantitative data was analyzed using descriptive analyses, independent sample t-tests and one-way analysis of variance tests, binary logistic regression analyses, and odds ratio and likelihood-ratio tests. Qualitative data was analyzed using directed content analysis.	generalizability. A larger, more recent sample for the cross-sectional survey may have yielded different results. Cross-sectional surveys and focus groups cannot show a causal relationship between health literacy and obesity. Qualitative data is not meant to be generalizable to other groups. A health literacy tool is important but not sufficient. Health literacy may have an impact on BMI for AA women, where they access dieting information and the types of information needed to manage their weight.
Chu (2016). Comparative Effectiveness of personalized lifestyle management	Compare the effectiveness of these lifestyle interventions for individual risk	Quantitative; Retrospective experimental study; level 3. Various lifestyle modifications—Group therapy for smoking	Published meta-analyses of RCTs using intention-to-treat analysis, contained summary of estimates of all relevant	10-year CVD risk using the ACC/AHA pooled cohort equations to calculated 10-year	For the current smoker, successfully quitting smoking is the most effective lifestyle change.	Limitations-changes in risk factors translated into CVD risk in the nondiabetic patient, so results may not be generalized to different

strategies for Cardiovascular Disease Risk Reduction. Journal of American Heart Association	profiles and determine their rank order in reducing 10-year cardiovascular disease risk.	cessation, Mediterranean diet, aerobic exercise (walking), and yoga. Diet and heart disease risk. Exercise and heart disease risk.	risk factors within a single report and compared the treatment to a control group of no/minimal intervention or usual care. Consecutive sample.	atherosclerotic CVD risk for previous studies whose patients underwent either a walking intervention, Mediterranean diet intervention, yoga intervention or group therapy for smoking cessation.	Yoga is the best lifestyle intervention for reducing CVD risk, then walking. Absolute risk reduction of 10-year CVD risk across 4 different interventions for the average patient in each risk subcategory. Probabilistic and 1-way sensitivity analysis.	populations. ACC/AHA pooled cohort study used over other options. Risk reductions are based on single interventions. However, patients may be doing multiple interventions simultaneously. Study found smoking cessation, yoga and walking to be the most effective forms of CVD prevention.
Karmali (2014). A Systematic Examination of the 2013 ACC/AHA Pooled Cohort Risk Assessment Tool for Atherosclerotic Cardiovascular Disease. Journal of the American College of Cardiology.	Study sought to systematically examine the Pooled Cohort Equations to determine risk factor levels required to exceed risk thresholds outline in the new cholester	Quantitative, experimental study. Level II; Pooled Cohort Equation incorporates age, total and high-density lipoprotein cholesterol, systolic blood pressure, use of anti-hypertensive meds, smoking status, and diabetes. Guidelines and recommendations.	Model based on pooled data from NHLBI cohort studies, and the Framingham Original and Offspring Study cohorts, which included 9,098 non-Hispanic white men, 1,647 AA men, 11,240 non-Hispanic white women, and 2,641 AA women between ages 40-79 and	Continuous risk factor levels in isolation and in specified combinations with the risk tool, and observation of predicted risk output patterns; used ASCVD risk threshold of >7.5% as clinically relevant	Demonstrated a hypothetical man or woman can reach clinically relevant risk thresholds throughout the eligible age spectrum, of 40-79 yo, depending on the associated risk factor burden. This tool attempts to help improve accuracy. Age is a	Limited by the increments of age and risk factor levels that was used. Also, a single risk factor was assessed at a time. However, this is not a true reflection of how risk factor modification looks normally. Also, the study sample was limited to a small amount of African Americans. This risk calculator should be used to estimate 10-year ASCVD risk, and it allows for

	ol guidelines.		without hx of MI, stroke, CHF, hx of percutaneous coronary intervention, CABAG or Afib. Convenience sample.	risk threshold.	major determinant, and the addition of stroke endpoint and race-specific coefficients permit identification of at-risk AA and non-Hispanic Whites.	identification of at risk women and African Americans at much younger ages and lower risk factor levels. It also takes into account the impact of diabetes and stroke as well as calculates absolute risk.
Stone, N.J. (2013) 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk: A Report of the American College of Cardiology /American Heart Association Task Force on Practice Guidelines. Circulation.	In collaboration with the NHLBI, to develop clinical guidelines for assessment of CV risk, lifestyle modifications to reduce CV risk, and management of blood cholesterol, overweight and obesity in adults.	EBPG. Review of published meta-analyses, systematic reviews, and expert consensus. Levels 1-7. Guidelines and recommendations.	Searches for systematic reviews or meta-analyses based on inclusion/exclusion criteria sponsored by the NHLBI.	Searches of electronic databases for the following topics: atherosclerotic cardiovascular disease, coronary heart disease, carotid artery stenosis, peripheral artery disease and abdominal aortic aneurysm. Guidelines were compared to other major professional and health	NHLBI grading format, ACC/AHA Class of Recommendation/Level of evidence. HHLBI grading the strength of the recommendation system. The race- and sex-specific Pooled Cohort Equations* to predict 10-year risk for a first hard ASCVD event should be used in nonHispanic African Americans and nonHispanic Whites, 40 to 79 years	The type of supporting evidence was not specifically stated for each recommendation. Guideline recommends the use of the Pooled Cohort Equations to estimate 10-year risk. Lifestyle modifications remain crucial to ASCVD risk reduction, prior to and in addition to statin therapy.

				organizations guidelines.	of age.	
Carter (2016) Nice to your heart: A pilot community-based intervention to improve heart health behaviors in urban residents. Health Education Journal.	A pilot-tested novel soul line dancing and nutrition education program that was designed and implemented as part of an academic community-based collaboration in effort to improve cardiovascular health among adult African Americans	Quantitative, Experimental. Level IV. Program attendance, Soul line dancing, nutrition education. Diet and heart disease risk. Exercise and heart disease risk.	Community members; men and women between 18-66 years old, English speaking, and able to exercise; 38 program participants. North Philadelphia community. Consecutive sampling.	Measured attendance, International Physical Activity Questionnaire, NCI's 5-A-Day for better health instrument. Blood pressures. Self-reported perceived exertion. Borg Perceived Exertion Scale. Ability to perform physical activity based on PAR-Q questionnaire. Demographic information.	Descriptive and bivariate analyses; mean and standard deviation for all variables. Chi-square tests and t-tests; paired t-tests. 58% of the sample attended 5 or more sessions, with women and those not currently employed more likely to achieve higher attendance. Improvements in days active in the last week and fruit consumption were observed.	One limitation is that this was not a fully controlled trial, so results are limited. Also sample size was small and physical activity was self-reported. A culturally sensitive program of soul dancing and nutrition education was well received and had positive indications for improved cardiovascular health in a high-risk group.
*Wilbur, J. (2016) Randomized clinical trial of the Women's Lifestyle Physical Activity	To compare the effects of a physical activity intervention of	Quantitative, experimental. Randomized Control Trial. Level 2. Physical activity, weight and body	288 women, aged 40-65 without major signs or symptoms of pulmonary/cardiovascular disease. Convenience	Physical activity through questionnaires, accelerometer, aerobic fitness,	Analysis of variance and mixed models. Retention was 90% at 48 weeks. Adherence to PA	Limitation of the study is that random assignment was not at the level of the participant. Also, analyses presented here

Program for African-American Women: 24- and 48-Week Outcomes. American Journal of Health Promotion.	group meetings versus group meetings supplemented by personal phone calls or automated calls on the adoption and maintenance of PA and on weight stability among AA women.	composition. Exercise and heart disease risk.	sampling. Health settings across six states, in predominately African American communities.	weight, and body composition at baseline, 24 weeks and 48 weeks.	increased significantly for questionnaire, accelerometer, and aerobic fitness at 24 weeks and 48 weeks. Weight and body composition showed no significant changes over the course of the study.	are limited to intent to treat. Group meetings are a powerful intervention for increasing PA and preventing weight gain and may not need to be supplemented with telephone calls, which add costs and complexity.
Mama, S.K. (2015). Using Community Insight to Understand Physical Activity Adoption in Overweight and Obese African American and Hispanic Women: A Qualitative Study. Health Education and Behavior.	Use an ecologic framework to gain a deeper understanding of the underlying behavioral mechanisms that influence physical activity adoption among ethnic minority women.	Qualitative, Phenomenological Study. Level 6. Barriers and incentives to change.	18 African American and Hispanic women completed a 1-hour in-depth interview. Judgmental sampling. Participants from previous HIP study.	Assess participants' perceptions of individual, social, and environmental factors that might influence their physical activity or the physical activity of women like them. 10 open-ended interview questions.	Interview recording transcribed; transcript read, repeated ideas and important quotes flagged and organized into related concepts and list of themes. Women discussed interpersonal factors (lack of motivation, confidence, time), interpersona	Participants were volunteers from previous study, so sample reflected people interested in participating in health intervention and after a previous exercise intervention. Women had high socioeconomic status, middle-aged and overweight. Findings highlight the multilevel, interactive

					l relationships (intrinsic motivation and social support helped and lack thereof hindered), accessibility and safety (access to resources and perceived safety of neighborhood), and caretaking for others.	complexities that influence physical activity, emphasizing the need for a more sophisticated, ecologic approach for increasing physical activity adoption and maintenance among ethnic minority women.
Lee (2011) Health is power: An ecological, theory-based health intervention for women of color. Contemporary Clinical Trials.	Health is Power is a transcultural, community-based randomized controlled trial that investigated the effectiveness of a group cohesion intervention to increase physical activity and improve dietary habits in AA and	Quantitative, experimental. Randomized Control Trial. Level II. Exercise and heart disease risk. Diet and heart disease risk.	420 community dwelling, AA and Hispanic or Latino women. Austin and Huston, TX. Quota sampling.	International Physical Activity Questionnaire (IPAQ) [r=0.8], Check and Line Questionnaire (CALQ), objective data through accelerometer [ICC = 0.87], The Fruit and Vegetable All-Day Screener [r=0.49-0.68 women v. men], Fat Screener	Descriptive analyses to look at individual characteristics; bivariate correlations. Women who were obese did not meet PA guidelines according to accelerometer and ate few VF. DHQ differed by weight status, IPAQ was r/t CALQ, and CALQ with accelerometer. Regardless of ethnicity, normal weight	Limitations unknown. This study enhanced ecologic validity, unprecedented detail in measures of dietary habits and physical activity, and measured weight status.

	Hispanic or Latina women in Houston and Austin, Texas.			[r=0.58-0.64 women v. men], Diet History Questionnaire (DHQ) [r=0.7-0.85], vegetable and fruit log (VF Log), and anthropometric measures of BMI and body fat.	women did more PA, reported more VF and consumed more fat calories than overweight and obese women. AA women did more MVPA.	
Flink (2014). Women at risk for cardiovascular disease lack knowledge of heart attack symptoms. Clinical Cardiology.	To understand whether cardiovascular disease risk level is related to knowledge of the leading cause of death of women, or heart attack symptoms.	Quantitative, non-experimental. Cross-sectional. Level 4. Knowledge of cardiovascular disease, Framingham risk score and metabolic score. Barriers and incentives to change.	823 women attending outpatient clinics of New York Presbyterian Hospital, Columbia University. Exclusion criteria included known CAD, hx of CVA, pregnancy, and age younger than 18 years. Convenience sample.	Standardized questionnaire adapted by CDC, demographic information, self-reported medical history, electronic medical record labs, size information,	Chi-Square Test, 2 sided Fisher's exact test, multivariable logistic regression analysis.	A self-reported, multiple choice questionnaire was used which may have affected recall, bias, and correct guessing. Hispanic participants, those with fewer years of education, increasing Framingham risk score, more than 3 components of metabolic symptoms, and those who were overweight or obese were less likely to know the leading cause of death or have

						knowledge of heart attack symptoms.
Wee (2012). Screening for cardiovascular disease risk factors in an urban low-income setting at baseline and post intervention: a prospective intervention study. European Journal of Preventative Cardiology.	To determine predictors for regular cardiovascular health screening at baseline amongst those of low socioeconomic status and evaluated the effectiveness of a 6-month intervention on screening in this group compared to high-socioeconomic group.	Mixed methods; explanatory designs; quantitative level III and qualitative level VI. Barriers and incentives to change.	All resident aged 40 years or older in two housing estates comprising owner-occupied housing and rental flats in Singapore. Convenience sample.	Characteristics (Age, gender, married or single, ethnicity, education, employment, income, help received, lifestyle habits, medical history) and owner or rental occupied.	Descriptive statistics, McNemar's test, chi-square and muli-level regression, Cox regression analysis, univariate and multivariate analysis. Participation was 78.2%. at baseline, in the low-socioeconomic group, 41.7%, 38.8% and 30.8% had gone for regular HTN, DM and dyslipidemia screening, respectively; compared with higher numbers in the high-socioeconomic group. Other factors predicting regular screening included being married and not smoking.	Study is not a RCT. This was a multi-site study so it was not possible to get a national representation in Singapore. Lastly, they did not investigate how they are going to sustain their changes. Participation in cardiovascular health screening was poor amongst those of low SES; a 6-month intervention program improved participation in this population.
*Khare,	Impleme	Quantitative,	162 women in	Fruit and	Matched	Because it was

M.M. (2014). Heart Smart for Women: A community based lifestyle change intervention to reduce cardiovascular risk in rural women. The journal of rural health.	ntation and evaluation of Heart Smart for Women, a 12-week lifestyle behavior change intervention to reduce CVD risk for women in rural Illinois.	experimental. Within-group analysis. Level 3. Guidelines and recommendations.	13 communities in 7 rural, southernmost counties in Illinois. Convenience sampling.	Vegetable All Day Screener; Behavioral Risk Factor Surveillance System PA questionnaire; clinical assessment.	paired t-tests, demographic statistics, McNemar's test, Fischer's test, t-tests. Participants showed improvement in dietary and physical activity indicators at the end of the 12-week intervention, but only increases in vegetable consumption and physical activity were sustained over a year.	implemented in a rural community, it was not possible to do a quasi-experimental design. Cost was also an issue that may limit widespread adoption. Intervention led to short-term moderate changes in nutrition and physical activity in rural women, but some changes were not sustained beyond a year.
LeFevre (2014). Behavioral Counseling to promote a healthful diet and physical activity for cardiovascular disease prevention in adults with cardiovascular risk factors: U.S. Preventative Services	Update and refinement of the 2003 USPSTF recommendation on dietary counseling for adults with risk factors for CVD.	EBPG, level I. Qualitative Systematic Review, Level V, and opinion of expert committees, Level VII. Guidelines and Recommendations.	74 trials, with 77 intervention groups. Interventions that combined a healthful diet and physical activity were evaluated in 49 trial groups, diet-only in 18, and physical activity only in 10.	Work group reviewed the evidence and studies to assess the quality and strength of evidence.	The USPSTF recommends offering or referring adults who are overweight or obese and have additionally CVD risk factors to intensive behavioral counseling interventions to promote a healthful diet and physical activity for	Gaps in evidence include: trials examining the effectiveness of less intensive counseling in PCP, including min. intensity, number to interventions, and duration for effectiveness, are needed as are trial studying the duration beyond 2-3 years of follow-up or beyond the intervention

Task Force Recommendation Statement.					CVD prevention.	period. The USPSTF concludes that lifestyle interventions have a moderate net benefit.
Kulick (2013). Live well: a practical and effective low-intensity dietary counseling intervention for use in primary care patients with dyslipidemia—a randomized controlled pilot trial.	To evaluate the feasibility and the effects on lipids and diet of a low-intensity dietary counseling intervention provided by the primary care physician, in patients at risk for cardiovascular diseases.	Quantitative, experimental. Level II. Changes in LDL-cholesterol, lipid subclasses and diet quality. Diet and heart disease risk. Educational intervention and heart disease risk.	61 adults age 21-75 yo, with LDL >3.37mmol/L, possessing Internet access, and active email accounts were enrolled.	Diet evaluated through Rate-Your-Plate questionnaire. LDL cholesterol level and other lipid subclasses. Demographic information. BP, BMI, Framingham risk score.	Two-sample t-test, chi-squared test , UniANOVA procedure, Partial Corr procedure, At month 3, intervention group decreased LDL and total cholesterol, as well as improved their diet. At month 6, intervention group's cholesterol remained better than the control group and reported positive changes in their diet .	Only diet changes were assessed by self-reported screening methods; study was only 6 months in duration. Generalization requires further assessment in less ideal environments and in wider range of patients and providers, with longer time of follow-up and large sample size. Low-intensity dietary counseling intervention failed to effectively change lipid levels, but did show some improvements in the healthful eating behavior.
Eckel (2014). 2013 AHA/ACC Guideline on Lifestyle Manageme	To develop clinical practice guidelines for the assessm	EBPG. Review of randomized control trials, observational studies, meta-analyses, and systematic	Searches for studies based on inclusion/exclusion criteria sponsored by the NHLBI.	Work group reviewed the studies to assess the quality	NHLBI grading format, ACC/AHA Class of Recommendation/Level	Research limitations not discussed. EBPG supports the use of the DASH diet, as well as sodium

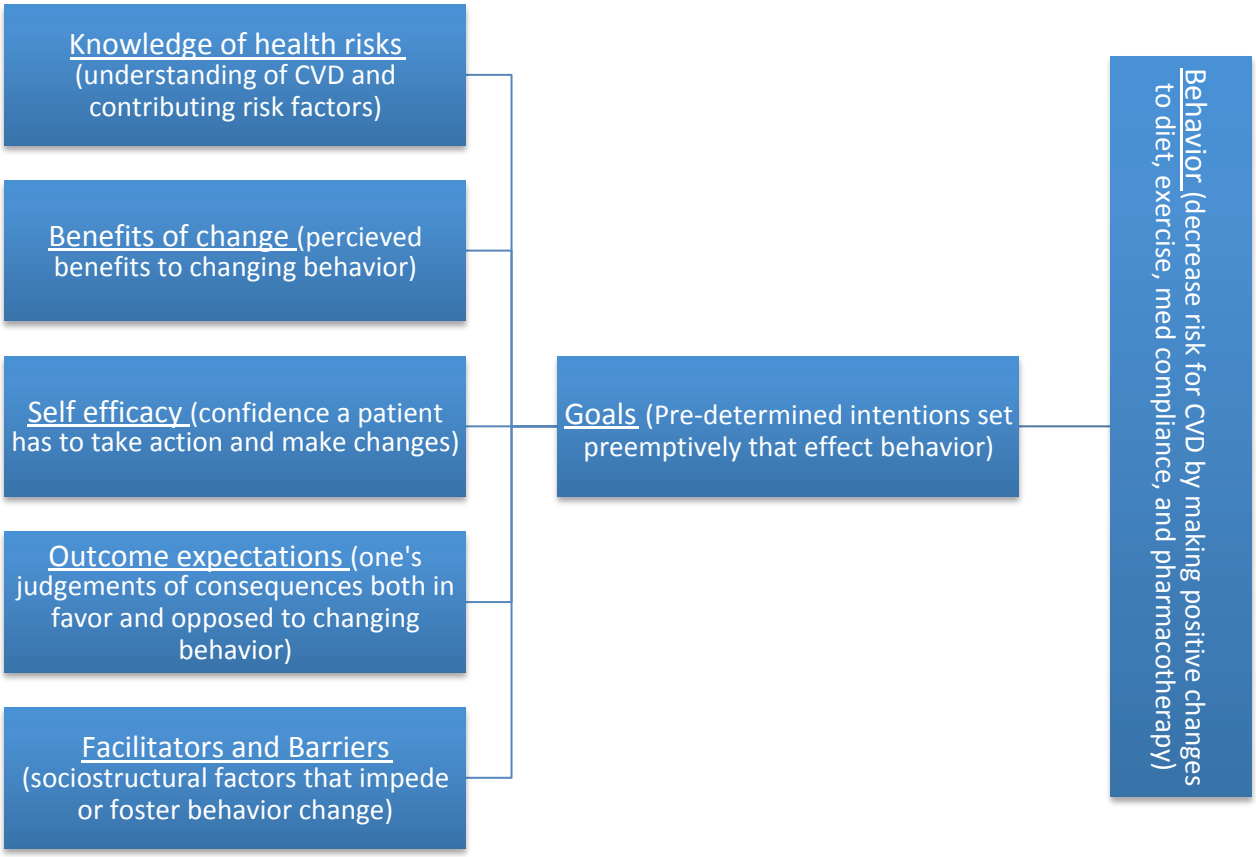
nt to Reduce Cardiovascular Risk: A report of the American College of Cardiology /American Heart Association Task Force on Practice Guidelines.	ent of cardiovascular risk, lifestyle modifications to reduce cardiovascular risk, management of blood cholesterol in adults, and management of overweight and obesity in adults.	reviews. Levels 1-7. Guidelines and recommendations.		and strength of evidence.	of evidence. HHLBI grading the strength of the recommendation system. For those seeking to lower LDL, consume a diet emphasizing fruits, vegetables, whole grains, low-fat dairy, poultry, fish, legumes, veg. oils and nuts; limit intake of sweets, sugary beverages, and red meats. For patients seeking to lower BP, consume a DASH diet as stated above and limit sodium (1500-2400mg/d) diet. Engage in 3-4 times per wk, 40 min. each, in moderate-vigorous-intensity physical activity.	restriction and regular exercise.

Chow (2015). Effect of lifestyle-focused text messaging on risk factor modification in patients with coronary heart disease: A randomized clinical trial. The Journal of the American Medical Association.	To examine the effect of a lifestyle-focused semi-personalized support program delivered by mobile phone text message on cardiovascular risk factors.	Quantitative, experimental. Level II. Guidelines and recommendations.	710 patients with proven coronary heart disease between September 2011 and November 2013 in a large tertiary hospital in Sydney, Australia. Convenience sample.	LDL cholesterol level, systolic blood pressure, BMI, physical activity and smoking status.	ANCOVA, log-binomial regression. At 6 months, LDL levels were significantly lower in intervention participants, with concurrent reductions in SBP and BMI, significant increases in PA, and significant reduction in smoking.	First, outcome was difference in risk factor levels. Unclear if observed benefits are generalizable. Messages were only sent in English and some secondary outcomes were measured by self-report. lifestyle-focused text messaging service compared with usual care resulted in modest improvements in LDL level and greater improvements in other cardiovascular disease risk factors.
Appel (2003). Effects of comprehensive lifestyle modification on blood pressure control: Main results of the PREMIER clinical trial. Journal of the American	To determine the effect on BP of 2 multicomponent, behavioral interventions.	Quantitative, experimental. Randomized control trial. Level II. Diet and heart disease risk. Guidelines and recommendations.	810 adults, with above optimal blood pressure, including stage 1 hypertension and not on any antihypertensive medications. 4 locations. Convenience sample.	Blood pressure measurement and hypertension status at 6 months. Also, weight, questionnaires, labs, treadmill testing, waist circumference, 24-hour	Linear regression model, Mantel-Haenszel X2 test. Both behavioral interventions significantly reduced weight, improved fitness, and lowered sodium intake. The established plus DASH	Limitations not discussed. Individuals with above-optimal BP can make lifestyle changes that lower BP and reduce CVD risk.

Medical Association.				dietary recalls, fasting blood analysis, and 7 day physical activity recalls.	group also increased their intake of fruits, vegetables and dairy products.	
Elmer (2006). Effects of comprehensive lifestyle modification on diet, weight, physical fitness, and blood pressure control: 18-month results of a randomized trial. Annals of Internal Medicine.	To compare the 18-month effects of 2 multicomponent behavioral interventions versus advice only on hypertension status, lifestyle changes and blood pressure.	Quantitative, experimental. Randomized control trial. Level II. Diet and heart disease risk. Guidelines and recommendations.	810 adult volunteers with prehypertension or stage 1 hypertension; at 4 clinics. Convenience sample.	Lifestyle variables and blood pressure status, 24-hour dietary recalls, Lab values, weight, treadmill test to assess fitness, and 7day physical activity physical activity recall.	General linear models. Both behavioral interventions statistically significantly reduced weight, fat intake, and sodium intake. The established plus DASH intervention also statistically significantly increased fruit, vegetable, dairy, fiber and mineral intake. BP changes were not statistically significant.	The exclusion criteria and the volunteer nature of this cohort may limit generalizability. Blood pressure is a well-accepted risk factor for CVD. Over 18 months, persons with prehypertension and stage 1 hypertension can sustain multiple lifestyle modifications that improve control of blood pressure and could reduce risk for chronic disease.

Appendix D

Social Cognitive Theory Diagram



(Bandura, 2000; Luszczynska & Schwarzer, 2005)

Appendix E

Logic Model

Logic Model for DNP Project

Student: Katlyn Hilton

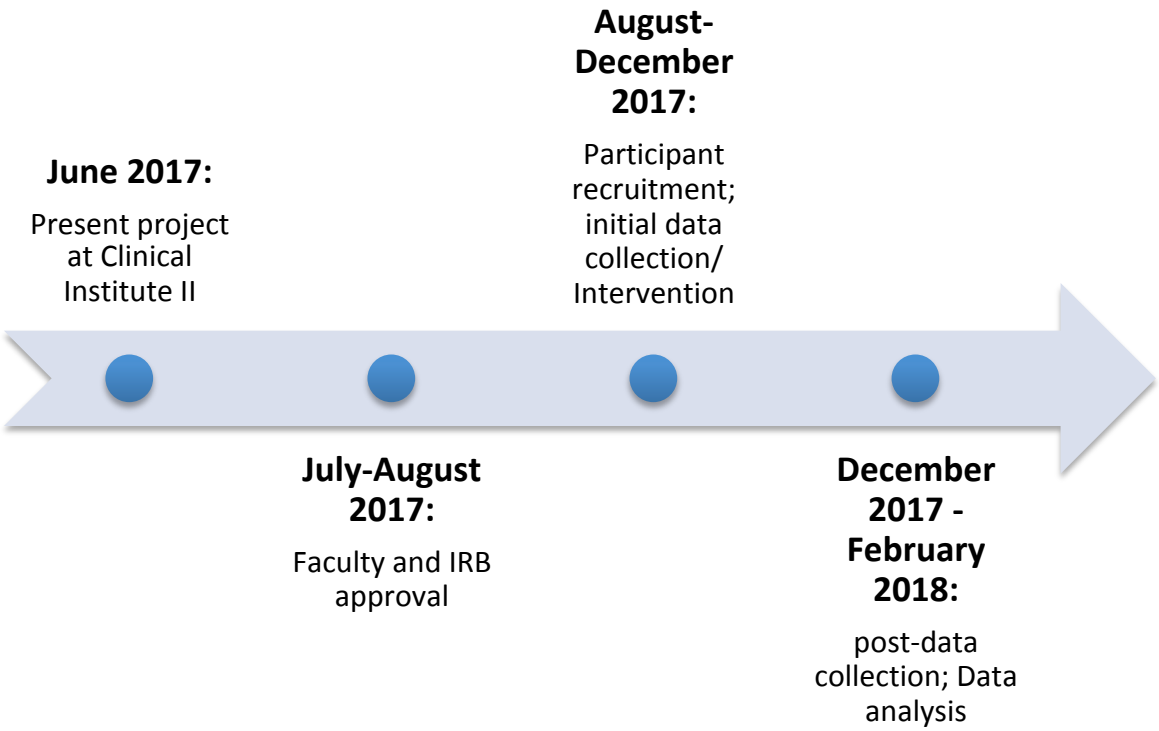
Inquiry, PICOTS: In middle-aged (40-65 years old), overweight (BMI >25), African American women (P), does the use of the ASCVD risk calculator to guide education about diet, exercise, and weight loss during routine office visits, (I) as compared to no formal risk calculation, (C) improve cardiovascular disease risk scores, body mass index (BMI), waist circumference, blood pressure, lipids, and hemoglobin A1C (O) within three-months (T) at a primary care clinic (S)?

Inputs	**Intervention(s) Outputs**		**Outcomes -- Impact**		
	Activities	*Participation*	*Short*	*Medium*	*Long*
Evidence, sub-topics 1. Diet and risk for cardiovascular disease 2. Exercise and risk for cardiovascular disease 3. Cardiovascular disease risk assessment tool 4. Educational interventions and risk for cardiovascular disease **Major Facilitators or Contributors** 1. Providers and staff 2. Clinic Administration 3. EBP Guidelines **Major Barriers or Challenges** 1. Cost 2. Lack of transportation or phone access 3. Provider support 4. Patient resistance to	**EBP intervention which is supported by the evidence in the Input column (brief phrase)** Using the ASCVD calculator to assess risk for cardiac disease pre- and post-intervention, educating all patients about diet, exercise and weight loss, and using the risk score to determine patient's risk factors **Major steps of the intervention (brief phrases)** 1. Obtain IRB approval 2. Identify participants 3. Calculate ASCVD risk scores 4. Provide all participants with education about diet, exercise and weight loss. Target additional	**The participants (subjects)** Middle-aged, overweight African American women. **Site** Primary Care Clinic **Time Frame** 3 months **Consent or assent Needed** IRB, patient assent **Other person(s) collecting data** yes, DNP student investigator **Others directly involved in consent or data collection** yes, providers at the clinic	**(Completed during DNP Project)** **Outcome(s) to be measured** Primary: decrease in ASCVD risk score; Secondary: improvements blood pressure, waist circumference, BMI, lipids, hemoglobin A1c and self-reported diet and exercise **Measurement tool(s)** 1. ASCVD risk assessment tool **Statistical analysis to be used** **1.** Wilcoxon Signed Ranks	**(after student DNP)** **Outcomes to be measured** **1.** ASCVD risk score maintenance **2.** Assess provider feedback **3.** Complete cost-savings analysis	**(after student DNP)** **Outcomes that are potentials** **1.** Integration of intervention into current standard of care **2.** Decrease in heart disease risk among African American women **3.** Decrease in costs and health care burden r/t prevalence of heart disease among African American women

change	education at individual risk factors based on risk score; monitor 3 months 5. Call patient monthly to assess goals and progress; encouraging positive change. 6. Calculate ASCVD risk scores and determine change pre- and post-intervention				

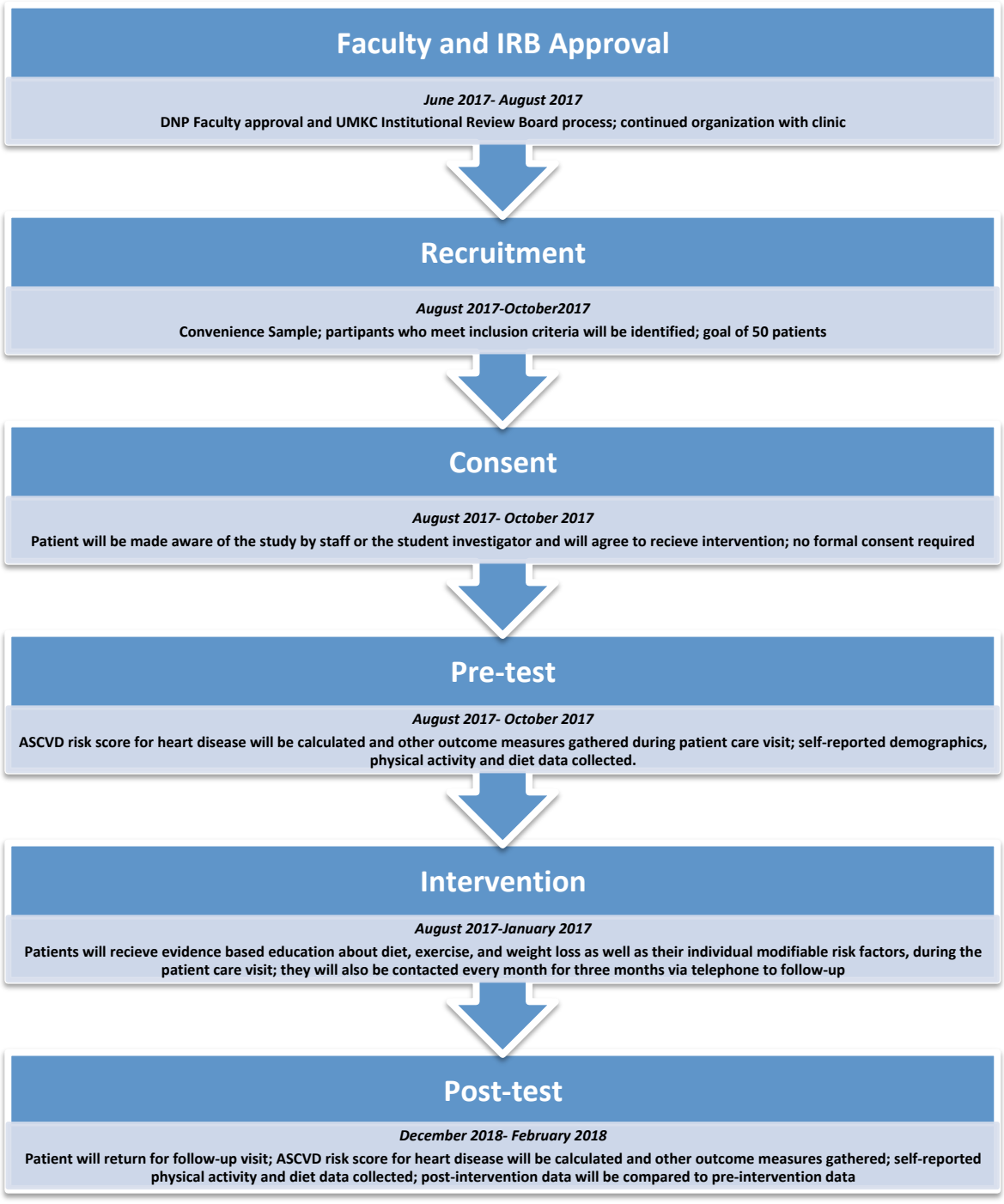
Appendix F

Project Timeline Flow Graphic



Appendix G

Intervention Flow Diagram Procedure



Appendix H

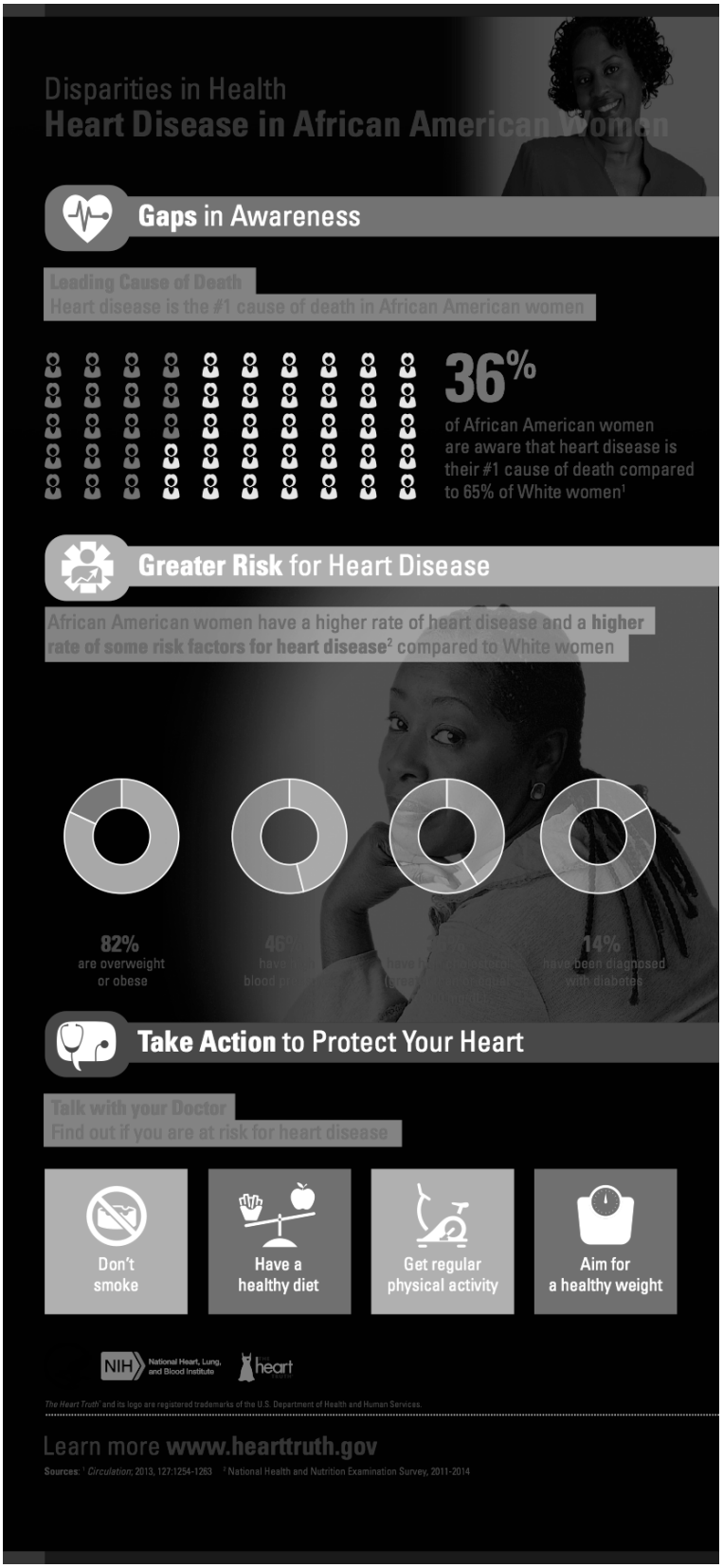
Intervention Materials

HEALTH TRACKER

WEEK OF: _____

	TYPE OF EXERCISE	MINUTES	LEAN MEAT SERVINGS	EAT OUT
MONDAY			B	B
			L	L
			D	D
			S	S
TUESDAY			B	B
			L	L
			D	D
			S	S
WEDNESDAY			B	B
			L	L
			D	D
			S	S
THURSDAY			B	B
			L	L
			D	D
			S	S
FRIDAY			B	B
			L	L
			D	D
			S	S
SATURDAY			B	B
			L	L
			D	D
			S	S
SUNDAY			B	B
			L	L
			D	D
			S	S

SLEEP	M	T	W	Th	F	Sa	Su	WEIGHT



(National Heart, Lung, and Blood Institute, n.d.)

MAYO CLINIC

Healthy Lifestyle

Nutrition and healthy eating

These tips make it easy to shop and prepare DASH-friendly dishes.

By Mayo Clinic Staff

DASH stands for Dietary Approaches to Stop Hypertension. The DASH diet is an approach to healthy eating that's designed to help treat or prevent high blood pressure (hypertension).

The DASH diet encourages you to reduce the sodium in your diet and to eat a variety of foods rich in nutrients that help lower blood pressure and offer numerous other health benefits.

Whether you are already following the DASH diet or want to give it a try for the first time, you can make it work for you. Here's how to get started with the DASH diet.

Sticking to the DASH diet starts with the food you buy. Before you go grocery shopping:

- **Make a list**. Decide which meals you're going to make for the coming week, and write down the ingredients you need. Don't forget to plan for breakfast and snacks, too. With list in hand, you're less likely to be tempted by unhealthy foods.
- **Eat first**. Don't shop for groceries when you're hungry. If you shop when you're hungry, everything looks appealing, which makes it hard to resist those high-fat, high-sodium items.

Large displays and bargain prices may catch your eye while you're in the grocery store. Follow these tips to stay focused on foods that support the DASH diet:

- **Buy fresh**. Most of the sodium in a typical diet comes from processed foods. Fresh foods are healthier choices because they contain less sodium, as well as less added sugar and fat. Fresh foods also often have more health-promoting vitamins, minerals and fiber than their packaged counterparts do.
- **Shop the sides**. While there are many DASH diet-friendly items in the center aisles, most of your shopping time should be spent in the outer aisles where you'll find fresh produce, low-fat dairy products and lean meats.
- **Read labels**. Most packaged foods in the U.S. have a Nutrition Facts label that can help you

figure out how they fit into your diet. Look for reduced sodium and fat products. Compare like items and choose the one that's lower in sodium and fat and has fewer calories.

You're more likely to prepare healthy dishes if you have healthy foods on hand. Try to keep these items in your kitchen:

- **Fruits**. Choose a variety of fresh fruits, such as apples, oranges and bananas. Add variety with apricots, dates and berries. Select fruits canned in its own juice, not in heavy syrup, and frozen fruits without added sugar.
- **Vegetables**. Buy fresh, frozen or canned vegetables, such as tomatoes, carrots, broccoli and spinach. Choose frozen vegetables without added salt or butter or sauces. Opt for canned vegetables low in sodium.
- **Low-fat dairy products**. Look for lower fat dairy options when buying milk, buttermilk, cheeses, yogurt and sour cream.
- **Grains**. Buy whole-grain varieties of bread, bagels, pitas, cereal, rice, pasta, crackers and tortillas. Compare labels and choose lower sodium items.
- **Nuts, seeds and legumes**. Almonds, walnuts, kidney beans, lentils, chickpeas (garbanzos) and sunflower seeds are among the healthy options. But get unsalted or low-salt varieties.
- **Lean meats, poultry and fish**. Opt for lean selections, such as fish, skinless chicken and turkey, pork tenderloin, extra-lean ground beef, and round or sirloin beef cuts. Choose lower sodium canned fish and meat. Limit smoked or processed meats, such as deli meats.
- **Condiments, seasonings and spreads**. Herbs, spices, flavored vinegars, salsas and olive oil can add zest to your meals without the salt overload. Choose low- or reduced-sodium versions of condiments.

Your cookware and kitchen gadgets can make it easier to follow the DASH diet. Helpful items include:

- **Nonstick cookware**. Nonstick cookware reduces the need to use oil or butter when sauteing meat or vegetables.
- **Vegetable steamer**. A vegetable steamer that fits in the bottom of a pan makes it easy to prepare vegetables without butter or oil.
- **Spice mill or garlic press**. These items make it easy to add flavor to your food and reduce your dependence on the shaker of salt.

Unhealthy cooking habits can sabotage your other efforts to stick to the DASH diet. Use these tips to help reduce sodium and fat:

- **Spice it up**. Enhance flavor without adding salt or fat by using herbs, spices, flavored vinegars, onions, peppers, ginger, lemon, garlic or garlic powder, or sodium-free bouillon.
- **Rinse it off**. Rinse canned foods, such as beans and vegetables, before using to wash

away some excess salt.

- **Beware of broth**. You can cook mushrooms, onions or other vegetables in a little low-sodium broth in a nonstick pan. But because even low-sodium broth can have lots of sodium, a little healthy oil may be a better option.
- **Make lower fat substitutions**. Replace full-fat dairy with reduced-fat or fat-free versions.
- **Cut back on meat**. Prepare stews and casseroles with only two-thirds of the meat the recipe calls for, and add extra vegetables, brown rice, tofu, bulgur or whole-wheat pasta.

If you tend to cook or bake in ways that call for lots of fat and salt, don't be afraid to modify your recipes. Experiment with spices and substitutions. Branch out and try recipes you wouldn't normally try. You may be pleasantly surprised by what you create!

References

1. In brief: Your guide to lowering your blood pressure with DASH. National Heart, Lung, and Blood Institute. http://www.nhlbi.nih.gov/health/resources/heart/hbp-dash-in-brief-html. Accessed April 7, 2016.
2. Essential kitchen equipment. American Heart Association. http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyCooking/Essential-Kitchen-Equipment_UCM_430098_Article.jsp. Accessed April 7, 2016.
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4. Sodium in your diet: Use the Nutrition Facts label and reduce your intake. U.S. Food and Drug Administration. http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm315393.htm. Accessed March 7, 2016.
5. Zeratsky KA (expert opinion). Mayo Clinic, Rochester, Minn. April 13, 2016.

April 29, 2016

Original article: http://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/dash-diet/art-20045913

(Mayo Clinic, n.d.)

National Heart,
Lung, and Blood Institute

AT-A-GLANCE:

Lowering Your Blood Pressure With DASH

What you eat affects your chances of developing high blood pressure (hypertension). Research shows that high blood pressure can be prevented—and lowered—by following the Dietary Approaches to Stop Hypertension (DASH) eating plan, which focuses on fruits, vegetables, whole grains, and other foods that are heart healthy and low in salt and sodium.

High blood pressure, which is blood pressure higher than 140/90 mmHg,[1] affects more than 65 million—or 1 out of every 3—American adults. Another 59 million Americans have prehypertension, which is blood pressure between 120/80 and 140/89 mmHg. This increases their chances of developing high blood pressure and its complications.

High blood pressure is dangerous because it makes your heart work too hard, hardens the walls of your arteries, and can cause the brain to hemorrhage or the kidneys to function poorly or not at all. If not controlled, high blood pressure can lead to heart and kidney disease, stroke, and blindness.

But high blood pressure can be prevented—and lowered—if you take these steps:

- Follow a healthy eating plan, such as DASH, that includes foods lower in salt and sodium.
- Maintain a healthy weight.
- Be moderately physically active for at least 30 minutes on most days of the week.
- If you drink alcoholic beverages, do so in moderation.

If you already have high blood pressure and your doctor has prescribed medicine, take your medicine as directed.

The DASH Eating Plan

The DASH eating plan is rich in fruits, vegetables, fat-free or low-fat milk and milk products, whole grains, fish, poultry, beans, seeds, and nuts. Compared with the typical American diet, it contains less salt and sodium; sweets, added sugars, and sugar-containing beverages; fats; and red meats. This heart healthy way of eating is also lower in saturated fat, *trans* fat, and cholesterol and rich in nutrients that are associated with lowering blood pressure—mainly potassium, magnesium, calcium, protein, and fiber.

The DASH eating plan requires no special foods and has no hard-to-follow recipes. It simply calls for a certain number of daily servings from various food groups.

The number of servings depends on the number of calories you're allowed each day. Your calorie level depends on your age and, especially, how active you are. Think of this as an energy balance system—if you want to maintain your current weight, you should take in only as many calories as you burn by being physically active. If you need to lose weight, eat fewer calories than you burn or increase your activity level to burn more calories than you eat.

U.S. Department of Health and Human Services
National Institutes of Health
National Heart, Lung, and Blood Institute

[1] Blood pressure is usually measured in millimeters of mercury, or mmHg.

DASH Tips for Gradual Change

Make these changes over a couple of days or weeks to give yourself a chance to adjust and make them part of your daily routine:

- Add a serving of vegetables at lunch one day and dinner the next, and add fruit at one meal or as a snack.
- Increase your use of fat-free and low-fat milk products to three servings a day.
- Limit lean meats to 6 ounces a day—3 ounces each portion, which is about the size of a deck of cards. If you usually eat large portions of meats, cut them back over a couple of days—by half or a third at each meal.
- Include two or more vegetarian-style, or meatless, meals each week.
- Increase servings of vegetables, brown rice, whole-wheat pasta, and cooked dry beans.
- For snacks and desserts, use fruits or other foods low in saturated fat, *trans* fat, cholesterol, sodium, sugar, and calories—for example, unsalted rice cakes; unsalted nuts or seeds; raisins; graham crackers; fat-free, low-fat, or frozen yogurt; popcorn with no salt or butter added; or raw vegetables.
- Use fresh, frozen, or low-sodium canned vegetables and fruits.

Making other lifestyle changes, such as losing weight if needed and being physically active, while following the DASH eating plan is the best way to prevent and control high blood pressure.

Learn More

More information on high blood pressure and the DASH eating plan is available from the National Heart, Lung, and Blood Institute (NHLBI) Web site at www.nhlbi.nih.gov (under Health Information for the Public). Podcasts and Spanish-language articles also can be found in the online Diseases and Conditions Index at www.nhlbi.nih.gov/health/dci/.

You also can order or download information on lowering blood pressure from the NHLBI Web site or by calling the NHLBI Health Information Center at 301–592–8573 (TTY: 240–629–3255).

Want More Information?
These NHLBI publications will help you set and reach healthy eating goals!

Your Guide to Lowering Your Blood Pressure With DASH (#06-4082)
This easy-to-read booklet includes tips on following the DASH eating plan, a week's worth of sample menus and recipes, and information about weight loss and physical activity.

In Brief: Your Guide to Lowering Your Blood Pressure With DASH (#06-5834)
Critical messages from "Your Guide to Lowering Your Blood Pressure With DASH" are provided in this easy-to-read fact sheet.

Also of interest:

- **My Blood Pressure Wallet Card (#03-5068)**
  This handy card helps patients monitor their blood pressure readings, remember medications, and make lifestyle changes to help lower their blood pressure.
- **Your Guide to Lowering Blood Pressure (#03-5232)**
  A patient handbook that provides guidance on lowering your blood pressure by maintaining a healthy weight, being physically active, and eating right.

U.S. Department of Health and Human Services
National Institutes of Health

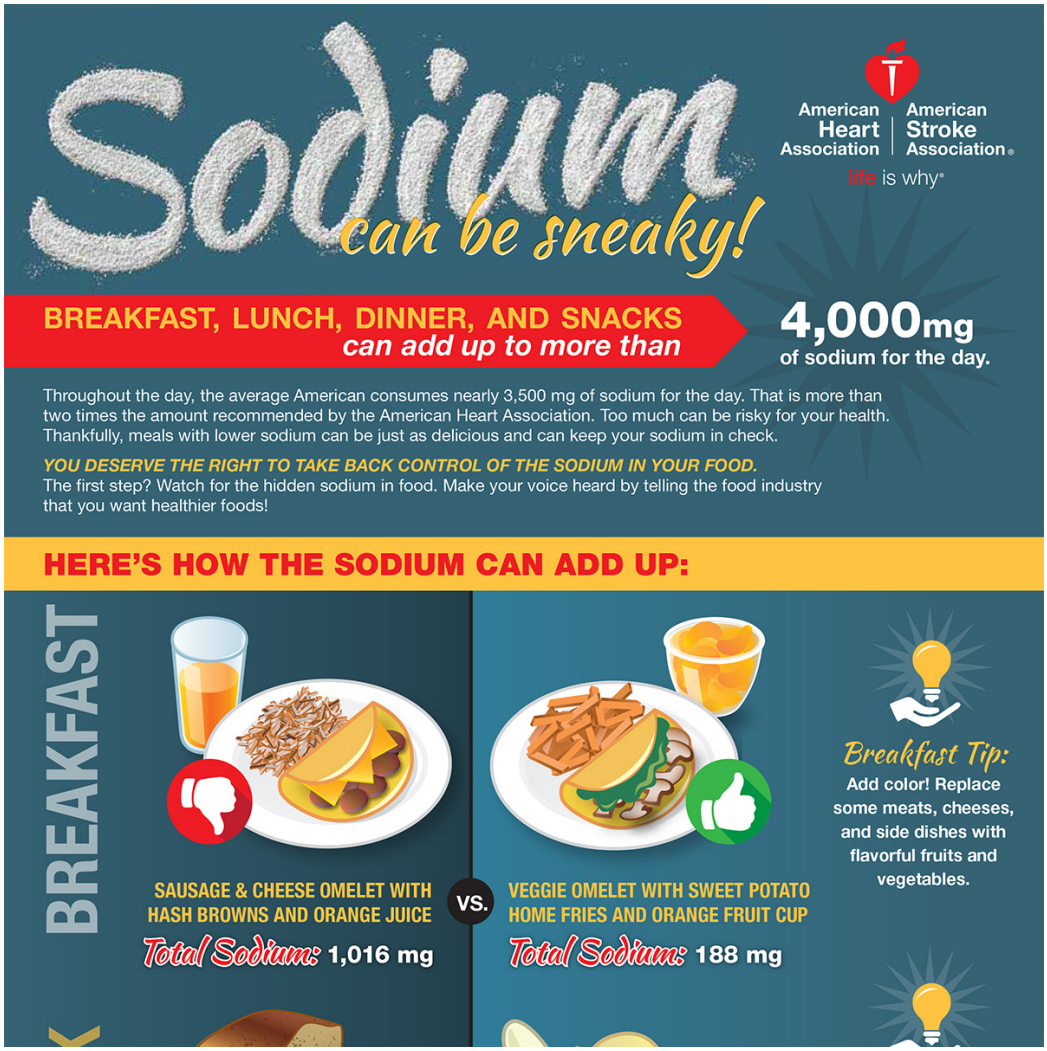
National **Heart**
Lung and Blood Institute

NIH Publication No. 09-7427
August 2009

To Order: Visit **www.nhlbi.nih.gov** or **http://emall.nhlbihin.net** or call **301–592–8573**

(National Heart, Lung, and Blood Institute, 2009)

Sodium Can be Sneaky Infographic




AM SNACK
LUNCH
MIDDAY SNACK
DINNER
BANANA BREAD
Total Sodium: 181 mg
VS.
FRESH BANANA
Total Sodium: 1 mg
Snack Tip:
Satisfy your sweet tooth with a delicious piece of fruit.
Less Salt
Lunch Tips:
Use veggies to add flavor instead of salty condiments, sauces, and sides.
Compare labels on salad dressings. Choose the option with less sodium.
When dining out, ask for your meal to be prepared without extra salt.
TURKEY SANDWICH WITH A SIDE SALAD AND A PICKLE
Total Sodium: 1,935 mg
VS.
TURKEY SANDWICH WITH A SIDE SALAD AND CUCUMBER SLICES
Total Sodium: 668 mg
CHIPS
POTATO CHIPS
Total Sodium: 148 mg
VS.
UNSALTED ALMONDS
Total Sodium: 0 mg
Snack Tips:
Need an afternoon pick-me-up? Choose nuts for extra crunch.
Compare labels. Choose the item with the lesser amount of sodium.
MACARONI & CHEESE
GREEN PEAS in Sauce
Dinner Tip:
Prepare food at home to have more control over the sodium in food. Replace salt in recipes with herbs, spices, citrus, or vinegar.
Foods that look the same may contain

Learn how sodium levels can change by simply substituting lower sodium ingredients to meals.

Here is a text version of this infographic.

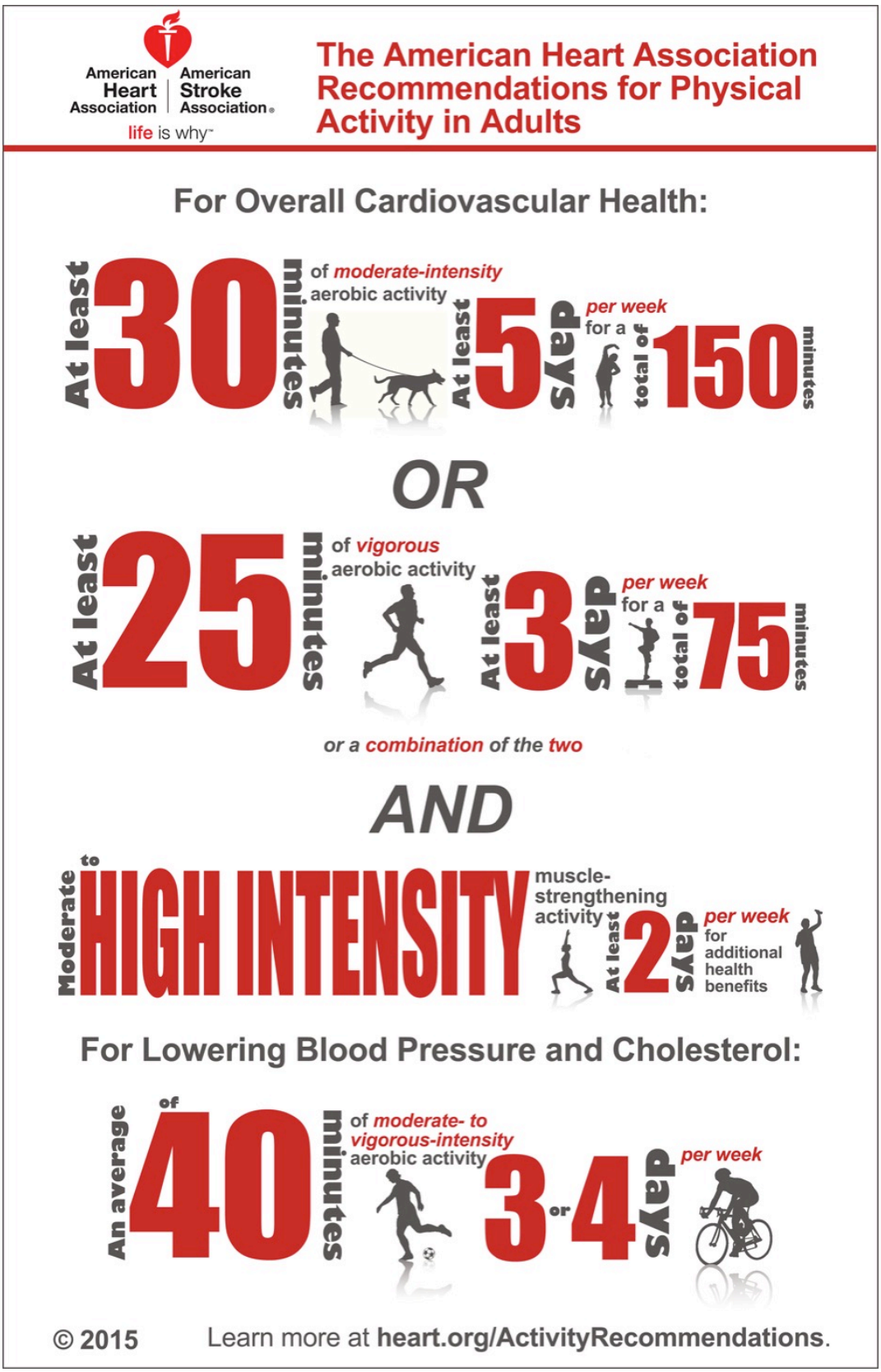
Sodium can be sneaky! Breakfast, lunch, dinner, and snacks can add up to more than 4,000 mg of sodium for the day. Throughout the day, the average American consumes nearly 3,500 mg of sodium for the day. That is more than two times the amount recommended by the American Heart Association. Too much sodium can be risky for your health. Thankfully, meals with lower sodium can be just as delicious and can keep your sodium in check.

You deserve the right to take back control of the sodium in your food. The first step? Watch for the hidden sodium in food, then take action and make your voice heard by telling the food industry that you want healthier foods!

Here's how the sodium can add up:

Breakfast

(American Heart Association, n.d.)



(American Heart Association, n.d.)

Appendix I

Recruitment Materials

Quality Improvement Project Information Sheet

Hello! My name is Katlyn Hilton and I am a Doctor of Nursing Practice student at the University of Missouri, Kansas City. I would like to tell you about a project that I am working on and see if you are interested in participating. I am approaching you because I am looking for African American women aged 40 years and older at the clinic. This project is separate from the care you are receiving at your clinic and whether or not you decide to participate will not affect your care.

My project seeks to reduce risk for cardiovascular (heart) disease in African American women through education on diet, exercise, and weight loss. The project uses several educational methods including a brief conversation during your patient care visit, several informational handouts, an activity log, a follow-up phone call monthly for three months, and a follow-up visit after three months. The purpose of the study is to determine if this education can be used to reduce risk for cardiovascular disease. Your name and other personal identifiers will not be used in the project and all information will be kept confidential.

Should you have any questions about the project, please feel free to call or email me. I appreciate your consideration and help with my quality improvement project. Thank you!

Katlyn Hilton, RN, BSN, Doctor of Nursing Practice student

Appendix J

IRB Approval Letter

UMKC
Office of Research Services

UMKC
5319 Rockhill Road
Kansas City, MO 64110
TEL: (816) 235-5927
FAX: (816) 235-5602

NOT HUMAN SUBJECTS RESEARCH DETERMINATION

Principal Investigator: Dr. Lyla Lindholm
UMKC Health Sciences Building
Kansas City, MO 64108

Protocol Number: 17-241
Protocol Title: Reducing Risk for Cardiovascular Disease in African American Women
Type of Review: Not Human Subjects Determination

Date of Determination: 08/08/2017

Dear Dr. Lindholm,

The above referenced study, and your participation as a principal investigator, was reviewed and determined to be Not Human Subjects Research (NHSR). As such, your activity falls outside the parameters of IRB review. You may conduct your study, without additional obligation to the IRB, as described in your application.

The NHSR Determination is based upon the following Federally provided definitions:

"Research" is defined by these regulations as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge."

The regulations define a **"Human Subject"** as "a living individual about whom an investigator (whether professional or student) conducting research obtains: data through intervention or interaction with the individual, or identifiable private information."

Attachments include the following:
Hilton, Project Approval Faculty Letter, 07 10 2017.pdf; RecruitmentFlyer.pdf; Project Information Sheet, Hilton.docx

All Human Subjects Research must be submitted to the IRB. If your study changes in such a way that it becomes Human Subjects Research, please contact the Research Compliance office immediately for the appropriate course of action.

Please contact the Research Compliance Office (email: umkcirb@umkc.edu; phone: (816)235-5927) if you have questions or require further information.

Thank you,

Crystal Simonis
UMKC IRB Administrative Office

Appendix K

Measurement Tool

ASCVD Risk Assessment Calculator	
Risk Factors needed to calculate 10-year and lifetime risk of ASCVD	
Gender	Male or Female
Age	Years
Race	African American, White, or Other
Systolic Blood Pressure	mmHg
Treatment for Hypertension	Yes (y) or No (n)
Smoker	Yes (y) or No (n)
Diabetes	Yes (y) or No (n)
HDL	Mg/dL
Total Cholesterol	Mg/dL
10-Year Risk and Lifetime Risk Risk score is derived from an equation that takes all risk factors into account	

(ACC, n.d.)

*Permission not needed for use of ASCVD risk calculator.

Appendix L

Data Collection Template

Variables
Cardiovascular risk score (10 year)
BMI
Lipids- LDL HDL TC
Hemoglobin A1C
Waist circumference (in)
Systolic Blood Pressure
Gender
Age
Race
Smoking (y/n)
Change in smoking status (no change; quit smoking; decreased smoking; increased smoking and non-smoker)
Treatment for hypertension (currently taking; added during intervention; changed during intervention; not taking)
Insurance (insured or not)
Minutes of exercise per week
Type of exercise (walking, running, biking, swimming, marching in place, other)
Servings of fresh fruit and vegetables per day
Servings of lean meats
Number of times eating out per week

Appendix M

Statistical Analysis Results

Descriptive Statistics

Table 1.1 Insurance Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	9	23.1	23.1	23.1
	no	30	76.9	76.9	100.0
	Total	39	100.0	100.0	

Table 1.2 Age

	N	Minimum	Maximum	Mean	Std. Deviation
age	39	40	65	52.97	7.121

Table 1.3 Goal Met

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	11	28.2	61.1	61.1
	no	7	17.9	38.9	100.0
	Total	18	46.2	100.0	
Missing	System	21	53.8		
Total		39	100.0		

Table 1.4 Change in Smoking Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No change	10	25.6	45.5	45.5
	Decrease in smoking	1	2.6	4.5	50.0
	Non-smokers	11	28.2	50.0	100.0
	Total	22	56.4	100.0	
Missing	System	17	43.6		
Total		39	100.0		

Wilcoxon Signed Ranks Test

Table 2.1 Change in Hypertension Treatment and Exercise Type

	Htntx_pre- htntx_post	Exercisetype_pre - exercisetype_post
Z	-1.000[b]	-1.000[c]
Asymp. Sig. (2-tailed)	.317	.317
Exact Sig. (2-tailed)	1.000	1.000
Exact Sig. (1-tailed)	.500	.500
Point Probability	.500	.500

Table 2.2.1 Additional Outcome Measures, pre-post

	N	Mean	Std. Deviation	Minimum	Maximum
Cvriskscore_pre	37	12.692	10.4972	.2	48.0
cvriskscore_post	5	.960	.6877	.2	2.0
Bmi_pre	39	37.0408	9.91616	26.36	60.75
bmi_post	22	35.6259	8.71067	26.75	60.22
Ldl_pre	36	129.72	55.736	52	388
ldl_post	5	97.60	20.671	71	118
Hdl_pre	37	63.05	35.161	30	225
hdl_post	5	62.60	18.582	35	87
Tc_pre	37	205.11	42.248	30	280
tc_post	5	178.80	19.228	151	197
hbga1c_pre	37	6.692	2.0328	4.9	13.0
hbga1c_post	7	7.143	1.0114	5.5	8.7
Waistcircum_pre	39	46.664	8.7486	33.5	70.0
waistcircum_post	13	43.115	4.3405	37.0	51.0
Sbp_pre	39	136.90	18.300	105	174
sbp_post	22	133.64	17.727	102	179
Exerciseminwkly_pre	39	57.82	99.166	0	360
exerciseminwkly_post	13	63.85	86.075	0	300
Servingsfnvdaily_pre	39	1.28	1.255	0	5
servingsfnvdaily_post	13	2.38	1.557	1	7
Servingslmwkly_pre	39	2.56	1.744	0	7
servingslmwkly_post	13	3.46	1.664	2	7
Eatingoutwkly_pre	39	1.28	1.123	0	4
eatingoutwkly_post	13	1.00	.816	0	3

Table 2.2.2 Change in CV Risk Score, BMI, LDL, HDL, TC

	cvriskscore_post – cvriskscore_pre	bmi_post – bmi_pre	ldl_post – ldl_pre	hdl_post – hdl_pre	tc_post – tc_pre
Z	-.447[b]	-.487[c]	-1.753[b]	-.944[b]	-2.023[b]
Asymp. Sig. (2-tailed)	.655	.626	.080	.345	.043
Exact Sig. (2-tailed)	1.000	.639	.125	.438	.063
Exact Sig. (1-tailed)	.500	.320	.063	.219	.031
Point Probability	.250	.006	.031	.063	.031

Table 2.2.3 Change in Waist Circumference, SBP, Exercise, Servings

	hbga1c_post - hbga1c_pre	waistcircum_post-waistcircum_pre	sbp_post – sbp_pre	exerciseminwkly_post-exerciseminwkly_pre	servingsfnvdaily_post – servingsfnvdaily_pre
Z	-.405[b]	-.197[c]	-.261[c]	-1.753[c]	-2.496[c]
Asymp. Sig. (2-tailed)	.686	.844	.794	.080	.013
Exact Sig. (2-tailed)	.813	.873	.805	.125	.020
Exact Sig. (1-tailed)	.406	.436	.402	.063	.010
Point Probability	.094	.021	.006	.031	.009

Table 2.2.4 Change in Servings Weekly, Eating Weekly

	servingslmwkly_post – servingslmwkly_pre	eatingoutwkly_post – eatingoutwkly_pre
Z	-2.121[c]	-1.890[b]
Asymp. Sig. (2-tailed)	.034	.059
Exact Sig. (2-tailed)	.063	.125
Exact Sig. (1-tailed)	.031	.063
Point Probability	.031	.063

Appendix M

July 10, 2017

Members of UMKC Institutional Review Board
University of Missouri-Kansas City
Kansas City, MO 64108

Primary Project Site IRB

UMKC IRB or Primary Project Site IRB,

This letter serves to provide documentation regarding Katlyn Hilton's Doctor of Nursing Practice (DNP) Project proposal. Ms. Hilton obtained approval for her project proposal, *Reducing Risk for Cardiovascular Disease in African American Women*, from the School of Nursing DNP faculty committee on July 10, 2017.

If I can provide any further information, please feel free to contact me.

Sincerely,

Susan J. Kimble, DNP, RN, ANP-BC, FAANP
Clinical Associate Professor
DNP Programs Director
UMKC School of Nursing and Health Studies
816-235-5962
kimbles@umkc.edu