

Breast and Cervical Cancer Screening in African American Women After Multiple Interventions
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Abstract

African American women are consistently diagnosed at later stages of breast and cervical cancer than Caucasian women, leading to increased morbidity and mortality rates. Although the mammogram and Papanikolaou (Pap) smear are the two most effective screening tests for these cancers, African American women have suboptimal rates of participation in these tests. The purpose of this doctor of nursing practice project was to determine if multi-component interventions increase breast and cervical cancer screening rates among African American women at a primary care clinic in an urban community. This quasi-experimental study included 15 African American women aged 40 and older at a primary care clinic in an urban community. The evidence based interventions included patient education, follow-up reminder phone calls, and informational patient handouts. The primary outcome for this project was the receipt of a screening mammogram and Pap smear. The secondary outcome for this project was change in patient intention to obtain breast and cervical cancer screening utilizing pre-and post-questionnaires developed from the Theory of Planned Behavior. This project resulted in three women overdue for breast cancer screening obtaining recommended mammograms, and zero women overdue for cervical cancer screening obtaining a Pap smear. There was no significant change in intention to obtain breast and cervical cancer screening. The goal of this project was to increase participation in both breast and cervical cancer screening in African American women, ultimately leading to reduced morbidity and mortality.

Keywords: breast and cervical cancer, cancer screening guidelines, African American women, participation in cancer screening, barriers to cancer screening, Theory of Planned Behavior, evidence-based practice

Breast and Cervical Cancer Screening in African American Women After Multiple Interventions

Breast cancer is the most common cancer among women with one in eight women in the United States (U.S.) expected to receive this diagnosis during her lifetime (DeSantis et al., 2016). Furthermore, although cervical cancer is the easiest cancer to prevent and treat, it is diagnosed in over 12,000 women each year (Centers for Disease Control and Prevention [CDC], 2014). It contributes to over 4,000 deaths yearly (CDC, 2014).

Economic, Policy, and Health System Significance

In addition to morbidity and mortality considerations, breast and cervical cancer have economic impacts. Montero, Eapen, Gorin, and Adler (2012) reported breast cancer may be the most expensive cancer to treat in the U.S., accounting for \$16.5 billion in health care expenditures in 2011. Similarly, Yabroff, Lund, Kepka, and Mariotto (2012) stated breast cancer had the highest cancer prevalence costs, at \$16.5 billion per year, followed by \$14.1 billion for colorectal cancer, and \$12.1 billion each for lymphoma and lung cancer. The cost of cervical cancer treatment at six months after diagnosis was \$3,807 for local stage disease and nearly \$36,000 for distant stage disease, emphasizing the impact of early detection on health care spending (Subramanian et al., 2010).

Cancer also has significant psychological consequences. Fallowfield and Jenkins (2014) found common complaints from breast cancer treatment threaten a woman's quality-of-life and include lymphedema, fatigue, vasomotor complaints, sexual dysfunction, and cognitive impairment. Women with metastatic breast cancer reported challenges of being unable to work, emotional strain from frequent medical appointments, guilt from missing out on social plans, devastation from hair loss, and family member distress (Fallowfield & Jenkins, 2014). Similarly, Ferrandina et al. (2012) studied the impact of cervical cancer treatment, and the findings

reinforced the profound implications this disease can have on a woman's self-identity and body image. Sexual dysfunction and menopausal symptoms were discovered to have some of the greatest repercussions on quality-of-life in women with cervical cancer (Ferrandina et al., 2012).

Fortunately, screening programs are successful in detecting both breast and cervical cancer at earlier, more treatable stages and can lead to increased survival rates (Bazargan et al., 2015; Sabatino et al., 2012). The screening mammogram is the most effective method for early identification of breast cancer, while the Papanikolaou (Pap) smear is the best way to detect cervical cancer (Damiani et al., 2015). However, despite recommendations by the United States Preventive Services Task Force (USPSTF) for population-based breast and cervical cancer screening, screening rates in 2010 for breast and cervical cancer were suboptimal at 73% and 83%, respectively (Escoffery et al., 2014; Sabatino et al., 2012).

Local Issue

Kansas City has one of the three largest concentrations of African Americans in Missouri (Missouri Foundation of Health, 2013). Also in Kansas City, the black-to-white ratio of breast cancer mortality between 1999 and 2009 ranged from 1.09 to 1.34 (Hunt, Whitman, & Hulbert, 2014). These numbers ranked Kansas City 20th of major cities with the highest breast cancer disparities between African American and Caucasian women in the U.S. (Hunt et al., 2014). In Missouri in 2013, nearly one-fifth of African American women had not received cervical cancer screening within the past three years (Missouri Foundation of Health, 2013). At that time, the mortality rate of breast and cervical cancer in Missouri was 21.9 and 2.9 out of 100,000 women, respectively (CDC, 2016a, 2016b). Accordingly, Missouri has the eleventh highest rate of breast cancer and the ninth highest rate of cervical cancer in the country, although mortality data for cervical cancer was not available for all states (CDC, 2016a, 2016b).

Diversity Considerations

Disparities in cancer outcomes are evident across minority populations, and the overall five-year survival rate is lower among minorities when compared to non-minorities (Knobf et al., 2007). Moreover, there are racial disparities in breast and cervical cancer screening adherence (DeSantis et al., 2016; Kasting et al., 2017; Reiter & Linnan, 2011; Roman et al., 2014). African American women have reduced odds (0.81) of using screening mammography as compared to Caucasian women (Ahmed et al., 2017). These disparities contribute to a breast cancer mortality rate 42% higher and a cervical cancer mortality rate 50% higher in African American women than in Caucasian women (DeSantis et al., 2016; Subramanian et al., 2010). In the U.S., mortality issues are exacerbated by the fact that African American women have the highest rates of distant stage disease at diagnosis for both breast and cervical cancer (Jerome-D'Emilia & Suplee, 2015; Daley et al., 2013; Subramanian et al., 2010; Wheeler, Reeder-Hayes, & Carey, 2013).

Other important diversity considerations include understanding that poverty, lower levels of educational achievement, and lack of health insurance are associated with lower rates of survival from cancer (DeSantis et al., 2015; Knobf et al., 2007; Wheeler et al., 2013). African American women are disproportionately poor and uninsured as compared to Caucasian women (Hunt et al., 2014). Breast cancer screening rates for insured women were 70% in 2013 while for uninsured women the rate was only 38% (Susan G. Komen, 2017).

Problem and Purpose

When compared to Caucasian women, African American women have the highest rates of late-stage breast and cervical cancer diagnoses and significantly higher mortality rates (Daley et al., 2013; Wheeler et al., 2013). Although mammograms and Pap smears are the most

important tools for early detection of breast and cervical cancer, many African American women are not obtaining these routine screenings (Escoffery et al., 2014; Sabatino et al., 2012). African American women are also disproportionately poor and underinsured, aggravating the issue of low participation in cancer screening (Hunt et al., 2014).

This issue is timely as Healthy People 2020 recognized breast and cervical cancer in their objectives, addressing the following goals: to reduce the female breast and cervical cancer rate, to reduce late-stage invasive female breast and cervical cancer, to increase the proportion of women who receive breast and cervical cancer screening based on the most recent guidelines, and to increase the proportion of women who are counseled by their providers about mammograms and Pap smears (Office of Disease Prevention and Health Promotion [ODPHP], 2016). The primary purpose of this Doctor of Nursing Practice (DNP) project was to determine if multi-component interventions increase breast and cervical cancer screening rates among African American women at a primary care clinic. A secondary purpose of this DNP project was to discover if multi-component interventions increase intention to obtain breast and cervical cancer screening in African American women at a primary care clinic.

Facilitators, Barriers, and Sustainability

A key barrier for this DNP project was provider support for changing current practice. Providers must be committed to change for project success. Providers may have been unwilling to spend additional time during appointments to perform further patient education. Another barrier was the potential for low-income women to lack a permanent phone number, preventing the phone call intervention from being successful. Lack of insurance and access to screening was also a potential barrier even if the participant was motivated to undergo screening.

Furthermore, lack of on-site breast cancer screening services could have been a barrier for participants with transportation issues.

A key facilitator to this DNP project was support from national guidelines for the recommended screenings, along with the project's alignment with Healthy People 2020 objectives. This project was low-cost; providers could perform Pap smears in the office. Also, it was helpful to use the clinic's providers in their current roles. Sustainability depends on provider willingness to commit to change by continuing to spend time performing additional patient education and follow-up calls. Calls may be performed by alternative staff in the future.

Review of Evidence

PICOTS and Search Strategies

The PICOTS question for this study was the following: In African American women aged 40 and older, does providing multi-component interventions regarding breast and cervical cancer screening, compared to providing only a single strategy intervention increase participation in breast and cervical cancer screening over a six-month period in a primary care clinic? The literature review for this project included the following databases: PubMed, Medline, CINAHL through Ebsco, and the Cochrane Database of Systematic Reviews. Key words used for searching were *breast cancer, cervical cancer, screening mammography, cervical cancer screening, Pap smear testing, barriers to cancer screening, screening guideline adherence, and interventions to increase cancer screening participation.*

The search yielded the following relevant studies: nine level-one evidence studies of systematic reviews and evidence-based guidelines, six level-two evidence studies (four randomized control trials, two systematic reviews of well-designed control trials), four level-three evidence studies (two quasi-experimental, two systematic reviews of quantitative studies),

16 level-four evidence studies (six correlational, ten cross-sectional), three level-five evidence systematic reviews of quantitative descriptive studies, and eight level-six evidence studies (one single quantitative descriptive, seven qualitative; Melynk & Overholt, 2015, adapted). Inclusion criteria consisted of studies published year 2000 and later and studies addressing barriers, facilitators, and methods for increasing participation in cancer screening. Studies were excluded if they were published prior to year 2000, did not include either breast or cervical as one of the types of cancers addressed, exclusively examined follow-up of abnormal screening tests, or explored diagnostic mammograms only.

Evidence by Sub-Topics

Poor understanding of screening guidelines. Professional organizations have varying recommendations for breast cancer screening. The USPSTF recommends biennial breast cancer screening for women between ages 50 and 69; regular screening in women aged 40 to 49 should be based on individual choice and risk (Siu, 2016). The American Cancer Society (ACS) recommends annual breast cancer screening beginning at age 45 (Oeffinger, Fontham, & Etzioni, 2015), while the American College of Obstetricians and Gynecology (ACOG) (2011) recommends annual breast cancer screening for women beginning at age 40. Women are generally confused by breast cancer screening recommendations (Allen et al., 2012, Carney, Harwood, Greene, & Goodrich, 2000; Haas et al., 2015; Hall & Johnson-Turbes, 2015). Poor understanding of breast cancer screening and recommended guidelines present a major barrier to obtaining regular screening (Damiani et al., 2015; Hanson, Montgomery, Bakker, & Conlon, 2009; Tolma, Stoner, Kim, & Englemen, 2014).

Alternatively, cervical cancer screening recommendations among the USPSTF, ACS, and ACOG are similar and broadly endorsed (Haas et al., 2015). Screening for cervical cancer is not

recommended prior to age 21 or after age 65, screening via Pap smear cytology is recommended every three years for those aged 21 to 29, and screening via Pap smear and Human papilloma virus testing is recommended every five years for those aged 30 to 65 (Moyer, 2012; Saslow et al., 2012). Women of ethnic minorities and underserved populations demonstrated a lack of understanding of cervical cancer, Pap smear screening purposes, and screening guidelines (Daley et al., 2013; Kasting et al., 2017; Marlow, Waller, & Wardle, 2014).

Association of low health literacy, low self-efficacy, and decreased screening. Lower health literacy is associated with reduced adherence to breast cancer screening (Fernandez, Larson, & Zikmund-Fisher, 2016; Roman et al., 2014; Sentell, Braun, Davis, & Davis, 2015). Roman et al. (2014) studied health literacy in African Americans and found lower health literacy was associated with a reduced odds ratio of having a mammogram within the past year and a Pap smear within the past three years. Furthermore, less than half of African American women had adequate breast and cervical cancer literacy (Roman et al., 2014). Comparably, lower educational level was identified as a barrier to breast and cervical cancer screening exclusively in African Americans (Highfield, Bartholomew, Hartman, Ford, & Balihe 2014; Reiter & Linnan, 2011).

Self-efficacy was higher among African American and urban minority women who had received a screening mammogram (Hall & Johnson-Turbes, 2015; Jerome-D'Emilia & Suplee, 2014; Melvin, Jefferson, Rice, Cartmell, & Halbert, 2016). African American women who were less confident in their ability to obtain a mammogram were nearly two and a half times more likely to have not been screened (Melvin et al., 2016). Counseling modules targeted toward self-efficacy demonstrated movement at least one stage higher toward obtaining a mammogram in most participants using the Precaution Adoption Process Model (Costanza et al., 2009).

Healthcare provider influence. Healthcare providers play a crucial role in encouraging women to have breast and cervical cancer screening. In fact, lack of recommendation by a physician is a barrier to obtaining screening mammography in minority women (Carney et al., 2005; Hanson et al., 2009; Lopez, Khoury, Dailey, Hall, & Chisholm, 2009; Reiter & Linnan, 2011; Roman et al., 2014). Furthermore, suggestion by a healthcare provider to have a mammogram is a facilitator for participation in breast cancer screening (Garbers & Chiasson, 2005, Highfield et al., 2014). Equally, receiving advice from physicians about cervical cancer screening can increase Pap smear rates (Bazargan et al., 2015; Sabatino et al., 2012). Most women reported they would obtain a screening mammogram and Pap smear if recommended by their provider (Reiter & Linnan, 2011). Yet, over 25% of women did not receive a provider recommendation for cervical or breast cancer screening (Garbers & Chiasson, 2005; Reiter & Linnan, 2011).

Reiter and Linnan (2011) discovered women who reported having a Pap smear within the past year were more likely to also report having a mammogram within the past year. This suggests women who have one form of screening are more likely to be accepting of other screenings (Reiter & Linnan, 2011). Moreover, among African American women, feelings of mistrust and discrimination of the medical system may exist, creating another barrier for undergoing screening (Highfield et al., 2014; Shelton, Goldman, Emmons, Sorensen, & Allen, 2011). However, creating a trusting relationship with a healthcare provider may increase odds of African American women adhering to recommended health behaviors (Highfield et al., 2014; Shelton et al., 2011).

Use of phone calls to increase participation in screening. Phone call interventions can increase participation in screening mammography (Camilloni et al., 2013; Cosp, Castillejo, Vila,

Marti, & Emparanza, 2016; Costanza et al., 2009; DeFrank et al., 2009; Feldstein et al., 2009; Gardner, Adams, & Jeffreys, 2013; Highfield et al., 2014; Sabatino et al., 2012; Taplin et al., 2000). Both reminder calls and motivational calls were more effective than postal reminders (Camilloni et al., 2013; Carney et al., 2000; DeFrank et al., 2009; Taplin et al., 2000). Reminder calls involved a simple call to prompt scheduling of mammograms while motivational calls led to further counseling (Taplin et al., 2000).

Women who received calls in which providers addressed barriers to mammography and delivered counseling were more likely to have a mammogram than those who received mailed information (Carney et al., 2000; Costanza et al., 2009; Taplin et al., 2000). However, it could be the receipt of a call from one's provider and not necessarily the content of the call that serves as the motivator (Carney et al., 2000; Taplin et al., 2000). In fact, reminder calls or messages delivered by the patient's healthcare provider may potentially foster a trusting relationship through two-way communication and lead to patient motivation in performing recommended health screenings (Carney et al., 2000; Feldstein et al., 2009; Highfield et al., 2014).

Counseling calls likely require highly trained staff and may be less cost effective, especially since reminder calls alone can boost screening adherence (DeFrank et al., 2009; Feldstein et al., 2009; Taplin et al., 2000). Moreover, Feldstein et al. (2009) followed automated telephone reminders with live calls for women who continued to fail to respond to scheduling mammogram appointments and found those who received the intervention were one and a half times more likely to obtain a mammogram than the control group. Phone reminders may be considered evidence-based practice (EBP; Camilloni et al., 2013; Hitzeman & Xavier, 2012).

Some evidence also suggested reminder calls were effective in increasing adherence to Pap smear testing (Albrow et al., 2014, Rashid, Mohamed, Hamid, & Dahlui, 2013; Hitzeman &

Xavier, 2012). Sabatino et al. (2012) reported phone reminders have a greater effect than unenhanced, printed reminders. Furthermore, though letters had a greater chance of reaching patients, calls had a higher chance of increasing the uptake of Pap smear testing, reinforcing the significance of direct communication (Rashid et al., 2013).

Effects of using multiple interventions on participation in screening. Combination interventions may positively affect participation in cancer screening as compared to single-component interventions (Bailey, Delva, Gretebeck, Siefert, & Ismail, 2005; Camilloni et al., 2013; Cosp et al., 2016; Escoffery et al., 2014; Gardner et al., 2013). Gardner, Adams, and Jeffreys (2013) found using multiple interventions led to a 21% increase in uptake of screening mammography as compared to single strategy interventions in African American women. Regarding low-income women, a key strategy to include in the intervention is one-on-one counseling such as tailored messages or reminders (Camilloni et al., 2013; Escoffery et al., 2014; Gardner et al., 2013). In the review, the authors defined one-on-one education to be accompanied by small media or a client reminder intervention and concluded strong evidence exists that one-on-one education is effective in increasing both breast and cervical cancer screening participation (Sabatino et al., 2012).

Moreover, results supported the use of calls as part of the multi-component intervention to increase participation in breast cancer screening (Bailey et al., 2005; Camilloni et al., 2013; Cosp et al., 2016). Camilloni et al. (2013) examined various combinations of letters and calls as compared to a standard of letter only and found the addition of the phone reminder was more effective in increasing participation in breast and cervical cancer screenings. Likewise, women who received both a letter and a call were about two and a half times more likely to respond to mammogram invitation versus the simple intervention (Cosp et al., 2016). The effectiveness of

using multiple interventions likely stems from the variety of content and increased exposure to messages (Bailey et al., 2005).

Lack of insurance and low-income as barriers to screening. Finally, a key barrier to obtaining regular breast cancer screening is lack of insurance (Alexandraki & Morradian, 2010; Hall & Johnson-Turbes., 2015; Hanson et al., 2009; Highfield et al., 2014; Jerome D’Emilia & Suplee, 2015; Melvin et al., 2016; Millon-Underwood & Kelber, 2015; Shelton et al., 2011). It is also a barrier to obtaining regular cervical cancer screening (Hitzeman & Xavier, 2012; Nolan et al., 2014). Likewise, low-income women are less likely to have regular screening mammography (Alexandraki & Morradian, 2010; Hanson et al., 2009; Millon-Underwood & Kelber, 2015). Akinlotan et al. (2017) discovered 61% of their 524 African American participants identified high cost as a barrier to undergoing a Pap smear.

Urban minority women with insurance were 4.8 times more likely to have received a screening mammogram than urban minority women without insurance (Jerome D’Emilia & Suplee, 2015). Interventions aimed to reduce financial barriers to obtaining screening mammograms also demonstrated success (Bailey et al., 2005; Highfield et al., 2014). One study simply educated participants about available funding for mammograms (Highfield et al., 2014).

Theory

The Theory of Planned Behavior (TPB) posits *intention* is the most significant determinant of behavior (Butts & Rich, 2015). The TPB bases intention on *attitude*, *subjective norms*, and *perceived behavioral control* and is readily applicable to health behaviors (Butts & Rich, 2015). Rutter (2000) applied the TPB to predict mammography screening attendance and re-attendance three years later. The leading beliefs predicting participation in mammography screening were trusting screening would lead to an early diagnosis if breast cancer was present,

keeping the appointment would be easy, and family thinking the woman should be screened (Rutter, 2000). At the one-month mark, 64% of participants followed-through with receiving a screening mammogram after saying they intended to obtain as compared to only 14% in the control group (Rutter, 2000).

The TPB concepts were applied to this project. Attitude was defined as a woman's ideas about the consequences of obtaining a screening mammogram and Pap smear. Negative attitudes among African American women toward mammography screening may stem from a lack of trust in the health care system and the providers (Shelton et al., 2010). Subjective norms were defined as a woman's perceptions of whether her family and friends approve of her undergoing recommended screenings. Women who had encouragement from significant others were more likely to obtain a screening mammogram (Hanson et al., 2009).

In this project, perceived behavioral control was defined as the woman's beliefs regarding her capability to obtain a mammogram and Pap smear. Women were more likely to have a screening mammogram if they encountered fewer barriers at the clinic related to the referral process, scheduling a mammogram, and waiting for an appointment (Tolma et al., 2014). Finally, behavioral intention was defined as a woman's plans to participate in breast and cervical cancer screening, while the behavior itself was obtaining the screenings (see Appendix D).

Methods

IRB, Site, Ethical Issues, and Funding

The setting for the project was a primary care clinic that predominantly serves low-income African Americans in an urban community. This was an evidence-based quality improvement (EBQI), which aimed to use existing evidence to improve health care delivered to patients (Moran, Burson, & Conrad, 2017). Human subjects were used but with low-risk. This

project classified as Not Human Subjects Research and received approval from the University of Missouri-Kansas City institutional review board (IRB; see Appendix J).

An ethical concern in this project was beneficence, and the provider aimed to act in consideration of the participant's best interests (Terry, 2015). While EBQI studies seek to improve health care outcomes with minimal risk imposed on the participants, it was important to consider continuation of standard care might be unethical. For example, providers must ensure equal access to healthcare resources for vulnerable populations (Wheeler et al., 2013). Thus, providing informational handouts to only some patients could have been perceived as unethical. Therefore, past electronic medical records (EMRs) were reviewed to compare pre- and post-intervention data instead of using a control group. This presented the ethical principal of confidentiality, and the student investigator (SI) took measures to uphold the Privacy Rule of the Health Insurance Portability and Accountability Act by obtaining IRB approval prior to accessing EMRs and collecting all information anonymously. There are no conflicts of interest between the SI and this project.

Anticipated costs for this project were low and included printed copies of informational brochures and questionnaires. A conceivable source of greater expenses was from a training session with the clinic staff if they were not willing to volunteer their time. A potential source of funding was through a Susan G. Komen Foundation grant. Another anticipated expense was providing snacks at the staff training session (see Appendix A).

Setting and Participants

Inclusion criteria for participants in this study consisted of age 40 and older, African American, and female. Exclusion criteria for participants in this study for the breast cancer screening component included screening mammogram within the past year or double

mastectomy. Exclusion criteria for participants in this study for the cervical cancer screening component included previous hysterectomy with removal of cervix and screening Pap smear within the past five years.

The sampling method chosen for this project was convenience sampling. This method involved selecting patients who were easily available, which can lead to researcher bias; however, convenience sampling was useful for the DNP project, which examined a specific population of interest (Terry, 2015). According to a power analysis using power .8, medium effect, and .05 alpha, a goal of 51 participants was set for the study.

EBP Intervention

The EBP intervention for this project was multi-faceted and included patient education, informational brochures, and follow-up reminder phone calls. Institutional review board approval was obtained in July 2017. Following IRB approval, the SI held a training session for all involved clinic staff including the nurse practitioner and the front desk staff. During this one-to two-hour session, the SI presented the project, emphasizing the need for change and reviewing the current evidence. The SI explained what each staff member was responsible for completing and ensured each understood his or her role in the project through a question and answer session. Also during July, the SI guaranteed all supplies were purchased and ready for use at the clinic, including the printed informational brochures and questionnaires, new pens, and clipboards.

Data collection began in August. Throughout the intervention and data collection period, the SI reviewed the EMR weekly to determine which patients scheduled for appointments met eligibility criteria. These charts were flagged so the provider knew which patients should receive the intervention. This project was deemed Not Human Subjects Research, so participant consent was not required (see Appendix I for recruitment letter). Also upon arrival, eligible patients

received a questionnaire to complete. This questionnaire, which served as the pre-test, was based upon Ajzen's TPB and helped determine the patient's intent to obtain a screening mammogram and Pap smear prior to the EBP intervention. The questionnaire specific to breast cancer screening was developed by Rutter (2000) and the questionnaire specific to cervical cancer screening was developed by Roncancio, Ward, and Fernandez (2013). Each was created according to Ajzen's outline for questionnaire development and have already been used in patient settings to determine a woman's intention to obtain a screening mammogram and Pap smear. Outcomes from both studies revealed intention aligned with behavior.

The first component of the EBP intervention was patient education and occurred during the participant's appointment, regardless of her chief complaint. This education was completed by each provider and specifically reviewed the breast and cervical cancer screening guidelines according to the ACOG. During the education, the provider also explicitly stated her recommendation for the patient to undergo these screenings. If the patient agreed to a Pap smear, this was completed during her appointment. At the end of the appointment the provider performed the second component of the intervention by giving the participant an informational brochure (see Appendix H). This brochure reviewed the ACOG guidelines and listed several phone numbers the patient could call to determine if she qualified for free or low-cost breast and cervical cancer screening as well as where she could receive this screening locally. Prior to leaving the clinic, the participant was asked to repeat the questionnaire, serving as the post-test to measure the participant's change in intention after the intervention.

The final component of the EBP intervention was a follow-up reminder phone call. The calls occurred one week after the participant's appointment and were completed by the SI. During these reminder calls, the SI introduced herself, explained her relationship to the clinic,

and asked if the participant had scheduled her screening mammogram and Pap smear. If the patient had not, the SI again encouraged the participant to obtain the recommended screenings. The EBP intervention and data collection continued for six months, ending in February 2018. Data analysis began in February 2018 and was completed by the SI. Outcome measurement consisted of evaluating intention to obtain screenings from the pre-and post-questionnaires and reviewing the participant's EMR to determine if records indicated that screenings were obtained (see Appendices A, F, and G).

Change Process and EBP Model

The change process model selected for this project was the Transtheoretical Model (TTM) because it examined a patient's willingness to participate in certain health behaviors such as recommended cancer screening. In the TTM, the decision to engage in a given behavior is viewed as a process instead of an all-or-nothing phenomenon (Choi, Chung, & Park, 2013). The TTM includes five stages of change and states although a patient may not overtly change behavior, the person may still be moving in the direction of behavior change (Choi et al., 2013). The TTM emphasizes self-efficacy which was a prevalent concept regarding participation in cancer screening (Choi et al., 2013). Choi, Chung, and Park (2013) applied the TTM to predict adult's behavior in preventive cancer behaviors and found self-efficacy predicted higher-stages of readiness for behavior change.

The EBP model selected to use for this project was the Model for Evidence-Based Practice Change. Authors developed this model arguing providers should not rely only on their own clinical experience, pathophysiologic rationale, and opinions to guide their practice, but they must also apply EBP (Rosswurm & Larrabee, 1999). There are six steps for creating clinical practice change: assessing the need for change, locating evidence, critically examining

the evidence, designing practice change, implementing and evaluating the change in practice, and integrating and maintaining the change in practice (Rosswurm & Larrabee, 1999). Rosswurm and Larrabee (1999) said these steps taken to implement evidence-based methods into clinical practice can maximize quality and cost-effectiveness (Rosswurm & Larrabee, 1999).

In addition to these two models, this project applied the Kotter and Cohen's Model of Change. This model asserts the key to organizational change is rooted in appealing to an individual's emotions (Melnyk & Fineout-Overholt, 2015). There are eight steps to promote successful change: urgency, team selection, vision and strategy, communicating the vision, empowerment, interim successes, ongoing persistence, and nourishment (Melnyk & Fineout-Overholt, 2015). A change model was necessary because providers needed to be willing to participate for the interventions to be successful. It was crucial for them to feel emotionally connected to the project before becoming fully engaged to contribute to sustainability.

Study Design

The study design for this DNP project was quasi-experimental with convenience sampling (Terry, 2015). There was no control group; the sample of participants was compared to their own pre-intervention behavior. Furthermore, there was a pre- and post-test component to this study through analysis of intent to obtain screening. Quasi-experimental study designs are useful when a true experimental design may be unethical such as withholding EBP (Terry, 2015).

Key factors anticipated to influence the internal validity of this project included history, testing, selection, and attrition. History is an extraneous factor that could affect the study results if participants were exposed to messages about breast and cervical cancer screening from other sources. Examples of other sources are family, friends, commercials, advertisements, or

magazines. Pretesting may influence the study results if the participants were informed of the study prior to implementation (Terry, 2015). Understanding the study purpose may influence the participant's behavior and lead to the threat of selection which occurs when the population is not selected randomly (Terry, 2015). Last, attrition occurs when participants drop out of the study, leading to a smaller sample size and skewing results, and this could occur if participants did not answer their phone for the follow-up call or did not complete the post-test questionnaire. Plans were made to minimize the threats to internal validity by shortening the duration of the intervention, recruiting more participants than needed, and selecting measurement tools with satisfactory reliability scores.

External validity may have been compromised in this project which fostered a homogenous sample with increased internal validity. This study's sample consisted of African American females aged 40 and older residing in an urban community, which represented a small portion of the entire population. Furthermore, it was a convenience sample and is not likely generalizable to the population at large.

Measured Outcomes and Instruments

The primary outcome for this project was receipt of a screening mammogram and Pap smear. This was measured by performing regular EMR reviews to determine if results from the screenings had been posted. There was no validity or reliability for this measure. The SI obtained permission to review the patient's EMR, and no identifiers were collected. The secondary outcome for this project was the patient's change in intention to obtain a screening mammogram and Pap smear. This was measured using questionnaires based on the TPB. There was no standard questionnaire, but customized questionnaires had been previously constructed.

Rutter (2000) developed a questionnaire based on the TPB using a focus group to determine intent to obtain a screening mammogram. The Chronbach's alpha reliability scores were .76 for attitude, .86 for subjective norm, and .77 for perceived behavioral control (Rutter, 2000). Roncancio et al. (2013) created a similar questionnaire based on the TPB to assist in predicting the cervical cancer screening behavior among Latina women. The Chronbach's alpha reliability scores for this questionnaire were .85 for intention and 0.51 for subjective norms, attitude, and perceived behavioral control (Roncancio, Ward, & Fernandez, 2013). Validity was not reported for either questionnaire. Both questionnaires were provided and the authors of each questionnaire gave the SI permission for use via e-mail (see Appendix K, Appendix L).

Data Quality and Analysis Plan

A power analysis was performed to determine the necessary sample size for this project. Per the power analysis, a minimum of 51 participants was needed to achieve a high power of 0.8. Other variables in this power calculation included a medium effect and a significance level of 0.05.

The primary outcome (receipt of mammogram and Pap smear) was measured via yes/no responses, or dichotomous data. The McNemar test was used to analyze this data and to compare outcomes against national goals for breast and cervical cancer screening as stated by the ODPHP in the Healthy People 2020 objectives. The secondary outcome measure of change in intention to screen was determined via data collected from a pre-, post-test questionnaire using Likert-scales which are five-point scales. This was ordinal paired data and the statistical test used for analysis of this outcome was the Wilcoxon Signed-Ranks test. Demographic information collected included age, gender, race, and insurance status. This information was analyzed using descriptive statistics (see Appendices L and M).

Results

Settings and Participants

Between September 2017 and February 2018, 15 patients participated in this project. The participants were patients at a primary care clinic in an urban community. These participants were patients of two different healthcare providers, one physician and one nurse practitioner.

Descriptive statistics were used for analysis of demographic information collected which included age, gender, race, and insurance status. All 15 patients were female and identified as African American. Ages ranged from 44 to 78 with a mean age of 62; four participants were between the ages of 40 and 59, and 11 participants were aged 60 and older. Nine out of 15 participants (60%) had health insurance through Medicare and Medicaid, five participants (33.3%) were privately insured, and only one participant (6.7%) was uninsured.

Intervention Course

Once weekly, patients on the healthcare providers' schedules for the following week were screened for eligibility. The healthcare providers were given a list each week, which included eligible patients, the day and time of their appointment, and whether they were due for a screening mammogram, a Pap smear, or both. In addition to the list, the healthcare provider was given a packet for each patient, which contained a pre- and post-questionnaire and an educational brochure. Thirteen participants completed the pre-questionnaire in the waiting room prior to their visit, and two refused. During their office visit, all 15 patients received the brochure, education regarding screening guidelines, and encouragement by the healthcare provider to schedule a screening.

Nine participants completed the post-questionnaire immediately following their appointment. All 15 patients received a phone call between one and two weeks after their initial

appointment to follow-up regarding the information they received and to determine if they had further questions; two did not answer the phone call. Each participant was followed for six weeks after they received the phone call to determine if she had completed the recommended screening.

Outcome Data

The primary outcome for this study was receipt of screening mammogram and Pap smear. Because all participants were not current on either their breast or cervical cancer screening according to ACOG recommendations, this outcome measure is presented as a percentage of the participants who obtained their screenings within six weeks following the intervention. The national benchmark for the number of women who receive breast cancer screening stated in Healthy People 2020 goals is 81%, while the national benchmark for the number of women who receive cervical cancer screening is 93% (ODPHP, 2016).

Unfortunately, only three of the 14 participants (21%) who were overdue for breast cancer screening obtained a screening mammogram within six weeks of the intervention. Furthermore, zero of six patients overdue for cervical cancer screening obtained their Pap smear within the six-week time-period post-intervention. However, all charts were reviewed a final time the first week of March which showed two additional participants received their screening mammograms and one participant obtained her Pap smear. These were past the original six-week time limit post-intervention, so their screenings were not included in the final outcome analysis.

The secondary outcome, change in intention to obtain a screening mammogram, was determined via data collected from the pre-, post-questionnaire using the Wilcoxon Signed-Ranks test. One out of nine participants gave a higher rating after the intervention, meaning she reported a positive change in intention in obtaining a screening mammogram. Zero participants

reported a negative change in intention in obtaining a screening mammogram, while the remaining eight participants had no change in intention to obtain a screening mammogram after the intervention (see Appendix N). The change was not significant ($p = .317$) indicating there was no statistical significance.

Due to the small sample size and incomplete data, the Wilcoxon Signed-Ranks test was not used to determine change in intention to obtain cervical cancer screening. The question on the questionnaire that measured this read, *I intend to have a Pap exam in the next year*, and was answered on a five-point scale, with *one* meaning “strongly disagree” and *five* meaning “strongly agree.” There were only two participants due for a Pap smear who completed both the pre- and post-questionnaire. One participant had no change in intention, but strongly agreed both before and after the intervention that she intended to have a Pap smear. The other participant reported she strongly agreed she intended to have a Pap smear prior to the intervention, and answered *four* on the same question post-questionnaire.

There were several missing data components among the 15 participants. One participant’s pre- and post-questionnaire was lost by the medical assistant responsible for rooming the patient before the data was entered and saved. Four participants refused to complete the post-questionnaire due to time constraints. One participant only partially completed the pre-questionnaire but did finish the post-questionnaire. Another participant refused both the pre- and post-questionnaire. Thus, at the end of the intervention period, complete data was available for eight participants. Finally, two patients failed to answer the phone call after two attempts.

Discussion

Successes

The primary success in this project was motivating six out of 15 women to obtain breast and cervical cancer screening for which they were overdue. Other successes in this study resulted from the ability to provide a brief yet impactful touchpoint regarding the importance of recommending screening at every office visit. Both the physician and nurse practitioner provided important education in less than five minutes during the patient's visit. There indicates an opportunity in the ability to deliver efficient health promotion during office visits beyond preventive care due to the increased touchpoints with many patients overdue for certain health screenings. Another success resulted from the follow-up phone call that created another easy, inexpensive method of reaching the patient and reinforcing the message. It also contributed to building positive rapport between the patient and healthcare provider.

Study Strengths

One strength of this study was the geography of the clinic. The location of this clinic provided a population that included a high percentage of patients eligible for this study due to demographics. Resources strengthened this study as costs were economical for all intervention components. Finally, clinic staff were an asset because of their willingness to participate.

Components of this study varied in degree of success. For example, although participation was completely voluntary, all but three patients who were invited to participate agreed. Among the 15 patients who agreed, eight provided a complete data set. However, there were also 45 qualifying patients who did not participate mostly due to being no-shows, cancelling their appointments, or the healthcare provider failing to invite them. Furthermore, although staff and project facilitators agreed to help with the study, the organizational culture, which included teaching medical students and treating highly complex patients, resulted in reduced facilitator engagement in this project.

Results Compared to Evidence in the Literature

Results of this study do not mimic outcomes of similar studies. Prior studies found women were more likely to undergo breast cancer screening with provider recommendation. In this study, only three participants obtained a screening mammogram within six weeks despite fourteen participants receiving encouragement and specific recommendation from their provider. Similarly, several studies reported the use of multiple interventions helped increase the number of women who choose to have breast and cervical cancer screening, but this study found no significance in the number of women who underwent screening despite multi-component interventions. Another interesting finding in this study that did not align with prior studies was that most women reported self-efficacy in obtaining both breast and cervical cancer screening even though most did not follow-through with such screening. Literature suggested women with higher self-efficacy were more likely to obtain recommended health screenings.

Limitations

Internal Validity Effects

One major limitation to this study is the imprecision in EBP intervention processes. This was mostly due to lack of provider engagement. In fact, the healthcare provider did not invite 16 eligible patients to participate. When asked why, the healthcare provider noted those specific days to be extremely busy with higher priorities. The project facilitator also changed halfway through the study from a nurse practitioner to a physician, likely negatively affecting the precision of the intervention process.

Similarly, there was also a degree of bias embedded in the study that may have affected the emphasis the provider placed on the importance of scheduling a screening mammogram or Pap smear. This can be attributed to the fact that the facility followed screening guidelines put

forth by a different organization than the study selected. The healthcare facility supported screening mammography according to the USPSTF guidelines, which is every two years, instead of recommending screening mammography according to the ACOG, which is every year.

Attrition affected the study outcomes when questionnaires were lost, when patients refused to complete the pre- and post-questionnaires, and when participants failed to answer the follow-up calls. Finally, improper procedures concerning collection of data also limited the internal validity of this study. One participant's completed questionnaires were lost in transition between the medical assistant, healthcare provider, and SI before the answers could be recorded. This was attributed to the busy, fast-paced teaching environment of the clinic.

External Validity Effects

External validity was affected by the homogeneity of the patient population. The clinic provides care to an underserved population with medically complex patients. Patients who are medically complex may have competing and higher health care priorities; three patients who had been screened as eligible to participate were directly admitted to the hospital upon their visit. Likewise, two participants noted during their follow-up call that transportation may impede her ability to make it to her screening appointments. Also, most participants were covered under Medicare or Medicaid. This is not representative of all female African American populations.

Sustainability and Minimizing Study Limitations

Although this project did not achieve the expected outcomes, it was successful in motivating six women to undergo overdue routine health screenings who otherwise may not have considered it until their next preventive care visit. African American men and women are less likely than their white counterparts to use health services (Pullen, Perry, & Oser, 2014). Thus, if

components of the intervention are continued throughout all office visits there is potential for observed gains to improve over time.

This study has several limitations, most significantly a small sample size. Though all participants received most of the interventions, the poor completion rate of the questionnaires limited available data and hindered interpretation of the results. Another major limitation included the lack of provider engagement. This made it difficult to determine the degree of thoroughness put forth with the educational component of the intervention and limited the ability to determine actual impact of the project findings.

Interpretation

Expected and Actual Outcomes

Expected outcomes included an observed participation in breast and cervical cancer screening among participants who were overdue for their screenings. While there was an observed participation in breast cancer screening, it was minimal at 21%, and there was no observed participation in cervical cancer screening within six weeks of the intervention. It was also anticipated that the intervention would cause an increase in the participant's intention to undergo breast and cervical cancer screening. It was unexpected, then, that there was no statistically significant change in the participant's intention to undergo breast cancer screening.

Also, it was expected for all eligible patients to be invited to participate. Thus, it was unforeseen for 17 potential participants to be no-shows for their visit and for another six to cancel their appointment. Another unanticipated and problematic outcome was the project facilitator leaving the clinic half-way through the study resulting in a change in facilitator.

Several factors contributed to the differences between expected and actual outcomes. Expected outcomes relied on this project being a top priority in the clinic. Differences in

outcomes were likely due to the clinic and facilitator having a busy schedule with various competing priorities. It was planned to have at least 51 participants, and this likely would have been attained if patients did not miss their appointments. Also, participants who reported it would be difficult for them to obtain their screenings noted transportation, work responsibilities, and cost as barriers. Finally, actual change in behavioral intention may have been closer to expected change if the post-questionnaire was completed after the full intervention, instead of prior to the follow-up call component of the intervention.

Intervention Effectiveness and Revision

The most important outcome in this project was having six out of 15 patients participate in screening mammograms and Pap smears for which they were overdue, even if it was beyond the original six-week limit. These patients may otherwise have gone much longer before having their screenings. This study success likely stems from the component of the intervention that incorporated patient education and recommendation for screening at all office visits, regardless of chief complaint. Project interventions are likely to be effective in a setting similar to the clinic used in this study because it contained a high number of qualifying patients.

Modifications to improve potential outcomes in this study include finding a clinic that applies the same screening guidelines or changing participant qualification criteria to only contain women overdue for screening mammography by at least two years. This would align with the guidelines this clinic follows, possibly leading to a greater emphasis the healthcare provider places on the patient to have the screening. In the future, there would be little need to measure change in intention. Eliminating the questionnaire component of the study may reduce the time commitment for the participant and lessen the amount of missing data.

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

Actual study costs totaled less than \$75 while projected study costs were nearly \$650. Actual study costs comprised of one package of paperclips, one package of sticky notes, and the printing of the materials. Furthermore, these actual total costs were likely greater than normal due to the mid-project change in healthcare provider, requiring re-printing of the informational letters and educational brochures. The educational session with staff members did not occur, as the provider did not feel it was necessary. Instead, a brief educational session without snacks occurred with the nurse practitioner and medical assistant prior to initiating the intervention and again with the physician at the time of the project facilitator transition.

Economic sustainability for this project is promising. The project can be implemented with few resources and minimal training. There are no current needs for funding. Although the percentages of women who obtained breast and cervical cancer screening post-intervention were not close to Healthy People 2020 goals, it was still successful in motivating a total of six women to obtain health screenings for which they were overdue. Furthermore, this intervention was efficient, taking little time to complete at very low costs, and provided increased opportunity to reach women concerning health promotion beyond their annual preventive exams. The potential impact on the health system and encouraging overdue women to participate in breast and cervical cancer is favorable.

Conclusions

Breast and cervical cancer are leading women's health issues as they cause significant morbidity and mortality, contribute considerably to health care expenditures, and create lasting psychological issues. African American women are negatively affected as they are often diagnosed at later stages and are more likely to die from these cancers than Caucasian women. African American women are also disproportionately uninsured and have lower-incomes than

Caucasian women. Fortunately, screening mammograms and Pap smears are effective tools in detecting these cancers at earlier, more treatable stages. However, screening rates are less than ideal, especially in African American and low-income women.

Practical Usefulness, Further Studies, and Dissemination

This project focused on applying evidence-based interventions to increase breast and cervical cancer screening in African American women aged 40 and older. Although this project's outcomes were expected to be more significant, the interventions, which included patient education, informational brochures, and follow-up reminder calls have previously shown effectiveness in increasing participation in cancer screening. Additionally, these interventions were practical and useful as they were low-cost and easy to implement in the primary care setting. Further studies may be needed. These studies might include utilizing different guidelines, eliminating the questionnaire, streamlining the intervention with one provider performing all interventions, and increasing access to resources. With this DNP project, the SI aimed to increase participation in breast and cervical cancer screening among African American women through education and empowerment, ultimately leading to earlier detection of these cancers, reduced health care expenses, and improved quality of life. The synthesis of evidence poster for this DNP project was presented at the Association of Missouri Nurse Practitioners annual conference in August 2017.

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Appendix A

Cost Table

Direct Costs	Anticipated Dollar Amount	Actual Dollar Amount	Indirect Costs	Dollar Amount
Printed handouts and questionnaires (0.07 cents/pg at FedEx)	\$17.85	\$42.90	Include lights, telephones, computers, and office space	n/a (<i>project performed during regular business operating hours</i>)
Supplies	\$30.00 (Two sets of 36 Bic pens, pack of 6 clipboards at Amazon)	\$30.03 (One box Sharpie markers, one pack Post-It notes, one box paperclips, one stapler at Amazon)		
2hr training	\$500.00	n/a		
Snacks for training	\$100.00	n/a		
Total	\$647.85	\$72.93		

Appendix B

Definition of Terms

Attitude: the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question (Ajzen, 1991)

Health literacy: difficulty understanding written information at the doctor's office (Fernandez et al., 2016; Sentell et al., 2015)

Perceived behavioral control: the person's perception of the ease or difficulty of performing a certain behavior (Ajzen, 1991)

Note: *Actual behavioral control* accounts for non-motivational sources in decision-making, such as cost, skills, accessibility, and time (Ajzen, 1985)

Self-efficacy: a woman's confidence in her ability to obtain a specific cancer screening test (Hall & Johnson-Turbes, 2015; Jerome-D'Emilia & Suplee, 2014; Melvin, Jefferson, Rice, Cartmell, & Halbert, 2016)

Subjective norms: the perceived social pressure to perform or not perform a behavior (Ajzen, 1991)

Appendix C

Synthesis of Evidence Table

First author, Year, Title, Journal	Purpose	Research Design ¹ , Evidence Level ² & Variables	Sample & Sampling, Setting	Measures & Reliability (if reported)	Results & Analysis Used	Limitations & Usefulness
Use of Phone Calls to Increase Participation in Screening						
Albrow, R. (2014). Interventions to increase cervical cancer screening uptake amongst young women: A systematic review. <i>Acta Oncologica</i>.	To review current evidence regarding interventions that improve screening use in younger women	Level 1 SR <i>Independent—various intervention; Dependent—screening use</i>	4 RCTs	Outcome measures varied but mostly r/t participation rates in cervical cancer screening <i>No reliability</i>	Deficient evidence due to small sample size; telephone reminders increased screening <i>Narrative synthesis</i>	Younger population; small sample size; lacks study quality assessment <i>Results somewhat useful for project</i>
Rashid, R.M.A. (2013). Is the phone call the most effective method for recall in cervical cancer screening?- Results from a randomized control trial. <i>Asian Pacific Journal of Cancer Prevention</i>.	To relate the usefulness of various approaches of recall for repeating Pap smears in women who had normal results before	Level 2 Quantitative Prospective RCT <i>Independent—receipt of either telephone call, phone message, or registered letter; Dependent—response to intervention and uptake of repeat smear</i>	<i>Purposive sampling w/ randomization</i> Women with normal Pap in past year and due for another smear	Outcome measure—response to intervention and amount who repeated smear <i>No reliability</i>	Letters had highest chance of reaching women, but telephone calls had highest uptake of Pap smear <i>Chi-squared test, binary logistic regression, p-value <0.05, 95% CI</i>	Study uses Malaysian women—dissimilar from this project's focus <i>Intervention results support project</i>

<p>Hitzeman, N. (2012). Interventions to increase cervical cancer screening rates. <i>Cochrane for Clinicians</i>.</p>	<p>To measure effectiveness of various interventions, increase the informed uptake of cervical cancer screening.</p>	<p>Level 1 SR Cochrane Database</p>	<p>38 RCTs</p>	<p>Outcome measure—use of cervical cancer screening; <i>Most trials at moderate risk of bias</i></p>	<p>Invitation letters most studied method & effective; reminders, counseling also increase rates. Limited evidence to support use of educational material. <i>Independent review by 2 authors, meta-analysis</i></p>	<p>Only includes developed countries (not a limitation for this project) <i>Evidence useful for project</i></p>
<p>Sabatino, S.A. (2012). Effectiveness of interventions to increase screening for breast, cervical, and colorectal cancers: Nine updated systematic reviews for the guide to community preventative services. <i>American Journal of Preventive Medicine</i>.</p>	<p>To systematically review evidence about success of nine interventions to increase cancer screening</p>	<p>Level 2 SR of quantitative studies <i>Independent—various interventions; Dependent—screening participation</i></p>	<p>45 studies</p>	<p>Measures varied across studies but mostly r/t completion of screening <i>Quality of studies assessed independently by two reviewers</i></p>	<p>Evidence supports: use of one-on-one education, reminders, reducing costs for mammogram; one-on-one education and cervical cancer screening reminders; provider recommendation <i>OR, CI 95%</i></p>	<p>Publication bias and selective reporting; not all relevant studies may have been identified</p>
<p>Costanza, M.E. (2009). Moving mammogram-reluctant women to screening: A pilot study. <i>Annals of</i></p>	<p>To trial a method for encouraging women due for mammo to obtain screening</p>	<p>Level 3 Quantitative Non-randomized pilot study <i>Independent—computer-assisted phone interview</i></p>	<p><i>Purposive sampling</i> Claims info from health plan to find those with no claim of mammo w/in prior 27</p>	<p>Precaution Adoption Process Model (to assess stage of behavior adoption) <i>No reliability</i></p>	<p>57.8% of counseled had mammo w/in 12 months; 72% of counseled moved at least 1 stage closer to readiness <i>Fisher's exact test</i></p>	<p>No true control group; small study, non-randomized; homogenous group of middle</p>

<i>Behavioral Medicine.</i>		<i>Dependent—change in stage of readiness, receipt of mammogram</i>	months; UMass Memorial Health Care		<i>95% CI using VassarStats calculator</i>	class Caucasians <i>Results support use of intervention for project</i>
DeFrank, J.T. (2009). Impact of mailed and automated telephone reminders on receipt of repeat mammograms. <i>American Journal of Preventative Medicine.</i>	To compare effectiveness of three reminders in stimulating annual mammography screening	Level 2 RCT <i>Independent—one of three reminder groups; Dependent—receipt of mammogram</i>	<i>N=3,547 Randomized: three groups</i> Recruited through the North Carolina State Health Plan for Teachers and State Employees	Outcome= repeat mammo receipt, had mammo within 10–14 mo. of enrollment mammo <i>No reliability</i>	Post-intervention adherence rates increased by 17.8%. ATRs significantly more likely to increase mammo rates than EUCRs ($p=0.014$) <i>Multivariable logistic regression analysis</i>	Measures repeat mammograms; findings not generalizable to minorities other than African Americans <i>Results somewhat supportive for DNP project</i>
Feldstein, A.C. (2009). Effect of a multimodal reminder program on repeat mammography screening. <i>American Journal of Preventative Medicine.</i>	To decide if large-scale multimodal population-based screening-mammo reminder program can increase mammo screening rates	Level 3 Retrospective quasi-experimental study <i>Independent—receipt of multimodal reminder program; Dependent—screening mammo completion</i>	<i>Purposive sampling</i> N=35,104 women from Kaiser Permanente Northwest HMO members, aged 50-69 (ages 42-49—control group)	Outcome measure—time until woman had a mammo in the 10 mo. after file date <i>No reliability</i>	Intervention women 1.51 times more likely to undergo a mammo (CI=1.40, 1.62) after the intervention <i>Cox proportional regression</i>	Not an RCT; comparison group differed from control group; measures repeat mammo <i>Results implementable</i>

<p>Carney, P.A. (2005). Impact of a telephone counseling intervention on transitions in stage of change and adherence to interval mammography screening (United States). <i>Cancer Causes and Control.</i></p>	<p>To test effect of two interventions on women not getting routine mammo to see if screening adherence could be increased</p>	<p>Level 2 Quantitative RCT, pre-post <i>Independent—mail or phone call intervention;</i> <i>Dependent—stage of change, receipt of screening mammogram</i></p>	<p>Population-based sample of NH women (n= 258) <i>Randomized to intervention groups</i> Rural Northern New England</p>	<p>Level of readiness to change (based on Transtheoretical Model) coded along with barriers to change; NHMN data collection instruments <i>No reliability</i></p>	<p>Tailored counseling via phone influenced behavioral stage r/t obtaining routine screening; barrier was confusion r/t guidelines <i>Descriptive statistics; Chi square; T test; alpha levels 0.05, two-tailed</i></p>	<p>Participants from rural Northern New England—may not be generalizable; study >10 yrs old <i>Results useful for intervention development</i></p>
<p>Taplin, S.H. (2000). Testing reminder and motivational phone calls to increase screening mammography: A randomized study. <i>Journal of the National Cancer Institute.</i></p>	<p>To help understand outcomes of motivational calls and to increase screening mammo adherence</p>	<p>Quantitative Level 2 Prospective RCT <i>Independent—reminder post-card, reminder call, motivational call addressing barriers;</i> <i>Dependent—mammo use by 1yr</i></p>	<p><i>Stratified random sampling</i> Group Health Cooperative of Puget Sound</p>	<p>Mammo use w/in 1 year (but not explicitly stated) <i>No reliability</i></p>	<p>Reminder call women more likely to get mammo than postcard women; motivational calls and reminder calls equal effects. <i>Chi-square tests, analysis of variance Cox proportional hazards models; CI of 95%</i></p>	<p>Trial occurred w/in an HMO; study is dated <i>Results are useful for this DNP project to help design interventions</i></p>
<p>Healthcare Provider Influence</p>						

<p>Bazargan, M. (2015). Understanding perceived benefit of early cancer detection: Community-partnered research with African American women in south Los Angeles. <i>Journal of Women's Health.</i></p>	<p>To measure relationships between apparent profits of finding cancer early among African American women</p>	<p>Level 4 Quantitative Correlational <i>Independent— cancer knowledge, perceived health status, perceived risk of developing cancer; Dependent-- perceived benefit of early cancer detection</i></p>	<p><i>Non-random, purposeful sampling</i> N= 513 African American women from 11 churches in the South L.A. area w/ very high rates of cancer mortality</p>	<p>A survey instrument developed by a team of academic and community investigators; <i>no reliability</i></p>	<p>Cancer knowledge and talking about cancer risk w/ MD reliably connected to perceived benefit of early detection. <i>Bivariate Chi square tests, multivariate logistic regressions, p-value <0.01</i></p>	<p>Non-random/non-representative sampling <i>Results very useful for project</i></p>
<p>Highfield, L. (2014). Grounding evidence-based approaches to cancer prevention in community: A case study of mammography barriers in underserved African American women. <i>Health Promotion Practice.</i></p>	<p>To evaluate community needs, solution ideas, and structural ability for the method picked to reduce mammo non-adherence in African American women.</p>	<p>Level 6 Qualitative Focus group</p>	<p><i>Purposive sampling—low income, uninsured AA women aged 35-64</i> <i>Snowball sampling</i> Four Houston area super neighborhoods</p>	<p>Survey instrument based on HINTS, FoCAS, and BRFSS to assess barriers to screening <i>No reliability</i></p>	<p>Facilitators: MD recommendation, mobile mammos; barriers: lack of education, fear, distrust of system, no insurance; reminder calls, available funding education, relationship building can improve uptake; <i>4 independent content analysis coders</i></p>	<p>Used guiding questions with high subjectivity <i>Results useful for DNP project</i></p>
<p>Tolma, E.L. Predictors of regular mammography use among American Indian women in Oklahoma: A</p>	<p>To find elements prognostic of recommended breast ca. screening in AI women</p>	<p>Quantitative Cross-sectional Level 4 <i>Independent—various constructs based on Theory of Planned Behavior; Dependent—regular use of screening mammo</i></p>	<p><i>Purposive and random sampling</i> 255 AI women eligible for mammo at tribal clinic in OK, randomly selected using</p>	<p>Independent constructs measured using Likert scales—<i>reliability of each scale assessed w/ Cronbach's alpha.</i></p>	<p>65% had mammo w/in last 2 yrs; Women w/ higher total SN physician score, knowledge of guidelines, family hx of breast CA, report of annual</p>	<p>Some information based on self-report; sampling bias from non-response. <i>Results pose interesting</i></p>

<p>cross-sectional study. <i>BMC Women's Health.</i></p>			<p>computerized approach; invite via phone</p>	<p>Use of screening mammo—dichotomous outcome variable—<i>no reliability</i></p>	<p>breast exam higher odds of past mammo. <i>Multivariate logistic regression; OR</i></p>	<p><i>findings but lack complete usefulness as population differs from project target population</i></p>
<p>Reiter, P.L. (2011). Cancer screening behaviors of African American women enrolled in a community-based cancer prevention trial. <i>Journal of Women's Health.</i></p>	<p>Describe screening behaviors of African American women and find key correlates of having had cervical, breast, and colorectal cancer screenings and explore barriers to receiving those tests.</p>	<p>Level 4 Quantitative Cross-sectional <i>Independent—demographics, health-related variables</i> <i>Dependent—adherence to guidelines, intention to have screening, confidence in getting tests, perceived barriers</i></p>	<p><i>Nominated sampling</i> 1123 African American women recruited by stylists at 37 pre-selected, eligible salons in Chapel Hill, NC</p>	<p>Questionnaire Dichotomous responses Self-report <i>No reliability</i></p>	<p>Barriers: confusion about testing guidelines, lack of physician recommendation, fear of cancer; >50, insurance, self-reported good health, and reported Pap smear w/in last 3 yrs more likely to have mammo <i>Multivariate logistic regression models w/ OR, CI, alpha 0.05</i></p>	<p>Lack of available data that may be important to screening behaviors; did not ask women the reason for their last screening test (could have been due to having symptoms); use of self-report <i>Parts of study useful and implementable</i></p>
<p>Shelton, R.C. (2011). An investigation into the social context of low-income, urban black, and Latina women: Implications for adherence to recommended health behaviors. <i>Health Education Behavior.</i></p>	<p>To explore social contextual & psychosocial factors affecting capability of low-income Black and Latina women to perform certain health-related behaviors; to find potential reasons for interventions</p>	<p>Qualitative Level 6 In-depth interviews <i>Dependent—health behaviors</i> <i>Independent—multiple social and contextual factors at individual, interpersonal, organizational, and societal level</i></p>	<p><i>Purposive sampling</i> 64 women Recruited from locations w/ high amounts of low-income, multi-ethnic patients who had a mammo resulting in need for follow-up</p>	<p>Interviews audiotaped, professionally transcribed; semi-structured interview guide based on Social Contextual Framework; open-ended questions <i>No reliability</i></p>	<p>Negative & fatalistic cancer beliefs, social context defined by challenges/life stressor interference—rival health problems, financial hardship, caretaking tasks, insurance issues, mistrust of providers, strict work policies</p>	<p>Ungeneralizable beyond this population due to tremendous heterogeneity of these groups <i>Some findings of realistic use for project</i></p>

					<i>Thematic content analysis</i>	
Hanson, K. (2009). Factors influencing mammography participation in Canada: An integrative review of the literature. <i>Current Oncology.</i>	To analytically explore quantitative and qualitative evidence about features shaping partaking of Canadian women in breast cancer screening	Level 5 Integrative literature review; SR of experimental and non-experimental studies	<i>52 studies (46 quantitative, 4 qualitative, 2 mixed)</i>	<i>37 studies of high quality rating, 15 of medium quality</i>	Most common barrier: membership to ethnic minority group; use of tailored approach to relay health info increased participation in mammos <i>Independently appraised by 2 researchers, p value <0.05</i>	Lack of randomization, older survey data, studies from Canada, not all studies targeted minority women <i>Results useful for DNP project</i>
Lopez, E.D.S. (2009). Screening mammography: A cross-sectional study to compare characteristics of women aged 40 and older from the deep South who are current, overdue, and never screeners. <i>Women's Health Issues</i>	To find exclusive barriers and facilitators to screening mammography participation in women 40+ from Mississippi	Level 4 Quantitative Cross-sectional <i>Independent—various predisposing, enabling, and need variables;</i> <i>Dependent—mammography screening status</i>	N= 987 Purposive sampling Women aged 40+ from 2003 population-based survey	Computer-assisted telephone interview; Likert scales, dichotomous response <i>No reliability</i>	Enabling factors (poor healthcare access, lack of social support, competing needs) highly associated w/ overdue and never screeners; never screeners more likely when AA, no provider recommendation, fatalistic views; <i>Chi-square analysis, multinomial logistic regression, OR, CI 95%, p-value <0.05</i>	Data is cross-sectional; self-report and subjected to recall bias; population may not be generalizable <i>Results very useful for project</i>

<p>Garbers, S. (2005). Breast cancer screening and health behaviors among African American and Caribbean women in New York City. <i>Journal of Health Care for the Poor and Underserved</i></p>	<p>To study sources of info and motivators for screening among African American and Caribbean women</p>	<p>Level 4 Quantitative Correlational <i>Independent—various sociodemographic and healthcare info, experience w/ breast CA, sources of breast CA info, motivators/barriers to screening; Dependent—receipt of mammo</i></p>	<p>N=300 <i>Snowball sampling</i> Women aged 40+ recruited</p>	<p>Telephone based survey: 42-item survey w/ both closed and open ended questions <i>No reliability reported</i></p>	<p>Confirm impact of MD recommendation in raising mammo screening in urban Black women <i>Chi-squared tests, analysis of variance, bivariate OR, 95% CI, logistic regression</i></p>	<p>Differences in those who responded to study versus those who refused; reliance on self-report <i>Results very useful for project</i></p>
<p>Effects of Using Multiple Interventions</p>						
<p>Cosp, X,B. (2016). Strategies for increasing the participation of women in community breast screening. <i>Cochrane Database of Systematic Review</i>.</p>	<p>To measure the usefulness of various methods for raising involvement of those invited to community BC screening activities</p>	<p>Level 1 Quantitative SR <i>Independent—various interventions /combinations; Dependent—mammo appointment attendance</i></p>	<p>16 RCTs and controlled clinical trials; Participants all women invited to a community breast screening activity; randomization by individual or group</p>	<p>Primary outcome measure= attendance to mammo appointment <i>No reliability</i></p>	<p>Evidence favored 5 strategies—invite letter, mailed educational material, letter of invitation + call, call, and training activities + direct reminders <i>OR, CI, independent review by at least 2 people</i></p>	<p>Quality assessment not included; interventions for community-based setting and not clinic <i>Results useful and feasible for study design</i></p>
<p>Escoffery, C. (2014). A systematic review of special events to promote breast, cervical and colorectal cancer screening in the United States.</p>	<p>To grasp the usage and worth of special occasions in endorsing cancer screening involvement</p>	<p>Level 5 SR of quantitative descriptive studies <i>Independent—various special events r/t screening; Dependent—screening determinants and completed screening</i></p>	<p>10 studies met inclusion criteria; mostly pre-post, non-experimental studies</p>	<p>Outcome measures varied between studies <i>No reliability</i></p>	<p>one-on-one education post-intervention increase 9.3% in completed mammo <i>Data Abstraction form, 2 trained reviewers, descriptive analysis</i></p>	<p>Publication bias, no formal assessment of quality; many studies non-experimental design <i>Special events not useful for DNP project, but methods</i></p>

<i>BMC Public Health.</i>						<i>used during event could be of value</i>
Camilloni, L. (2013). Methods to increase participation in organized screening programs: A systematic review. <i>BMC Public Health.</i>	To show results from SR of methods to raise involvement in organized cancer screening programs.	Level 1 SR <i>Independent—various interventions to simplify screening tests, r/t HR, r/t health services mgmt.; Dependent—participation in organized screening</i>	<i>69 studies—RCTs, experimental, and before/after studies</i> Inclusion/exclusion criteria clearly stated; Most studies from US, some from Europe	No outcome measure clearly stated; Quality assessment of studies using CONSORT list, CASP criteria, Cochrane Collaboration tool for risk of bias, and STROBE checklist	Effective interventions: postal/phone reminders, GP signature on invitation letter, scheduled apt versus open apt. <i>Intervention effect with 95% CI; Fixed effects model and random effect models for heterogeneity</i>	Only included women 50-69 for breast CA screening; studies not including at least one arm of invitation letter not included; no clear outcome measure <i>Results useful and practical</i>
Gardner, M.P. (2013). Interventions to increase the uptake of mammography amongst low income women: A systematic review and meta-analysis. <i>Plos One.</i>	To guess the extent of the impact of methods used to raise the use of mammography in low-income women	Quantitative SR/Meta-Analysis Level 1 <i>Independent—various interventions Dependent—receipt of a mammogram</i>	<i>Random sampling</i> 21 studies met inclusion criteria; RCTs	Primary outcome measure—changes in percentage of women undergoing mammo in the intervention and control groups <i>Quality of studies—Cochrane risk of bias tool</i>	Interventions increased use of mammos in low-income women by 8.9%; most effective multi-strategy study reported 64% between control/intervention-included mail, call, and home visits <i>Summary estimates--random effects meta-analysis Publication bias-- Eggers test</i>	Short length of time for follow-up <i>Results useful, applicable, and realistic use for project</i>
Bailey, T.M. (2005). A systematic review on mammography educational	To study the use of informative methods in raising mammo screening in low-income women.	Quantitative SR Level 1 <i>Independent variables differ amongst studies;</i>	24 studies: RCTs or cohort w/ control, community-based trials directed at low-income	Outcome measure varied, primarily: Mammography screening <i>No reliability</i>	Reducing barriers to mammo access via vans/cost vouchers, use of peer educators, and studies using	Lack of quality assessment; No control group, multiple interventions

interventions for low-income women. <i>American Journal of Health Promotion.</i>		<i>Dependent—completion of mammo</i>	women, English language		multiple interventions effective in increasing mammo screening.	cannot attribute results to one intervention. Effective studies more likely to be published. <i>Interventions mostly feasible.</i>
Evidence-Based Screening Guidelines						
Siu, A.L. (2016). Screening for breast cancer: U.S. Preventive Services Task Force Recommendation Statement. <i>Annals of Internal Medicine</i>	A review of the 2009 U.S. Preventive Services Task Force (USPSTF) advice on breast ca. screening	Level 1 SR, evidence based guidelines	n/a	n/a	Screen w/ mammography every 2 yrs for women 50 to 74 years; women can begin screening every 2yrs ages 40-49 years if they choose to	Extent of over-diagnosis unable to be quantified; trial data too limited to make best screening strategy recommendation <i>Results useful for study</i>
Oeffinger, K.C. (2015). Breast cancer screening for women of average risk: 2015 guideline update from the American Cancer Society. <i>Journal of the American Medical Association.</i>	To revise the American Cancer Society (ACS) 2003 breast cancer screening recommendations for average risk women for breast cancer.	<i>Level 1, 7</i> SR of BC screening literature and expert opinion from an ACS-organized interdisciplinary guideline development group (GDG)	n/a	n/a	Average risk women: regular screening age 45+, age 55+ biennial screening or yearly, aged 40-44 should have option to be screened, continue screening if good overall health/life expectancy 10+ yrs	<i>Results important to study</i>
Moyer, V.A. (2012). Screening for cervical	To provide an revision of the 2003 U.S. Preventive	Level 1 SR	N/a	N/a	Screening in women 21-65 yrs w/ cytology (Pap	No long-term screening trial data; Little

cancer: U.S. Preventive Services Task Force Recommendation Statement. <i>Annals of Internal Medicine.</i>	Services Task Force (USPSTF) guidelines on cervical cancer screening				smear) Q3 yrs or, women 30-65 yrs, screening w/ combo of cytology & HPV testing Q5 yrs; no screening in <21yrs, >65yrs <i>Decision analysis</i>	evidence regarding benefits/harms of sole HPV testing <i>Results important to study</i>
Saslow, D. (2012). American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology Screening Guidelines for the prevention and early detection of cervical cancer. <i>CA: A Cancer Journal for Clinicians.</i>	To provide a revision to the American Cancer Society (ACS) recommendations for cervical cancer screening	Level 1, 7 SR Expert opinion—contributions by 6 working groups and a recent symposium	N/a	N/a	Women 21–29 yrs, screening w/ cytology alone Q3 yrs. Women 30–65 yrs screen w/ cytology and HPV testing Q5 yrs (preferred) or cytology alone Q3 yrs (acceptable); Women >65 yrs w/ negative screenings previously and no 20yr history of CIN2+ no screenings; no screening <21yrs	Need more evidence on screening w/ HPV testing alone <i>Results important to study</i>
American College of Obstetricians and Gynecologists. (2011). Breast cancer screening. <i>Practice Bulletin Clinical</i>	<i>To go over breast CA screening recommendation and its evidence; to underscore new screening</i>	SR and review of published meta-analyses; <i>Level 1—SR of randomized and non-randomized controlled trials</i> <i>Level 7—opinions of experts</i>	Hand searches of published literature (primary and secondary sources); searches of electronic databases	Expert consensus used to formulate recommendations ; <i>no reliability</i> ; strength of studies assessed using USPSTF methods	Offer annual mammo screening for women >40; CBE exams yearly for women >40; CBE Q1-3yrs for women 20-39; encourage breast self-awareness;	No Level A evidence <i>Results important to study</i>

<i>Management Guidelines for the Obstetrician-Gynecologists.</i>	<i>methods and arguments around screenings</i>				education regarding false-positive and false-negatives; <i>no analysis</i>	
Poor Understanding of Screening Guidelines						
Kasting, M.L. (2017). Differences in cervical cancer screening knowledge, practices, and beliefs: An examination of survey responses. Preventive Medicine Reports.	To explore relationship between HPV vaccination & Pap testing via responses to an exploratory cross-sectional survey of mostly minority women.	Level 4, 6 Quantitative and qualitative Cross-sectional <i>Independent—receipt of vaccine; dependent—receipt of Pap w/in past 3 yrs, knowledge on cervical CA screening, recommendations</i>	<i>Convenience sampling</i> <i>N= 291</i> Women aged 21-35 attending Indiana Black Expo Health Fair in Indianapolis	Web-based survey w/ questions modeled after relevant items from the NHIS; comfort w/ screening via Likert-type variable; open-ended questions <i>No reliability</i>	Vaccinated women more likely to partake in Pap tests; 25% knew purpose of Pap; AA women less likely to know purpose of Pap and guidelines <i>Multivariate logistic regression, inductive content analysis for qualitative</i>	Non-representative sample; selection bias; younger age for population <i>Results support project</i>
Cohen, E.L. (2016). Using communication to manage uncertainty about cervical cancer screening guideline adherence among Appalachian women. Journal of Applied Communication Research.	To identify how HCPs may apply variations in USPSTF recommendations as opportunity to educate patients	Level 6 Qualitative	<i>Purposive sampling</i> <i>N=24</i> Women aged 24-65 living in Appalachia, Kentucky	In depth, face-to-face interviews using semi-structured interview protocol	Women were very ambiguous about updated cervical CA screening guidelines; communication w/ providers had potential to exacerbate or mitigate pt uncertainty <i>4 authors reviewed interview transcripts using framework analysis methodology</i>	Applies to white, Appalachian women <i>Results somewhat useful for study</i>

<p>Haas, J.S. (2015). Provider attitudes and screening practices following changes in breast and cervical cancer screening guidelines. <i>Journal of General Internal Medicine.</i></p>	<p>To describe women's PCP feelings about screening & variations in their practice b/c of new guidelines for breast and cervical CA screening.</p>	<p>Level 4 Quantitative Cross-sectional <i>Independent—sample characteristics;</i> <i>Dependent—attitudes and screening practices</i></p>	<p><i>Convenience sampling;</i> <i>668 women's HCPs participating in PROSPR research centers</i> Northeast US</p>	<p>Survey: web and mail survey Main measure—self-reported attitudes and practices <i>No reliability</i></p>	<p>Barriers to following guidelines: pt concerns, provider disagreement w/ guidelines, health system measurement of provider's screening practices malpractice concern, time <i>Multivariate logistic regression model, OR, 95% CI</i></p>	<p>Self-report; Sample size not representative—providers highly affiliated w/ academic centers; use of USPSTF guidelines <i>Study background and results help support project</i></p>
<p>Marlow, L.A.V. (2014). Barriers to cervical cancer screening among ethnic minority women: A qualitative study. <i>Journal of Family Planning and Reproductive Health.</i></p>	<p>To study hindrances to Pap smears in ethnic minority London women and liken to interferences faced by women with White British background</p>	<p>Level 6 Qualitative <i>Independent—socio-demographic info;</i> <i>Dependent—various barriers to screening</i></p>	<p><i>Convenience/non-random sampling</i> 43 women from ethnic and minority backgrounds from 7 London boroughs</p>	<p>Use of semi-structured interview <i>No reliability</i></p>	<p>5 themes: lack of knowledge, the procedure, emotional, practical, and cognitive barriers <i>Conceptual framework identified, analysis of each theme</i></p>	<p>Participants from London; self-report; women not identified as non-attenders at the onset—most had already undergone a Pap before <i>Results somewhat useful for project</i></p>
<p>Daley, E. (2013). Confusion about Pap smears: Lack of knowledge among high-risk women. <i>Journal of Women's Health.</i></p>	<p>To explore Pap smear knowledge among 3 high-risk populations at different times</p>	<p>Level 4 Quantitative Cross-sectional <i>Independent—age, marital status, insurance status, education;</i> <i>Dependent—HPV knowledge score</i></p>	<p><i>Purposive sampling</i> Group 1: HPV+ women, n=154 Group 2: college women, n= 276 Group 3: women from racial and ethnic minority, n= 711</p>	<p>Measure: survey; understanding of use of Pap smear tested w/ single item question <i>No reliability</i></p>	<p>25% across all three groups did not know purpose; older age associated w/ higher Pap knowledge <i>Frequencies, multivariate logistic regression to examine associations, p-value (<0.05)</i></p>	<p>Participants mostly from younger age group <i>Results support need for project interventions</i></p>

<p>Allen, S.V. (2012). Patient understanding of the revised USPSTF screening mammogram guidelines: Need for development of patient decision aids. BMC Women's Health.</p>	<p>To explore patients' understanding of revised screening mammo recommendations given by USPSTF regarding age at starting and regularity of screening mammo</p>	<p>Level 6 Quantitative Descriptive <i>Independent: demographics, screening mammo status, family hx; Dependent—pt awareness, interpretation, feelings, & future plans about screening mammo</i></p>	<p><i>Random selection</i> N= 150 Female pts at a specific clinic due for health maintenance exams</p>	<p>Survey <i>No reliability reported</i></p>	<p>Majority implied increased confusion/anxiety about guidelines; most will not change behavior <i>Categorical survey responses summarized w/ %s; 95% CI; Fisher exact test, p-value (<0.05)</i></p>	<p>Selection bias; mostly white participants <i>Provides useful supportive information for project</i></p>
<p>Association Between Low Health Literacy, Low Self-Efficacy and Decreased Screening</p>						
<p>Fernandez, D.M. (2016). Associations between health literacy and preventive health behaviors among older adults: Findings from the health and retirement study. BMC Public Health.</p>	<p>To study connections among health literacy and actions, and views in elderly</p>	<p>Level 4 Quantitative Cross-sectional <i>Independent= health literacy; Dependent= certain health behaviors and beliefs</i></p>	<p>N=707 <i>Purposive sampling</i> Subsample of participants from Health and Retirement Study</p>	<p>Self-reported health literacy measured w/ literacy screening question; objective health literacy measured by Test of Functional Health Literacy <i>No reliability</i></p>	<p>Health literacy positively r/t several health indorsing actions and views <i>Bivariate analysis, Chi-square tests, Mann-Whitney U test, multiple regression analyses</i></p>	<p>Possible self-selection and recruitment bias; measurement of health literacy; sample majority white; not a primary study but a secondary analysis of existing cross-sectional data <i>Results useful for project</i></p>
<p>Melvin, C.L. (2016). Predictors of participation in mammography</p>	<p>To examine the role of socioeconomic characteristics, health-care access, cultural and</p>	<p>Quantitative (descriptive) Level 6 <i>Independent: socioeconomic, health-care access,</i></p>	<p><i>Random sampling</i> National random digit dial of U.S. non-Hispanic black and white</p>	<p>Cultural preferences-- Multi-Dimensional Cultural Values</p>	<p>39% no mammo w/in last 12 mo; lack of health insurance, lack of usual medical care</p>	<p>Data collected during USPSTF recommendation changes; self-report/inability</p>

<p>screening among non-Hispanic black, non-Hispanic white, and Hispanic women. <i>Frontiers in Public Health.</i></p>	<p>psychological healthcare preferences for cancer prevention on the occurrence of yearly mammo screening in racially diverse US women</p>	<p><i>psychological, & cultural factors</i> <i>Dependent: timely mammo screening participation</i></p>	<p>and Hispanic women aged 40-75</p>	<p>Assessment Tool—<i>Chronbach's alpha for reliability</i> Perceived risk & self-efficacy- Health Information National trends Survey—<i>no reliability</i> Participation in mammography and race-self-report—<i>no reliability</i></p>	<p>source, lower self-efficacy, and higher levels of religiosity associated w/ no screening <i>Descriptive statistics, multivariate logistic regression—tests two-sided w/ p value <0.05</i></p>	<p>to verify w/ medical records; <i>Results like other study findings, overall useful for project development</i></p>
<p>Damiani, G. (2015). The impact of level of education on adherence to breast and cervical cancer screening: Evidence from a systematic review and meta-analysis. <i>Preventive Medicine.</i></p>	<p>To analyze the variations in use of breast and cervical CA screening relating to educational level</p>	<p>Level 3 Quantitative SR/Meta-analysis of cross-sectional studies <i>Level of education (I) and screening adherence (D)</i></p>	<p>10 studies met criteria</p>	<p>Screening participation—self-report (93% sensitivity, 62% specificity) Level of education—measure not given</p>	<p>OR 1.61—Greatest level of education and likeliness to have regular mammos <i>Meta-analysis—adherence to mammo screening, I² statistic—population heterogeneity</i></p>	<p>Reliance on self-report; various ways to categorize “level of education” between studies. <i>Results re-inforce findings from other studies and literature; useful for study design.</i></p>
<p>Hall, I. J. (2015). Use of the Persuasive Health Message framework in the development of a community-based mammography</p>	<p>To explain how PMH framework was used to lead focus groups in helping develop messages and materials for a campaign to motivate African</p>	<p>Qualitative Level 6 Focus groups <i>Dependent—Perceived susceptibility, perceived self-efficacy</i></p>	<p><i>Purposive sampling;</i> 78 black women 40-64 with zip codes in Savannah and Macon, GA in 2004, NBCCEDP-eligible;</p>	<p>Pre-discussion information sheet; 90 min focus groups w/ trained observers using field notes and audio-recordings; questions guided</p>	<p>Persuasive message created to emphasize threat of breast CA in AA women & their individual behavior in attending screening regularly can influence early</p>	<p>Data from > 10 yrs ago—target audience may have changed views on culturally appropriate messages; PMH</p>

<p>promotion campaign. <i>Cancer Causes Control.</i></p>	<p>American women to have screening mammo.</p>		<p>recruitment via flyers, radio ads</p>	<p>by PMH framework <i>No reliability</i></p>	<p>detection and reduced death—stressed self-efficacy. <i>SPSS qualitative data analysis</i></p>	<p>framework may inflexible. <i>Study useful in offering a theoretical framework for project</i></p>
<p>Jerome-D’Emilia, B. (2015). Mammogram use and self-efficacy in an urban minority population. <i>Public Health Nursing.</i></p>	<p>To compare low-income black & Hispanic women in mammo specific self-efficacy to find differences r/t ethnicity and use in screening</p>	<p>Level 4 Quantitative Cross-sectional <i>Independent—self-efficacy, demographic information</i> <i>Dependent—use of screening mammography</i></p>	<p><i>Convenience sample</i> Catholic church in mostly Hispanic neighborhood and Baptist church in mostly AA neighborhood, low-income, underserved urban New Jersey</p>	<p>General Self-Efficacy Scale, Mammography Specific Self-Efficacy Scale, <i>Cronbach’s alpha (0.76-0.9; 0.87, 0.94, respectively)</i> 10-item researcher-created demographic survey</p>	<p>Mammogram-specific self-efficacy & insurance status associated w/ no mammo <i>Univariate statistics to describe sample demographics; bivariate analysis w/ t tests; chi-square; logistic regression</i></p>	<p>Women not asked about actual incomes or citizen status <i>Results useful for integration into DNP project</i></p>
<p>Sentell, T. (2015). Health literacy and meeting breast and cervical cancer screening guidelines among Asians and whites in California. <i>Springerplus.</i></p>	<p>To determine if health literacy is related to breast and cervical CA screening, and to determine if health literacy is related to cancer screening in general</p>	<p>Quantitative Level 4 Single correlational/observational study <i>Independent—health literacy</i> <i>Dependent—cancer screening participation</i></p>	<p><i>Probability, sample random sampling</i> California Health Interview Survey (CHIS) random-digit dial phone survey cervical screening (n= 15,210) and breast screening (n= 11,163)</p>	<p>Self-reported health literacy and ethnicity, Self-report of most recent mammogram and Pap smear—<i>no reliability</i></p>	<p>Low health literacy considerably r/t lower breast and cervical CA screening; <i>Multilevel logistic regression models using SAS software</i></p>	<p>Sample from one state, may not be representative; definition of mammo not specified to be screening or diagnostic; self-report <i>Results useful and of realistic use for project</i></p>
<p>Badur, W. (2014). Cancer awareness and socioeconomic status are associated with mammography</p>	<p>To study the effect of socioeconomic status and general cancer awareness on early diagnosis of</p>	<p>Level 4 Quantitative Correlational study <i>Independent—demographic variables; Dependent—time from symptom occurrence</i></p>	<p><i>Purposive sampling</i> 50 BC patients receiving care in Lower Silesian Cancer Center</p>	<p>Questionnaire <i>No reliability</i></p>	<p>Strong, statistically significant correlations between level of education and/or general cancer</p>	<p>Small sample; population different from project population, questionnaire used self-report</p>

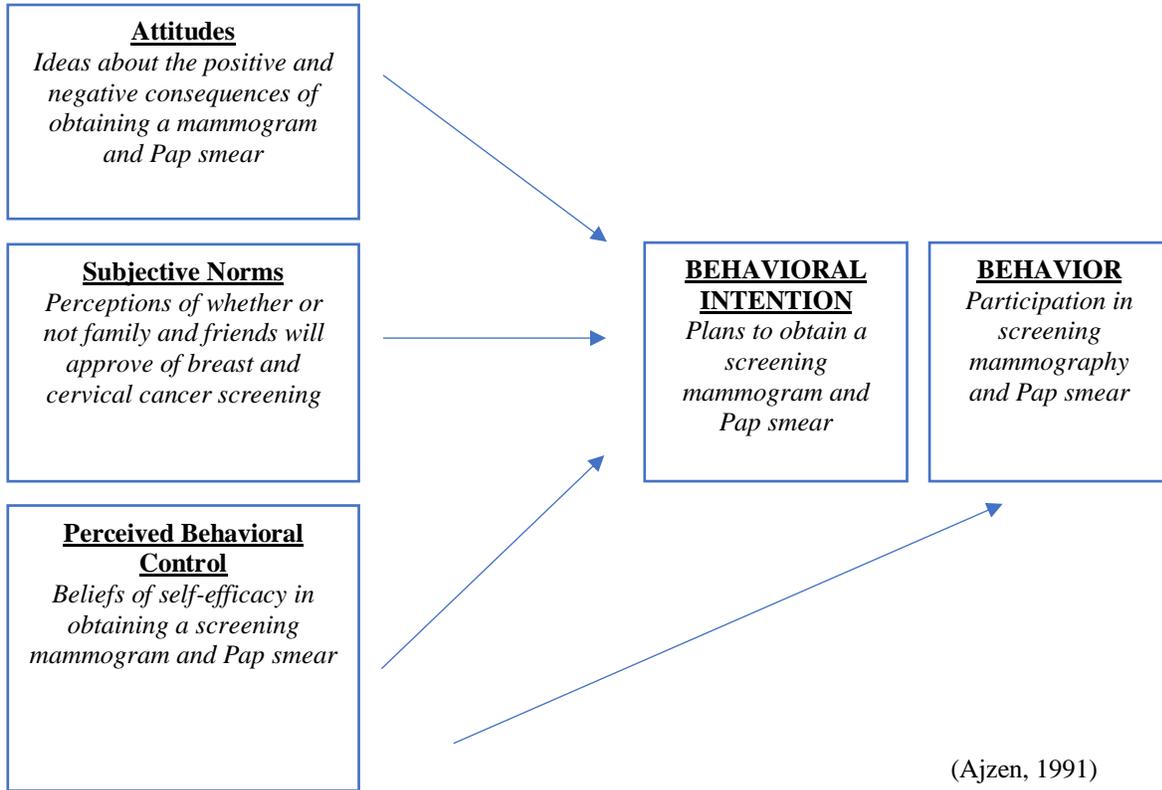
<p>screening participation and early detection of breast cancer. <i>Family Medicine & Primary Care Review.</i></p>	BC and participation in mammo screening	<i>to physician appointment or oncologic treatment</i>			awareness and: frequency of BSE and participation in screening programs. <i>Analysis not described</i>	<i>Results support project</i>
<p>Roman, L. (2014). Individual, provider, and system risk factors for breast and cervical cancer screening among underserved black, Latina, and Arab women. <i>Journal of Women's Health.</i></p>	To explore relationships between breast and cervical CA screening attendance and coexisting risk factors in 3 racial/ethnic groups of underserved women	Level 4 Quantitative Correlational <i>Independent—sociodemographic data, health, health care, and health literacy; Dependent—appropriately timed clinical breast exam, mammo, and cervical cancer screening</i>	Used standard data from women registered in a RCT <i>Black, Latina, and Arab women living in southeast Michigan</i> N= 514	Measured using questionnaire; self-report for prior cancer screening behavior <i>No reliability</i>	AA: no MD recommendation & higher health literacy risk score associated w/ low odds of CBE/mammo; higher competing priorities score & higher health literacy risks negatively associated w/ odds of Pap in past 3 yrs <i>OR, p-value <0.05</i>	Lack of access to data regarding important risk factors shown to be associated w/ screening rates due to study design; use of self-report data <i>Results highly support project</i>
<p>Lack of Insurance and Low-Income as Barriers to Screening</p>						
<p>Akinlotan, M. (2017). Cervical cancer screening barriers and risk factor knowledge among uninsured women. <i>Journal of Community Health.</i></p>	To judge links of cervical CA risk factor knowledge and examine socio-demographic predictors of self-reported barriers to screening among a group of low-income uninsured women	Level 4 Correlational <i>Independent:race/ethnicity, marital status, education, age, & previous cervical CA screening; Dependent—knowledge & predictors of perceived structural & personal screening barriers</i>	N=524 Convenience sampling Uninsured, household income <250% federal poverty level, >21 yrs, no hx of prior hysterectomy 17 counties in Texas	Multiple questionnaires: <i>internal consistency of knowledge scale= 0.75, internal consistency of barriers scale= 0.84</i>	Cost is major barrier to screening; AAs more likely to state other health issues and poor understanding of cervical CA as screening barriers <i>Descriptive statistics; Chi-square and multi-variate logistic regression</i>	Population bias and outcome differences if different population used; may not be generalizable; self-report <i>Results useful for study</i>

<p>Alexandraki, I. (2010). Barriers related to mammography use for breast cancer screening among minority women. <i>Journal of the National Medical Association.</i></p>	<p>To better understand potential social, economic, cultural, behavioral, and systems barriers to breast CA screening among minority women</p>	<p>Level 5 SR of quantitative and qualitative studies <i>Independent: demographic data; Dependent—screening barriers</i></p>	<p>17 studies (13 cross-sectional and 4 prospective) <i>Most from northeastern and Midwest US, published after 1998; 8 studies had large sample sizes of >300; studies must examine minority populations</i></p>	<p>Various measurement instruments; <i>Each individual study rated using methodological quality score; average 10.9</i></p>	<p>Low income & lack of insurance, poor knowledge of breast CA screening, lack of physician recommendation, lack of trust, language barriers, & lack of transportation barriers <i>Content and thematic analysis, TRA TPB constructs</i></p>	<p>Not all ethnic minorities considered;; only included studies using single theoretical framework <i>Results important to study</i></p>
<p>Millon-Underwood, S.S. (2015). Exploratory study of breast cancer screening practices of urban women: A closer look at who is and is not getting screened. <i>The Association of Black Nursing Faculty Journal.</i></p>	<p>To study breast CA screening practices of women 40-74 yrs & to identify and compare characteristics of women who report breast CA screening w/ characteristics of women who report no screening</p>	<p>Level 4 Cross-sectional exploratory study <i>Independent—demographics & characteristics; Dependent—screening practices</i></p>	<p>Non-probability sample, volunteer recruitment method N= 5,648 women 40+ years of age <i>S.E. Wisconsin metropolitan community</i></p>	<p>An investigator-designed instrument <i>Validity, utility and appropriateness of instrument assessed by panel of experts</i></p>	<p>Lack of screening associated w/ women uninsured, no known family hx of breast ca, low income & inner-city neighborhoods w/out facilities for primary breast care <i>Descriptive and inferential statistics</i></p>	<p>Limited generalizability <i>Results very useful for project</i></p>
<p>Nolan, J. (2014). Barriers to cervical cancer screening and follow-up care among black women in Massachusetts. <i>Journal of Obstetric, Gynecologic, & Neonatal Nursing</i></p>	<p>To discover factors that might lead to pauses in appropriate cervical CA screening and diagnosis among black women in Massachusetts</p>	<p>Level 6 Qualitative</p>	<p>Non-probability Volunteer and recruitment N=64 <i>Black, non-Hispanic women</i></p>	<p>Six focus groups <i>No reliability</i></p>	<p>Fear, cultural beliefs, & compounding factors r/t poverty, gender roles, & health system barriers (lack of insurance) create delays <i>Data recorded & transcribed verbatim, analyzed</i></p>	<p>Total number of black participants less than desired; stage 4 survivors not included; did not include women with undocumented status</p>

					<i>via methods based on grounded theory</i>	<i>Results useful for project</i>
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Appendix D

Theory to Application Diagram



Appendix E

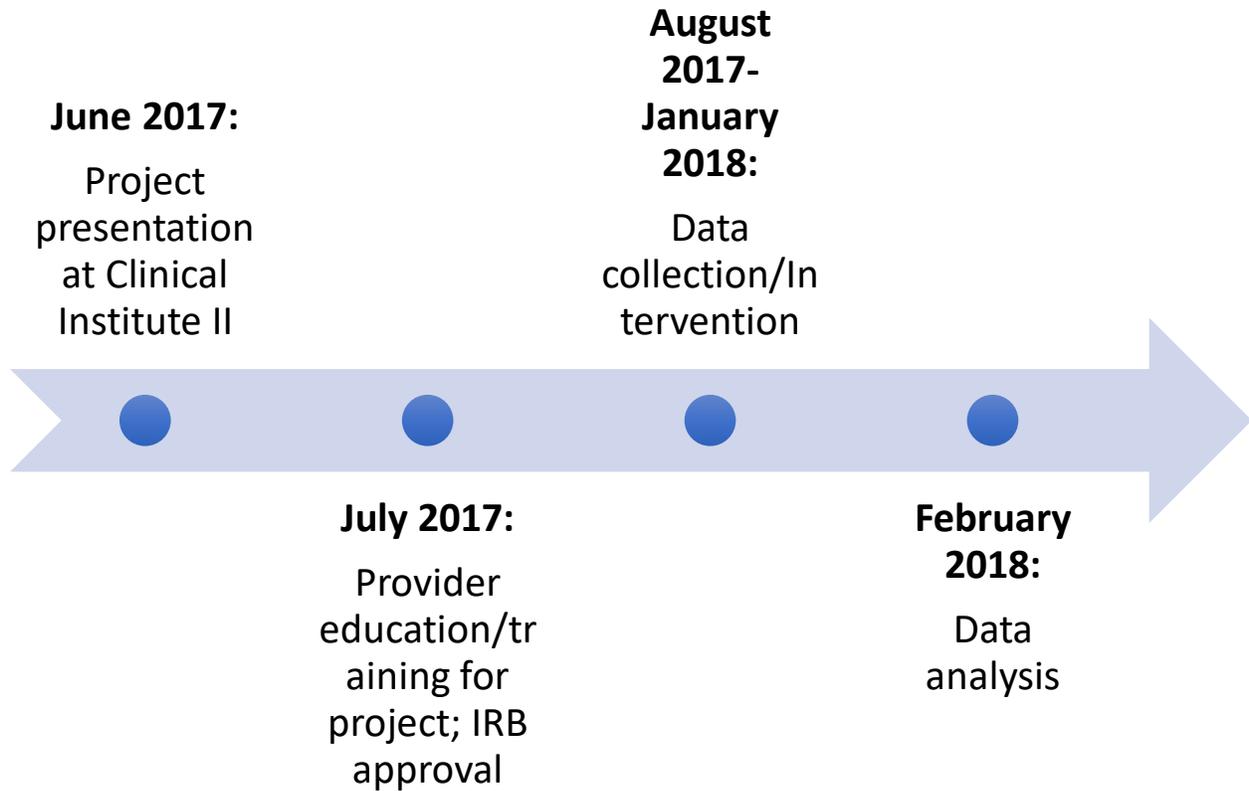
Logic Model

Logic Model for DNP Project					
Student: Erin Inciardi					
Inquiry, PICOTS: In African American women aged 40 and older (P), does providing multi-component interventions regarding breast and cervical cancer screening (I), compared to providing only a single strategy intervention (C) increase participation in breast and cervical cancer screening (O) over a six-month period (T) in a primary care clinic (S)?					
Inputs	Intervention(s) Outputs		Outcomes -- Impact		
	Activities	Participation	Short	Medium	Long
<p>Evidence, sub-topics</p> <p>1. Women are generally confused about the recommended guidelines for breast and cervical cancer screening.</p> <p>2. Low health literacy and low self-efficacy are associated with reduced participation in cancer screening.</p> <p>3. Healthcare providers can act as a facilitator or a barrier to patient participation in cancer screening based on if they recommend screening or not.</p> <p>4. Various forms of phone call interventions can help increase uptake of screening mammography</p>	<p>EBP intervention which is supported by the evidence in the Input column (brief phrase)</p> <p>Using tailored education and providing information brochures of local screening facilities for uninsured women, during office visits and follow-up reminder phone calls to increase participation in both breast and cervical cancer screening.</p> <p>Major steps of the intervention (brief phrases)</p> <p>1. Obtain IRB approval</p> <p>2. Perform educational intervention during office visits over 6 months/obtain measure of intent to screen.</p> <p>3. Perform retrospective review of participants' screening history.</p>	<p>The participants (subjects)</p> <p>African American women aged 40 and older</p> <p>Site</p> <p>Primary care clinic</p> <p>Time Frame</p> <p>6 months</p> <p>Consent or assent Needed</p> <p>IRB, provider consent, no patient consent</p> <p>Other person(s) collecting data (yes,no)</p> <p>Yes, DNP student and the provider at the clinic</p> <p>Others directly involved in consent or</p>	<p>(Completed during DNP Project)</p> <p>Outcome(s) to be measured</p> <p>Primary: Receipt of screening mammogram and Pap smear.</p> <p>Secondary: Intent to obtain screening mammogram and Pap smear.</p> <p>Measurement tool(s)</p> <p>1. Medical records</p> <p>2. Questionnaire based on Theory of Planned Behavior to measure intention</p> <p>Statistical analysis to be used</p>	<p>(after student DNP)</p> <p>Outcomes to be measured</p> <p>1. Follow-up at 1 year for participation in screening mammogram and in 5 years for participation in Pap smear.</p> <p>2. Continue providing education, information handouts, and follow-up phone calls at office visits.</p> <p>3. Assess provider feedback about program.</p> <p>4. Cost savings analysis.</p>	<p>(after student DNP)</p> <p>Outcomes that are potentials</p> <p>1. Implementation of project interventions as standard of care</p> <p>2. Increase in the amount of African American women who undergo both breast and cervical cancer screening regularly.</p> <p>3. Decrease in rates of late-stage breast and cervical cancer diagnoses among African American women.</p> <p>4. Decreased morbidity and mortality rates</p>

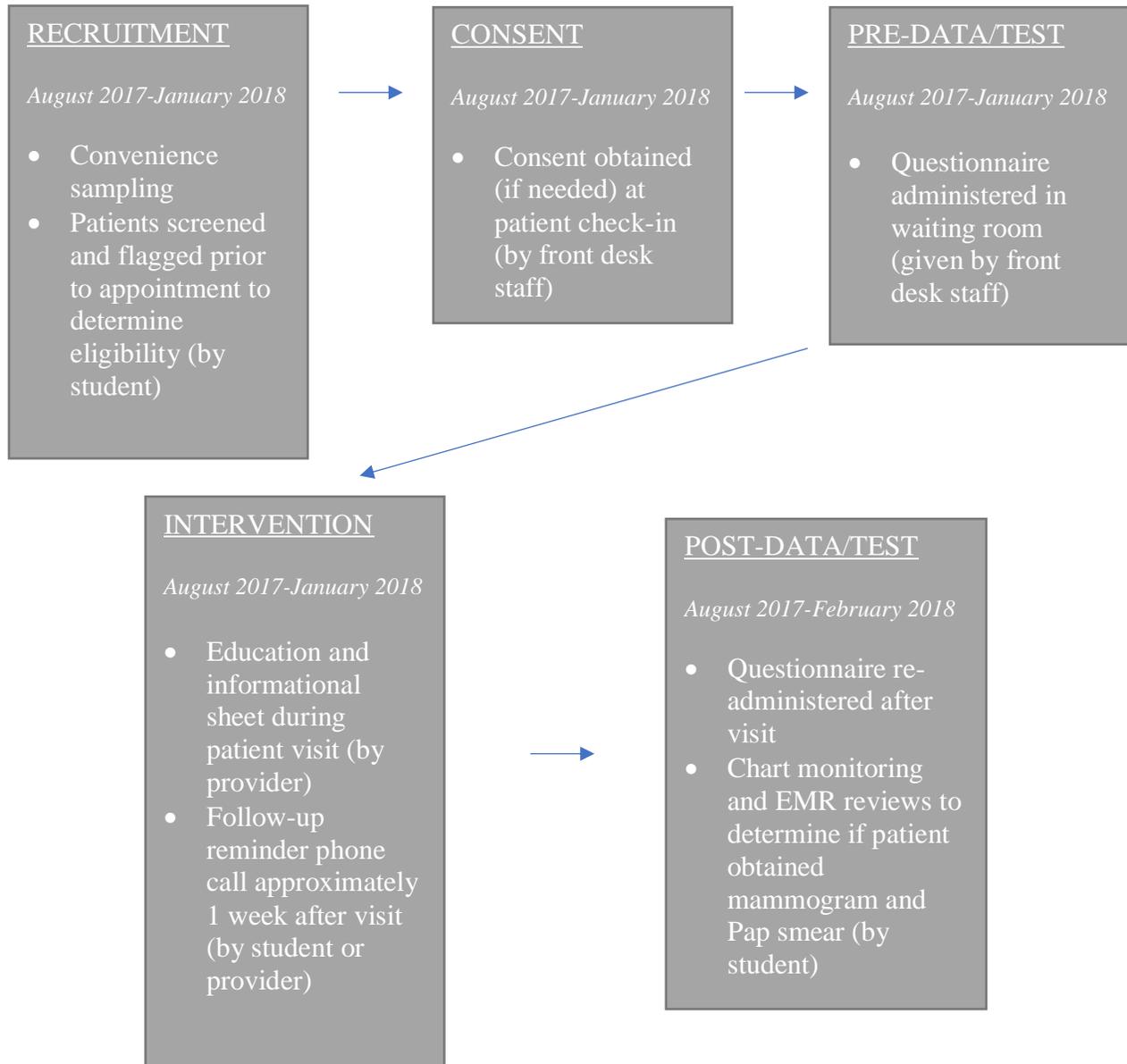
<p>and Pap smear testing. 5. Using multi-component interventions is more successful in increasing cancer screening participation than using only one intervention. 6. Low-income and uninsured women are less likely to receive breast and cervical cancer screening.</p> <p>Major Facilitators or Contributors</p> <ol style="list-style-type: none"> 1. National guideline support for screening 2. Low-cost 3. Ability of providers to perform Pap smears in office 4. Using current providers in current roles <p>Major Barriers or Challenges</p> <ol style="list-style-type: none"> 1. Provider unwillingness to spend extra time during visits 2. Low-income women may not have permanent phone number from which to be reached. 3. Lack of insurance/access to care 	<p>4. Assess number of women who participated in screening mammogram and Pap smear/ Compare data</p>	<p>data collection Yes</p>	<ol style="list-style-type: none"> 1. McNemar for categorical outcomes 2. Wilcoxon-Signed Rank test for ordinal paired data 		<p>among African American women from breast and cervical cancer.</p>
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Appendix F

Project Timeline



Appendix G

Intervention Flow Diagram

Note: Due to the nature of this DNP project, in which participants are purposefully selected after/at the time they schedule their appointment and the intervention occurring during their scheduled appointments, the timing of these steps is mostly simultaneous.

Appendix H

Intervention Material

Appendix I

Recruitment Materials**Recruitment Letter**

Good afternoon. My name is Erin Inciardi and I am a Doctor of Nursing Practice student at the University of Missouri-Kansas City. I am working on a research study with your provider.

I would like to tell you about my research study and see if you are interested in participating. I am approaching you because we are looking for African American women aged 40 and older. This research is totally separate from the care you are receiving here at your healthcare facility and whether or not you decide to participate will not affect your care.

My research study involves several educational methods about breast and cervical cancer screening. These educational methods include a brief conversation with your provider during your visit, an informational handout, one follow-up phone call, and a brief before/after questionnaire. The purpose of the study is to determine if these additional educational strategies increase an African American woman's intention and follow-through with the recommended breast and cervical cancer screenings. Your name and other identifiers will not be used for any of the research.

Should you have any additional questions about the research study, please feel free to call me at xxx-xxx-xxxx. I appreciate your help in my studies.

Sincerely,

Erin Inciardi

Appendix J

Institutional Review Board Approval Letter

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: 17-237
Protocol Title: Breast and Cervical Cancer Screening in African American Women After Multiple Interventions
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:

Inciardi Site Approval Letter.pdf; TBP Mammography Questionnaire.docx; Patient Handout.docx; Inciardi DNP Project Methods.docx; TPB Pap smear questionnaire.docx; Follow-up phone call script, Inciardi 07 17 2017.docx; Inciardi, Project Approval Faculty Letter, 07 10 2017.pdf; Informational Letter 07 24 2017.docx; Partial Waiver Form, Inciardi.pdf; tmc-authorization HIPAA, Inciardi.pdf

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,

A handwritten signature in blue ink that reads 'Bailey Walton'.

Bailey Walton
UMKC IRB Administrative Office

Appendix K

Measurement Tools

Appendix L

Permission for Tools

Sent: 12 April 2017 19:35

To: Derek Rutter <D.R.Rutter@kent.ac.uk>

Subject: Permission to use TBP Questionnaire

Good afternoon Dr. Rutter,

I am a graduate student at the University of Missouri-Kansas City. I am obtaining my doctorate in nursing and currently developing my doctoral nursing project. My evidence based project aims to increase breast and cervical cancer screening in African American women. I am applying the Theory of Planned Behavior to help develop my project and came across your study titled "Attendance and reattendance for breast cancer screening: A prospective 3-year test of the Theory of Planned Behavior." I believe the questionnaire you developed based on the TBP will assist me in completing my study to measure my participant's intent to obtain a screening. I wanted to ask for permission to use this tool in my study.

Thank you for your time and consideration,

Erin Inciardi, RN, BSN, CCRN

RE: Permission to use TBP Questionnaire



Derek Rutter <D.R.Rutter@kent.ac.uk>

Wed 4/12, 4:11 PM

Inciardi, Erin N. (UMKC-Student) ✉



Reply all | ▾

Inbox

Yes, please do.

With best wishes

Derek Rutter

Sent: Tuesday, June 20, 2017 1:57 PM
To: Roncancio, Angelica M <Angelica.M.Roncancio@uth.tmc.edu>
Subject: Permission for use of TPB questionnaire

Good afternoon Dr. Roncancio,

My name is Erin Inciardi and I am a doctoral nursing student at the University of Missouri-Kansas City. I am currently working on my doctoral project, which includes implementing specific educational interventions to increase breast and cervical cancer screening among African American women in a Kansas City primary care clinic.

I plan to use Ajzen's Theory of Planned Behavior to measure a woman's intention to obtain both breast and cervical cancer screening. I am writing to ask permission to use your screening tool you developed, which you stated in your article, "Using the Theory of Planned Behavior to Understand Cervical Cancer Screening among Latinas." I have found a separate tool to measure intention to obtain a screening mammogram.

I appreciate your help.

Thank you,

Erin Inciardi

RE: Permission for use of TPB questionnaire



Roncancio, Angelica M <Angelica.M.Roncancio@uth.tmc.edu>

Today, 5:07 PM

Inciardi, Erin N. (UMKC-Student) ✕



Reply all | ▾

Inbox



TPB_Items-ENGLISH.DOC
69 KB

✓ Show all 1 attachments (69 KB) Download Save to OneDrive - University of Missouri

Hi Erin,

The manuscript you mentioned below was a secondary data analysis. As such, I did not develop these items. However, for my dissertation I did develop TPB cervical cancer screening-specific items following Ajzen's guidelines. I have attached a document with both sets of items. The first set are the ones you requested and the second set are the TPB items I developed and employed for my dissertation and associated publication (*Understanding cervical cancer screening intentions among Latinas using an expanded theory of planned behavior model*). You are welcome to use either, but I would recommend using the items I employed for my dissertation.

Best of luck with your dissertation!

Angelica M. Roncancio, PhD
Assistant Professor

Center for Health Promotion and Prevention Research University of Texas School of Public Health

Appendix N

Statistical Analysis Table

	Received Mammogram	Did NOT Receive Mammogram	Percentage
Number of patients	3	14	21

	Received Pap Smear	Did NOT Receive Pap Smear	Percentage
Number of patients	0	6	0

Change in Intention to Obtain Screening Mammogram:**Pre-Intervention Questionnaire, Post-Intervention Questionnaire**

Record ID	Intention to Obtain Mammogram, Pre- Questionnaire (Scale: 1-5)	Intention to Obtain Mammogram, Post- Questionnaire (Scale: 1-5)
1	5	5
2	4	*
3	3	5
4	5	5
5	3	*
6	5	5
7	5	5
8	*	*
9	5	5
11	*	*
12	5	*
13	5	5
14	5	5
15	5	5
<i>Change in Intention, p-value</i>		<i>.317</i>

* indicates missing data

Appendix O

Melnyk's Hierarchy of Evidence, adapted

Rating System for the Hierarchy of Evidence For an Interventional Inquiry (Modification by Dr. Lindholm for course N5613)	
Level I	Evidence from a systematic review or meta-analysis of all relevant RCTs. <i>Evidence-based clinical practice guidelines based on systematic reviews of RCTs</i> .*
Level II	Evidence obtained from well-designed RCT. <i>Quantitative systematic review of well-designed controlled trial without randomization.</i>
Level III	Evidence obtained from well-designed controlled trial without randomization (<i>quasi-experimental</i>). <i>Quantitative systematic review of case-control, cohort, or correlational studies.</i>
Level IV	Evidence from well-designed case-control or cohort study (<i>or correlational study</i>)
Level V	Evidence from systematic review of <i>quantitative</i> descriptive (<i>no relationship to examine</i>) or qualitative studies.
Level VI	Evidence from a single <i>quantitative</i> descriptive (<i>no relationships to examine in the study</i>) or qualitative study
Level VII	Evidence from the opinion of authorities and/or reports of expert committees

Appendix P

UMKC SoNHS Proposal Approval Letter



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 Erin Inciardi's Doctor of Nursing Practice (DNP) Project proposal. Ms. Inciardi obtained approval for her project proposal, *Breast and Cervical Cancer Screening in African American Women After Multiple Interventions*, 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,

A handwritten signature in cursive script that reads "Susan J. Kimble".

Susan J. Kimble, DNP, RN, ANP-BC, FAANP
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DNP Programs Director
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