Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials

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Abstract

Background: Screening mammograms are an important aspect of early detection of breast cancer. The American Cancer Society (2017) recommends that women with average risk of breast cancer start yearly screening mammograms at the age of 40 and continue as long as a woman is in good health. Currently 67% of all United States (U.S.) women participate in routine screening. However, only 30% of Hmong women follow the recommended guidelines (Kue, Zukoski, Keon, & Thorburn, 2014). **Objectives**: The aim of this Doctor of Nursing Practice (DNP) project was to launch a quality improvement (QI) initiative to improve mammogram referrals in Hmong women. **Methods**: Utilizing the health belief model, culturally-aware mammogram patient education materials were utilized in two primary care offices in Burke County, North Carolina over four months. The materials included Hmong interpreter services, a written translated educational handout and two culturally-aware mammography videos. **Results**: Prior to the intervention, the organization's mammogram rate for Hmong women was 57%. After providing culturally-aware mammogram patient educational offerings to 20 Hmong women due for a screening mammogram, 80% percent of the Hmong participants educated by the providers agreed to have a screening mammogram. The culturally-aware videos were found to be more effective than the translated handout in the patient agreeing to have a mammogram. **Discussion**: This DNP project improved the providers' knowledge and understanding of Hmong culturally-aware mammogram offerings and the mammogram referral rate for the participants.

Keywords: Hmong population, Hmong women, Hmong culture, screening mammograms, early detection of breast cancer, barriers to cancer screening, culturally-aware, health disparities, health belief model, health literacy, patient educational programs, interpreters, educational videos, health care beliefs, and Asian women

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Dedication

To all the Hmong women I have cared for in the Hickory-Morganton-Lenoir area, you have taught me so much and enhanced my abilities as a healthcare provider. The challenges that have been overcome will lead to a better understanding of the Hmong community. To the Hmong women I will care for in the future, I look forward to working with each of you as you entrust me with your healthcare and guidance.

Chapter I

INTRODUCTION

Routine mammogram screening is an important aspect of preventative healthcare. The American Cancer Society (2017) recommends yearly breast cancer screening by mammography starting at the age of 40 for average risk women until age 55 when biennial screening may be considered. Routine screening should continue as long as a woman is in good health. The incidence of new breast cancer patients continues to climb. According to the American Cancer Society (2015), it was estimated that 292,130 women would develop breast cancer in 2015 and 40,290 women would die from the disease in one year. Certain populations note disparate rates of mammogram completion. According to the Centers of Disease Control and Prevention (2017), 67% of all U.S. women participate in routine screening. One population group significantly underutilizes screening mammograms. Despite living in the U.S. for over 30 years, only 30% of Hmong women overall follow the recommended guidelines (Kue, Zukoski, Keon, & Thorburn, 2014). The rate of screening mammograms is 45% lower than white women and other ethnic groups. Across the spectrum of Asian American sub-groups, Hmong women have one of the lowest rates of cancer screening utilization. Lee & Vang (2010) note, only 30% Hmong women ever reported having a mammogram compared to 49% of Korean American women.

Underutilization of mammograms lead to advanced staging of breast cancer, greater difficulty in treating this disease, higher medical costs, and increased mortality rates. Although breast cancer rates are lower among Asian Americans compared to other racial/ethnic groups, “there are marked differences in incidence and mortality rates among Asian American sub-groups” especially in Southeast Asian American women such as Hmong women from Cambodia, Laos, and Vietnam (Kue et al., 2014, p. 311). There are several barriers to screening

mammograms. Health care accessibility, culture, and cancer literacy were cited as major factors impeding Hmong women receiving screening mammograms (Lee & Vang, 2010).

The 2010 U.S. census noted that 260,073 Hmong Americans were living in the U.S. which represented one of the fastest growing Asian populations with a recent growth rate of over 40% (Xiong, Smalkoski, Herther, Ritesema, Vang, & Zheng, 2013). The heaviest populated areas in the U.S. for Hmong are centralized in the states of California, Minnesota and Wisconsin. One of the most impressive areas of growth in the Hmong population occurred in the South. The Hickory-Lenoir-Morganton, North Carolina metro area is the seventh largest region for Hmong groups in the U.S. (Pfeifer, M., Sullivan, Yang & Yang, 2013). In a search of the literature, rural North Carolina Hmong mammogram improvement projects have not been represented. Further research is needed in the Hmong population. In particular, further studies are needed that determine the origin of cancer in this population and why disparities exist (Pfeifer et al., 2013).

Purpose Statement

The aim of this Doctor of Nursing Practice (DNP) project was to launch a quality improvement (QI) initiative to improve mammogram referrals in Hmong women. The purpose of this study was to determine the effects on mammogram referrals utilizing culturally-aware mammogram patient education materials. Low health literacy rates and poor English speaking capability have both been cited as causes of low cancer screening rates for Hmong women (Lee & Vang, 2010). The educational initiative provided interpreters; Hmong translated handouts, and two culturally-aware videos. A multi-dimensional approach was needed because the majority of Hmong are illiterate in their own language; as roughly 50% cannot read Hmong and 95% of Hmong Americans speak a language other than English in their home (Lee & Vang, 2010). This QI program addressed additional cultural issues as health care seeking behaviors which are often

culturally based. “The literature widely reports that Asian Americans who do not undergo cancer screening do so because they view it as unnecessary in the absence of symptoms” and their experience with preventable health care prior to entering the U.S. was minimal (Lee & Vang, 2010, p. 310). Breast cancer screenings presents a challenge, as the early stages present few symptoms. Traditional Hmong women seek treatment only when they feel ill or sick, which makes it difficult to convince Hmong women to undergo mammogram screenings (Sparks, Vang, Peterman, Phillips, & Moua, 2014). The educational videos utilized for the QI project addressed patriarchal values and beliefs of the Hmong society by allowing the spouse to accompany the Hmong woman undergoing a mammogram. Patriarchal beliefs and attitudes among traditional Hmong households have been identified as barriers to breast cancer screening in Hmong women (Lee & Vang, 2010).

Justification of Study

Few studies have applied culturally based programs to improve breast cancer awareness in the Hmong population. In Wisconsin, Lor & Bowers (2014) identified cultural workshops that included videos, pictographs and hands on activities as an effective measure to improve the understanding and necessity of breast cancer screenings. In California, the Breast Health Project for Hmong Women and Men concluded that culturally informed educational materials and interventions were effective means in conveying the importance of maintaining and monitoring proper breast health (Kagawa-Singer, Tanjasiri, Valdez, Yu, & Foo, 2009). Both of these projects were conducted in large metropolitan areas utilizing multiple sites.

The success of cultural educational interventions have been identified in the literature in other Asian populations as well. In the Chicago area, applying couples interventions to increase breast cancer screening among Korean Americans indicated an increase in mammogram uptake

among non-adherent Korean American women and included the slogan "Healthy Family, Healthy Wife" (Lee, Menon, Nandy, Szalacha, Kviz, Cho, … Park, 2014). Including the male partner in patriarchal societies leads to the success of quality improvement health related projects. In a randomized controlled trial involving Chinese American populations living in the Washington, DC and New York City areas, Wang, Schwartz, Brown, Maxwell, Lee, Adams, & Mandelblatt (2012) reported that a culturally-targeted video significantly increased the mammography screening rates among low-acculturated women compared to a fact sheet and a generic video. Cultural disparities are present in both Asian American women and Latinas that influence breast cancer screening health risk behaviors according to the 2007 California Health Interview Survey. Lim (2010) concluded that the findings suggests that cultural contexts and linguistic strategies should be designed to promote healthy lifestyles and cancer screening in order to have sustainable benefits.

Applying culturally-aware mammogram patient education materials are essential to the success of referring Hmong women for screening mammograms. The literature presented supported the need for improvement in mammogram screenings in Hmong women and the design of the QI project. Studies found in the literature enlightened the necessity of providing culturally-aware educational materials. However, the applications to a rural primary care office are not paralleled in the literature and lack findings in the South. This mammogram QI project provided the unique opportunity to address rural Hmong populations in one of the fastest growing areas for this Asian subpopulation.

Theoretical Framework

A theoretical framework should be used to frame a QI project. Although not originally developed by nursing, social psychological theories are useful in the areas of health promotion

and assist the nurse scholar in proposing strategies that increase awareness of health problems while utilizing a multidimensional approach to orchestrate organizational change efforts, policy development, economic supports, and environmental change (Garner, 2014). The health belief model is an example of a social psychological theory and was one of the first theories adapted to predict health behaviors. Developed in the 1950's by social psychologists Rosenstock, Hochbaum, Kegeles, and Leventhal while working for the U.S. Public Health Service, the main concept of the health belief model centralized around people's behavior and their low participation rates in free programs to prevent and detect diseases (Glanz, Burke, & Rimer, 2015). The model explores how health behaviors are determined by one's personal beliefs or perceptions about a disease, which influences their likelihood to accept recommended preventative health actions. The health belief model has been widely used and is a good fit for health concerns such as breast cancer screenings by mammography. There are six main constructs to the theory, including one's perceived susceptibility, severity, benefits, barriers, along with their cue to action and self-efficacy skills (Glanz et al., 2015).

Assumptions

The QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials" will improve the number of successful mammogram referrals. Currently, the primary care providers involved in the project are challenged with the process as language and cultural barriers exist. For Hmong women that are not acculturated to the U.S. and lack proficient English skills, the spouse may decide if the woman receives a mammogram or a younger English speaking family member used as an interpreter may express their discomfort in discussing the topic with their elders. As noted in the

Thorburn et al. (2012) study, breasts are not routinely discussed in the home environment and is even considered disrespectful to discuss among family members.

Currently the primary care providers in the identified agencies utilize English written handouts and family members or non-approved interpreter office staff to educate Hmong women on mammogram screening. Providing female Hmong interpreters, translated materials, and a culturally appropriate video will address the need for screening mammograms, thus alleviating the taboo topic of discussing private body parts by family members and resolve language barriers. As noted, the spouse is often present and states that his wife does not need a mammogram, therefore further acknowledging the patriarchal society decision making. Some of the misconceptions voiced by the spouse is that the wife is not at risk for breast cancer as she breast-fed her children or there is not a family history of the disease. Through involving the spouse and adapting the slogan "Healthy Family, Healthy Wife", Lee et al. (2014) found that encouraging the spouse to be present if he chooses during the mammogram improved attitudes of mammograms in Korean women in the U.S. In search of the literature, one article was found utilizing the health belief model in the Hmong population, which was applied to a hypertension educational program (Thalacker, 2011). The author acknowledges that applying verbal or audio linguistically appropriate education materials would be the most appropriate format of education as many cannot read or write their own language. In the "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials" QI project, the assumption is that the use of interpreters or the cultural videos will demonstrate higher success rates of screening mammogram referrals over the written translated handout due to a lack of literacy in their own language. Another assumption is that the interpreter services will be utilized over non-approved office staff or family members for questions.

Project Questions

The purpose of this study was to determine the effects on mammogram referrals when applying three culturally appropriate mammogram patient educational formats utilized by primary care providers. The formats include providing interpreter services, a Hmong translated mammogram handout, and a culturally-aware video in both English and Hmong developed by the DNP student who acted as the project leader. The following questions were examined.

1. What is the successful mammogram referral rate after educating Hmong women on screening mammograms utilizing culturally-aware patient education materials by the primary care providers?
2. Which format of the patient education materials were used most often when Hmong women agreed to be scheduled for screening mammograms?
3. Which format of interpreter services was utilized for follow-up questions?
4. Did the primary care providers find that the culturally-aware educational materials helpful when educating Hmong women on the need for screening mammograms?

Definition of Terms

Culturally-aware: "being knowledgeable about one's own thoughts, feelings, and sensations and having an appreciation of diversity" (Purnell, 2015, p. 519).

Culture: "learned, patterned behavioral response acquired over time that includes implicit versus explicit beliefs, attitudes, values, customs, norms, taboos, arts, and life ways accepted by a community of individuals" (Purnell, 2015, p. 520).

Health Literacy: "how well an individual can read, interpret, and comprehend health information for maintaining an optimal level of wellness" (McEwen & Wills, 2014, p. 516).

Hmong: people from the Southeast Asian mountains of Laos and refugee camps in Thailand, Vietnam, and Cambodia that have resettled in the U.S. with the majority relocating to Minnesota, Wisconsin, California, and North Caroling beginning in the 1970's (Thalacker, 2011).

Traditional Hmong Health Practices: belief that illnesses are natural and treatment is not indicated unless symptoms are present. The head of household or a Shaman, which is a religious leader, directs the care of the family (Lee & Vang, 2010).

Summary

Routine screening mammograms are recommended to detect early stages of breast cancer in women over 40 and continue as long as a woman is in good health. Hmong women utilize mammograms at a lower rate than white women and other ethnic groups including Asian subpopulations. The result is breast cancer health disparities leading to increased severity of disease and higher mortality rates. Several barriers have been identified including cultural issues, low health literacy and limited English proficiency. Addressing these barriers by applying them to a culturally-aware patient education program is an appropriate QI project. Utilizing the health belief model is recommended in this population, as there is a limited perceived susceptibility and seriousness of breast cancer in Hmong women. Barriers must be overcome to recognize the benefit of screening mammograms in this Asian subpopulation. A multi-dimensional approach is needed that includes linguistically appropriate interventions and recognition of the patriarchal society norms. Current literature reflects Hmong in heavy populated areas in Minnesota, Wisconsin, and California. A search of the literature does not reveal studies in rural Hmong populations located in North Carolina. Implications for future studies are warranted in the rural South at the primary care provider level.

Chapter II

Research Based Evidence

The purpose of this QI project addressed many of the cultural determinants of health of Hmong women that acted as barriers for screening mammograms by providing culturally-aware patient educational materials in a rural primary care setting. To conduct a thorough literature review on Hmong women utilizing screening mammograms, several databases within the East Carolina University Laupus Health Science Library were used. The specific databases included PubMed, Ovid, and CINAHL. Due to limited literature findings specific to the Hmong population found in these data bases, Google Scholar and the Hmong Resource Center Library in St. Paul, MN were also sources of information for this project (see Appendix N).

Due to a scarcity of findings specific to the Hmong population, some older studies were included. The search limitations included publications written between 2007 and 2018 and printed in English. Abstracts from 84 papers were reviewed. There were limitations with the level of evidence found in the review of the literature. Most of the publications were single descriptive or qualitative studies with fourteen systematic review of these types of studies. In addition, there were fourteen case-control or cohort studies that were considered. Of those publications noted, 40 were found to be potentially significant for this QI project. Following a thorough review of the papers, 28 were actually included for this project. Key words and phrases searched in these databases included: *Hmong population, Hmong women, Hmong culture, screening mammograms, early detection of breast cancer, barriers to cancer screening, culturally-aware, health disparities, health belief model, health literacy, patient educational programs, interpreters, educational videos, health care beliefs, and Asian women.*

Chapter two of this study provides a review of the literature, pivotal articles related to the topic, and further detail of the health belief model and its application to screening mammograms. Also included in this chapter are identified gaps and limitations in previous studies related to the Hmong population. This chapter provides further discussion on the Hmong population and women's cultural beliefs on illness with particular interest in educational programs that include use of interpreters, translated materials, and culturally-aware videos. This chapter will conclude with a review of other breast educational programs and their outcomes in the Hmong population.

Hmong Population Overview and Health Disparities

The Hmong population is one of the fastest growing Asian ethnic groups in the US. Tracing their cultural ancestry to China, the majority of the Hmong population resettled in the mountain regions of Laos with smaller groups in Thailand and North Vietnam before becoming political refugees migrating to the U.S. in the mid-1970's (Pinzon-Perez, 2006). Exact numbers living in the U.S. are hard to determine as many in the past were classified as Asian in census reports. The latest 2010 census reports 260,073 persons of Hmong origin living in four primary states: California (91,224), Minnesota (66,181), Wisconsin (49,240) and North Carolina (10,864) noting a 40% increase since the 2000 census data nationally (Pfeifer et al., 2013). With review of the literature, the group in North Carolina lacked representation concerning cultural and health issues. From the 2010 U.S. census, the Hickory-Morganton-Lenoir metropolitan area is home to 55% of the Hmong population in North Carolina and ranks as the seventh largest metropolitan area in the U.S. (Pfeifer et al., 2013). Additional information regarding population growth is found in the 2010 American Community Survey. According to the survey, 41.8% of the U.S. Hmong population was foreign-born as compared to 12.8% of the total U.S. population (Pfeifer et al., 2013).

The Hmong societal population structure is organized into large closely woven communities known as clans. “Each clan includes multiple extended families with a common surname and is headed by the elder male leader” (Thorburn et al., 2013, pp. 761-762). Often two to three families live in the same household or near each other. Healthcare decision-making is often decided by the patriarchal leader as the well-being of the clan and the family takes precedence over the well-being of the individual (Thorburn et al., 2013). At times, this makes it difficult for healthcare providers to recommend and receive patient acceptance for healthcare suggestions.

One of the Healthy People 2020 national health promotions and disease initiatives by the U.S. Department of Health and Human Services (2017) is to decrease health disparities with strategic opportunities to promote health and improve quality of life for all Americans. Health disparities is an important aspect to review in the Hmong population. Asian populations represents 6% of the U.S. population and may be excluded in large longitudinal studies (Smalkoski, Herther, Xiong, Ritesema, Vang, & Zheng, 2012). Social determinants of health such as culture, socioeconomic status and access to health care have been linked to these disparities. According to Smalkoski, et al. (2012), “Hmong Americans throughout the U.S. have higher rates of cancer, diabetes, hepatitis, hypertension, and gout, but little data exists to document the widespread prevalence or persistence of these health-related issues” (p.8). Health disparities are a major concern throughout the United States. In a review of the literature regarding disparities in the Hmong population by Xiong, et al. (2013), the review found only 19 published studies that met the inclusion/exclusion criteria of the review and noted that 9 (47%) were from California, 6 (32%) were from Minnesota, and 2 (11%) were from Wisconsin. The main topics were cancer in general followed by hepatitis B, tuberculosis, diabetes, gout,

hypertension and kidney failure (Xiong et al., 2013). The review indicates that more studies are needed in this population.

Hmong Women Breast Cancer and Mammogram Rates

Although the incidence of breast cancer in Hmong women is considered lower than other populations, health disparities still exist. Caucasian women have the highest incident rate of breast cancer in the U.S. over any other cultural group whereas Asian American and Pacific Islander (AAPI) women are more likely to die from the disease than any other ethnic population (Depke & Onitilo, 2011). The numbers of new cases in AAPI women is on the rise. Depke & Onitilo (2011) report that 79% have a tumor size greater than 1cm with lymph node involvement at the time of diagnosis and a 200% increase in the mortality rate from breast cancer in this group. Several articles in the literature report similar statistics. Thorburn et al. (2011) note that breast carcinoma is the leading cause of cancer-related mortality among all Asian American women and Hmong women are diagnosed with later cancer stages than any other Asian American subpopulation. Lee & Yang (2015) reports that AAPI women are four times likely to die from breast cancer than U.S.-born women and that with each generation, the risk of developing breast cancer increases. In an additional report by Lor & Bowers (2014), Hmong women have cancer mortality rates 2.8 times higher than other AAPI women do and 4.2 times higher than non-Hispanic White women do. Despite efforts spanning over 80 years to eliminate breast cancer, Tanjasiri, Kagawa-Singer, Foo, Chao, Linayao-Putman, Nguyen,…Valdez (2007) remind us that cancer remains the leading cause of death in Asian women. Based on the American Cancer Society 2013 statistics, Kue et al. (2014) report the incidence rates are high among Cambodian (38.2 per 100,000), Lao (36.9 per 100,000) and Vietnamese (52.8 per 100,000) Americans. Detecting breast cancer in its earliest stage is essential as the “five year

survival rates are quite high (>90%) for women whose cancer is discovered in situ, but drop quickly as the cancer spreads" (Sparks et al. 2014, p. 3).

Given the statistics that Hmong women have later stage breast cancer at time of diagnosis and higher mortality rates than other Asian women, it is important to follow the recommended guidelines for routine screening mammograms. However, the rates of mammograms remain low in this population, which contributes to the disparity of increased mortality rates for breast cancer in Hmong women. "According to the Centers for Disease Control and Prevention (CDC), in 2010, 64.1 % of Asian women aged 50-74 years reported having a mammogram within the last 2 years compared with 73.2% of African Americans and 72.8% of White Americans" (Lor & Bowers, 2014, p. 358). The CDC collects aggregate data on Asian American women and does not differentiate among the various subpopulations. Two studies noted that only 52% of Hmong women have ever had a clinical breast exam but more alarming is the fact that only 16-30% have ever utilized mammography screening (Kue et al. 2014; Lee & Yang, 2015).

Traditional Hmong Cultural Beliefs Related to Illness

In order to provide culturally competent care for the Hmong population, it is important to explore and understand traditional cultural beliefs regarding the origin of illness. For example, in the natural physiology of illness, the body is out of balance and can be caused by changes in weather or consuming hot or cold foods (Capps, 2011). Traditional cultural beliefs also have the ideology that ill health is related from the spirit wishing to depart the body. Therefore, allopathic or western medicine is ineffective against these types of ailments (Pinzon-Perez, 2006). Treatment is instead sought through a shaman (a religious leader), which makes it difficult for traditional Hmong to understand the modern concept of disease.

Hmong Women Breast Cancer Beliefs and Perceived Barriers

How any woman perceives her body can influence health-seeking behaviors. In the Hmong population, there are additional cultural concerns that may impede mammogram screenings. In the traditional Hmong perception of illness, a person seeks healthcare when symptoms are present. Breast cancer is a challenge because in the early stages of the disease, there are few symptoms and Hmong women will not perceive the need for a screening mammogram (Sparks et al., 2014). For many Hmong women, clinical breasts exams and mammograms are regarded as invasive screening procedures (Kue, et al., 2014). It is well understood that language deficiency can be a barrier in healthcare. In the Hmong language, the word "cancer" does not exist. Instead the disease is referred to as "death" (Sparks, et al., 2014). That in itself sets a negative tone for mammogram screening. In the study by Kue et al. (2014), two themes emerged that included that women believed that a diagnosis of cancer meant a life-ending illness without a cure and that the risk of breast cancer was related to only Whites and other ethnic groups.

Hmong women have reported several cultural barriers regarding breast exposure. Breasts are considered very private, showing their breasts is culturally inappropriate, and husbands would be jealous if the women showed their breasts to someone else (Lor, Khang, Xiong, Moua, & Lauver, 2013). Women also reported a strong sense of worry about privacy and understanding test results regarding mammograms. Lor et al. (2013) noted that Hmong women thought that breast-feeding protected a Hmong woman from breast cancer and a breast lump was either a blocked milk duct, boil, or carbuncle. While breast feeding may reduce the risk of breast cancer in all women, this practice does not eliminate the potential for breast cancer and negate the need for screening mammograms.

Hmong Utilization of Western Medicine

Although many Hmong families have been present in the U.S. for over 30 years, there is a mixture of traditional and western medicine practice in the Hmong population. A few studies have looked at the preferred type of practice. Franzen-Castle & Smith (2013) conducted a focus group of 69 adults and 8 children in the St. Paul/Minneapolis, MN area and found that as younger generations are acculturated to the U.S., there is a loss of traditional therapies and a tendency to adopt western medicine. Generally, Hmong are willing to accept western medications for acute illnesses but have difficulty taking long-term medications for chronic illnesses (Culhane-Pera & Xiong, 2003).

Trust in the primary care provider is essential whether using traditional or western medicine. Thorburn, et al. (2012), explored a qualitative research study of six Hmong community leaders, three advisory members and 17 key informants in Oregon that described medical trust or mistrust. There was mistrust in Western providers when there were language barriers or a sense of lack of understanding of traditional medicine (Thorburn et al., 2012). The choice of provider is individualized and western providers must be aware of cultural practices and beliefs. Smalkoski et al. (2012) note, “We argue that the problem is not the traditional healing practices, or some Hmong individuals’ preference for them, but that Western medical practitioners can better meet the needs and expectations of these particular Hmong individuals by building on existing practices as they offer them traditional Western treatment plans” (p. 17).

Language Barriers and Health Literacy

A significant issue in providing care to the Hmong population is the language barrier. From the 2000 census data, Cobb (2010), reports that the majority of households (58.6%) do not have family members that speak English and only 4.4% report that English is the only language

spoken in their home. The Hmong language is considered uncommon as only 4 million people speak the language around the world, including its two primary dialects, White Hmong and Green Hmong (Cobb, 2010). Another difficulty for the language is that it is primarily a spoken language. It was not until the late 1960's that a written form was developed and there are few medical terms (Cobb, 2010). Language barriers can make it difficult in all areas of healthcare including misunderstanding of information, the making of appointments, and the referral process.

Health literacy is a significant problem and presents challenges for the Hmong population. Both language barriers and low literacy have been linked to low cancer screening rates (Lee & Vang, 2010). Overcoming language barriers and low health literacy creates challenges for healthcare providers. It is reported that 71% do not read English and roughly 50% of participants cannot read Hmong, finding that a low literacy in one's own language helps create health care disparities (Lee & Vang, 2010). Older Hmong populations may rely on their children or grandchildren to explain health issues and this can create uncomfortable dialogue, especially in the area of breast cancer screening. "Health care providers are often caught between their desire to provide comprehensive care and their time limitations for the delivery of their services" (Pinzon-Perez, 2006, p. 6). Sufficient time must be allowed in order to establish trust, respect and provide culturally appropriate care.

Health Belief Model Utilization in Cultural Care

Applying the constructs of the health belief model to the breast cancer screening process in Hmong women can aid in the improvement of mammogram referrals in this Asian subpopulation. Culture can act as a barrier to preventative services as a cornerstone of traditional Hmong health beliefs is that screening is unnecessary. In a study by Vang (2009) that focused on Hmong women's perception and beliefs of breast cancer, it was noted that few participants felt

that screening mammograms were needed due to their perception of low incident rates in the Hmong population and that breast-feeding prevented the disease. In order for one to participate in mammogram screening, there must be a sense of susceptibility which is the first construct of the Health Belief Model. Cancer screening in itself is a challenge in the Hmong community, as it is viewed as a new disease that was not present in their homeland (Sparks et al., 2014).

The severity of a disease is the second construct of the health belief model. In traditional Hmong cultural health beliefs, screening is unnecessary in the early silent stages of breast cancer due to the need of observed symptoms before seeking care (Sparks et al., 2014). The benefits of seeking treatment is the third construct of the health belief model. Early detection of breast cancer to reduce severity of illness, costs, and mortality rates are well known in the literature. However, in the study by Kue et al. (2014), traditional Hmong cultural beliefs regard cancer as hopeless, fatalistic and life-ending as there is no cure for the disease. This idea negatively influences the beneficial perception of screening mammograms.

Perceived barriers is the fourth construct of the health belief model. In the systematic review by Lee & Yang (2010), several themes were found as barriers to cancer screening in Hmong Americans. Despite the scarcity of articles found in the literature, Lee & Yang (2010) noted inadequate health insurance, culture, ethnicity of the healthcare provider, and linguistic difficulties as barriers to cancer screenings. In areas where there are large Hmong populations, having a Southeast Asian provider may be a possibility. However, in rural Southern U.S. states, having a similar ethnic provider may not be an option. Developing culturally-aware programs that address health access and linguistic barriers are areas of importance. The Kue et al. (2012) study in Oregon note similarities to Lee & Yang's (2010) review concerning barriers to cancer screening. In exploring Wisconsin area Hmong women's beliefs about breast cancer screening in

a descriptive study, Lor, Khang, Xiong, Moua, & Lauver (2013) describe additional barriers such as embarrassment and fear, lack of competent interpreters, and modesty issues.

The fifth construct of the health belief model is the cue to action. These factors promote action to seek healthcare. For example, individuals may obtain information regarding their illness from television ads or provider reminder cards that influences them to seek care (Glanz et al., 2015). Information gathered can have a positive or negative impact on health promotional activities depending on the source. In a study with 84 Hmong women and men, the majority of the participants cited healthcare providers or the internet as the source of information about breast and cervical cancer whereas a small number identified family, friends, or other media (Thorburn et al., 2013). In an earlier qualitative study of participants from Hmong clans in Oregon, it was found that a central negative theme was that some family members actually discouraged the practice of obtaining a mammogram (Thorburn et al., 2012).

The final construct of the health belief model is the individual's self-efficacy skills or their confidence in their ability performing an action. In a QI project to improve mammogram referrals, the barriers that addressed self-efficacy skills would have to be overcome. In the Kue et al. (2014) study, making an appointments, the referral process, finding time, location of mammography centers, and transportation issues were cited as areas of concern that impeded self-efficacy skills. In the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials", the videos show three mammography centers with discussion regarding the actual exam and referral process, length of the exam, breast conditions to report, special considerations for the spouse, and obtaining results.

Summary

The literature regarding Hmong women and mammogram utilization is lacking strong evidence-based longitudinal studies or randomized controlled trials. Found were two systematic reviews of the literature that presented similar information. The majority of the studies found were qualitative case or cohort studies. A limitation found in the literature notes convenience sampling with multiple gaps in studies. Many of the studies presented were expert opinion based on experience with the Hmong population. However, the strengths of the literature are common themes that result in Hmong health disparities. While not considered a large population, the Hmong growth rate continues to rise and so do their unique healthcare concerns.

The Hmong healthcare beliefs are deeply rooted in religious beliefs and information passed on by elders and members of the clan. A patriarchal society can act as a barrier to a Hmong woman's health. As younger generations become acculturated to western ideas and medicine, traditional healthcare practices are reduced. There are significant language barriers and low literacy skills even within the Hmong language. Healthcare providers must bridge the gap of traditional and western medicine in order to improve health in this population. Applying the health belief model when providing culturally-aware educational materials can act as a change agent in attitude if the provider gains the trust and respect of Hmong individuals. One of the goals for the QI mammogram referral project is to convey the message: *Healthy Wife, Healthy Family, Healthy Community.* Improving mammogram referral rates in Hmong women is the first step in this process.

Chapter III

Methodology

This chapter describes the methodology and design of the DNP QI project. In addition, the participation selection, instrumentation, data collection methods, and analysis of the study are presented. The purpose of this study was to evaluate mammogram referral rates in Hmong women when administering culturally-aware patient educational materials by western North Carolina primary care providers.

Needs Assessment

Working with Hmong women due for breast cancer mammogram screening in a rural primary care setting presented challenges similar to the literature findings in larger metropolitan areas. However, the solutions were not feasible in a smaller rural setting. Located in the growing, but very rural Hickory-Lenoir-Morganton, North Carolina statistical census area, current mammogram rates of the family practice offices within the Carolinas HealthCare System Blue Ridge organization were better than statistics found in published literature. However, improvements were needed. The quality improvement and informatics team noted that women overall had a mammogram screening rate of 73% within the organization, however only 57% of Hmong women were up-to-date. Culturally-aware or translated materials were unavailable to educate Hmong women. Providers relied on English written handouts and typically utilized family members or non-approved Hmong-speaking staff to interpret. Working with the Hmong population, needed improvements were noted that had the potential to improve the health of Hmong women and improve the lives of over 6,000 Hmong residents in the tri-county community. An initiative that centralized on the mammogram health disparity for this population was a potential stepping-stone to other preventative healthcare projects designed for this group.

Project Design

This QI project used a descriptive statistical design to collect sample data from two family practice offices that serve members of the local Hmong population. The project included educational interventions intended to transform care into evidence-based practice. The QI project was developed using the health belief model. A paper data collection tool and instruction sheet were developed by the QI project leader to aid the providers in selecting the appropriate method of education when working with Hmong women due for a screening mammogram (see Appendices H and I). For patients that could read Hmong, the translated patient handout from the Susan G. Komen Foundation (2017), "Hmong Breast Self-Awareness" card entitled *"Paub yus lum mis kom zoo"* was used for the QI project to educate Hmong women (see Appendix F). The handout is free to download and can be found under the tools and resources tab of the website (Susan G. Komen Foundation, 2017).

The QI project leader met with the Carolinas HealthCare System Blue Ridge marketing and patient experience teams to request support and assistance in creating videos for the project. Both teams agreed to assist and finance the creation of two culturally-aware Hmong videos. The script was written by the QI project leader and then translated into Hmong by the organization's approved Hmong translator. The content of the videos included information presented by the QI project leader regarding a screening mammogram, locations to obtain a mammogram, and a Hmong female actor demonstrating the mammogram process. In addition, a lead mammography technician presented special instructions regarding the mammogram process. The first video was recorded in English and titled *Hmong Mammography-English Version.* The video run time was 5:13 and was uploaded to the YouTube cloud-based platform. The same video was then re-recorded in Hmong using an organizational approved female interpreter. The second video,

Importance of Mammography for Hmong Women, was also uploaded to YouTube with a run time of 10:16. It should be noted that although the script was the same, the Hmong language necessitates more words to express the same medical terms, hence the longer length of the second video. Both videos were then uploaded to each of the exam rooms' internet computer tool bar at both sites chosen to participate in the QI project. Instructions were written access to both videos (see Appendix J). For those whom English was not their primary language, an in-person interpreter or the Carolinas HealthCare System Blue Ridge organization's iPad interpreter service was to be used for follow-up questions after viewing the Hmong video or reading the handout.

Prior to initiating the project, the QI project leader provided education regarding the project to the selected providers and their medical office assistants during a staff meeting. Education was provided on the current need of improving mammogram referrals in Hmong women using a PowerPoint presentation to increase awareness of mammogram health disparities in this population. The PowerPoint included Carolinas HealthCare System Blue Ridge's organizational mammogram rates, American Cancer Society recommendations, literature review findings, and each participant's role in the QI project. The QI project leader presented the data collection tool, translated handout, and culturally-aware videos. Information was given on accessing both the English and Hmong versions of the video. Each provider was presented with a pink notebook that included directions for collecting data, data collection tool, translated handout, and access to the videos along with a folder to store completed data sheets.

Data was collected during the routine office encounter for self-identified Hmong women between the ages of 40 and 80 years that were due for a screening mammogram at the time of the office visit. Demographic data was recorded for each Hmong woman including age, number of

years living in the U.S. and personal history of receiving a mammogram. Using a descriptive statistical design, the data provided information between three types of interventional patient educational materials chosen by the provider, the participant's agreement to have a screening mammogram scheduled, and the provider's response regarding if he or she found that the culturally-aware patient educational materials were helpful when educating Hmong women on the need for screening mammograms.

Setting

The clinical settings for this project were two family practice offices. The offices are located in Hildebran and Glen Alpine, North Carolina, which are both located within Burke County. One office is located in the eastern portion of the county and the other in the western region. Both are included in the Hickory-Lenoir-Morganton Metropolitan Statistical Area as noted in the 2010 census and are a sector of the Carolinas HealthCare System Blue Ridge organization. These offices were chosen as they serve a high percentage of Hmong residents in the area.

Sample

The provider population included in this QI project included a group of ten healthcare providers in the two family practice offices who care for male and female patients of all age groups, including Hmong women ages 40 to 80 years. Providers included seven physicians (five Doctors of Medicine and two Doctors of Osteopathic Medicine), one physician assistant, and two family nurse practitioners. Nine providers in the group were Caucasian and one was Asian. None of the providers were Hmong or spoke the Hmong language. Four participants were male and six were female. All providers in these practices were primary care providers who provided routine sick, chronic disease management follow-up visits, and wellness exams.

Methods

During the office encounter, the medical office assistant (MOA) identified qualified Hmong participants as they presented to the office for an appointment and then notified the appropriate providers. Patients' attendance provided implied consent for the educational materials as part of routine standards of care. The patient's provider selected the format of the culturally-aware patient educational materials based on the following guidelines (see Figure 1).

- Hmong women who demonstrated inability to speak English fluently and were unable to read Hmong viewed the Hmong version of the culturally-aware video developed by the QI project leader. Interpreter services were available for follow-up questions via in person or through the iPad interpreter services;
- Hmong women who demonstrated inability to speak English fluently but were able to read Hmong reviewed the *Hmong Breast Self-Awareness Message Card "Paub yus lum mis kom zoo"* from the Susan G Komen Foundation (2017). Interpreter services were available for follow-up questions via in person or through the iPad interpreter services; and
- Hmong women who demonstrated the ability to speak English fluently were given the English version of the Hmong culturally-aware video developed by the QI project leader.

After the educational encounter, the provider asked participants if they would allow a referral for a routine screening mammogram and indicated the response on the data collection sheet. The provider also indicated which method was used to educate the participants during the encounter and type of interpreter services if indicated. Providers were then asked to indicate if the culturally-aware patient educational materials were helpful in educating Hmong women for screening mammograms and provide any comments regarding the QI project.

Figure 1. Algorithm for Selecting Culturally-aware Patient Education Materials

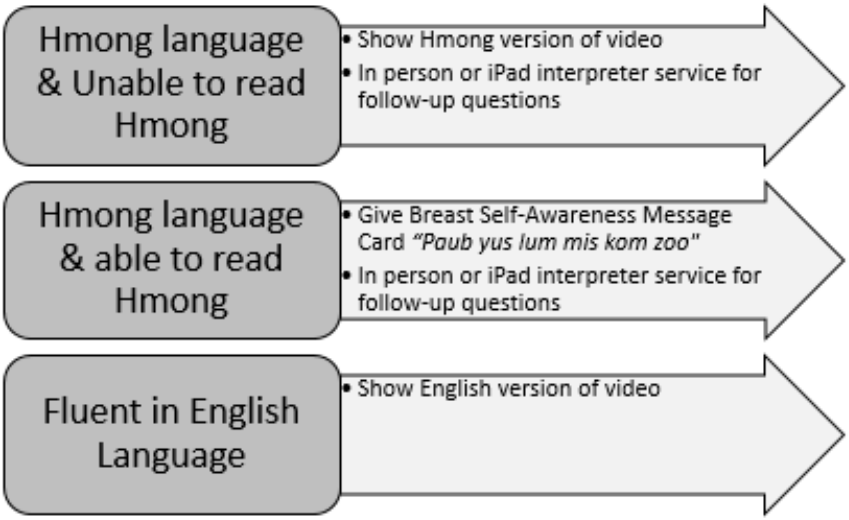

Figure 1. Flow chart demonstrating algorithm for selecting culturally-aware patient education materials by the primary care provider when educating self-identified Hmong women between the ages of 40 and 80 that are due a screening mammogram. Created for the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials".

Protection of Human Subjects

The project proposal was first submitted to the East Carolina University College of Nursing Doctorate of Nursing Practice faculty and Program Director for initial permission to proceed with the QI project (see Appendix A). Prior to implementation, the "Improving Mammogram Referrals in Hmong Women Utilizing Hmong Culturally-aware Patient Educational Materials" project was deemed a quality improvement project and exempt from the institutional review board (IRB) by both organizations involved (see Appendices B and D). A letter of support was signed by the Vice President of Carolinas HealthCare System's Blue Ridge Medical Group to proceed with the QI project. In addition, the project proposal was submitted to the University & Medical Center Institutional Review Board (UMCIRB) via e-Pirate portal (See Appendix C). The project was not deemed as human subject research and was exempted from further review.

Resources

In this project, no established tools were utilized for the data collection. The QI project leader developed a one-page data collection tool providing categorical information on all self-identified Hmong women receiving mammogram educational materials, regardless of the educational method utilized or agreeing to participate in a mammogram referral. The tool documented the ages of the Hmong women, number of years living in the United States, personal history of mammograms, method used to educate the women, whether patients agreed to mammogram referral or not, and providers' perceptions of whether they found the culturally-aware educational materials helpful in educating Hmong women for screening mammograms.

The Hmong-translated participant education handout was downloaded from the Susan G. Komen Foundation (2017) and is available on the internet for public domain. The QI project utilized a double-sided format to include the *Hmong Breast Self-Awareness Messages Card "Paub yus lum mis kom zoo"* and the same information was printed in English for the providers' use (Susan G. Komen, 2017). The English and Hmong version videos were developed by the QI project leader and depicted services at one local mammography center using an actor from the Hmong community that went through the process of receiving a mammogram. The QI leader provided information on breast cancer self-awareness and the importance of a screening mammogram. In addition, a lead mammography technician reviewed special instructions regarding receiving a mammogram in the videos. Special mention was given that allowed the spouse to accompany the Hmong woman during the mammogram. For women who primarily spoke Hmong, interpreters were to be utilized for follow up questions by an in person interpreter or via an iPad interpreter services provided by Carolinas HealthCare System Blue Ridge following the educational encounter.

Data Collection

The data collection for the QI project was performed over a four-month period during the months of February to May 2018. The MOA identified qualified participants at the time of patient arrivals and the data collection sheet was placed with the patient encounter form for the provider to complete. The appropriate method of patient education was performed based on the criteria set by the QI project leader. After completion of the data collection sheet, the MOA placed it in the designated collection folder. The QI project leader gathered the completed data collection sheets from both locations weekly.

Data Analysis

After completion of the four-month data collection, the QI project leader created an Excel spreadsheet to determine measures of central tendency (mean, median, and mode) and range for the demographic data of the Hmong women. In addition, data was included in the Excel spreadsheet to describe educational methods, provider participants, and patient decisions of agreement for a screening mammogram. Data was summarized to describe findings of the QI project (see Appendix K). Data collection tools with missing data were not included in the analysis. Due to the small sample size of providers (n=10), normal distribution cannot be assumed, as this group does not represent the population. The mammogram referral frequency and the educational format used to educate participants were quantified. Providers' responses regarding the helpfulness of the culturally-aware patient educational materials were noted. Additional comments made by the sample providers were included (see Appendix L).

Limitations

Several limitations were identified in the methodology of data collection. One of the initial limitations for this QI project is that the mammogram rate for Hmong women at the

Carolinas HealthCare System Blue Ridge organization was difficult to determine, as participants were classified as Asian or Unknown instead of the specific Hmong sub-population. The QI project leader and informatics staff had to rely on selection of common Hmong clan names to calculate percentages of women who had completed a screening mammogram as compared to those who had not. In addition, reports were only documented for women ages 50-74 years, as this met Carolinas HealthCare System Blue Ridge organizational requirements for identifying gaps in screening mammograms. This is inconsistent with the framework of this project as determined by the QI project leader who utilized the American Cancer Society Guidelines (2015), whereas, Carolinas HealthCare System Blue Ridge uses the U.S. Preventive Services Task Force (2016) guidelines that recommends biennial screenings for all women aged 50-74 years and individualized in women aged 40-49.

Motivation to provide the education and/or collect the data may have varied among the ten providers, with one provider (QI project leader) having a positive bias in providing the services. This provider served as an outlier as the QI project leader was highly motivated to provide the education to Hmong women and capture data for the DNP project and actually provided 12 of the 20 participant encounters. A second limitation of the project was the timeline of data collection was during the winter months and early spring when acute seasonal illnesses could increase the number of sick patients seen at each location. This seasonal occurrence may have caused additional time constraints on providers' ability to complete the culturally-aware educational materials. An additional limitation for this project is that Hmong women that were eligible for a screening mammogram may not have presented to one of the offices for an appointment during the data collection period. The project design did not identify self-identified Hmong women that arrived at the data collection sites that did not receive the culturally-aware

patient educational materials. Prior to the initiation of the QI project, providers typically utilized patient's family members or unapproved staff members to interpret health information or patient education during patient encounters despite having in-person or via iPad interpreter services that were readily available. The additional time required to utilize approved translators or the iPad interpreter service could have placed additional time constraints on the providers' schedule that may not been accommodated for the educational session. A final limitation of this study is that the in-person interpreter was not clearly specified on the data collection tool as one approved by the Carolinas HealthCare System Blue Ridge organization as opposed to utilizing family members or non-approved staff members to provide interpreter services.

Summary

This project was developed with the need for solutions to improving the mammogram referral process in a rural primary care setting in North Carolina. The design of the project was to include translated materials found from the Susan G. Komen foundation (2017) and the development of culturally-aware educational videos in English and Hmong based on information reviewed in the literature. Two primary care offices participated in the project after the project was deemed a QI project and not research. Data was collected over a four month period and summarized. Several limitations were noted including the difficulty in determining the QI project organizational findings for mammogram rates in Hmong women due to the lack of identification as Hmong in the organizational registration system, inconsistencies between the project design utilizing the American Cancer Society Guidelines (2015) and the Carolinas HealthCare System Blue Ridge organization's utilization of the U.S. Preventive Services Task Force (2016) guidelines, the QI leader's bias toward the project, and potential missing data for Hmong women who were available but did not receive the educational materials during the patient encounter.

Chapter IV

Results

The purpose of this chapter is to review the results of the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials". The project had multiple data points reviewed after the collection of the data sheets from the participating sites. These included the frequency of each educational format presented by the providers, type of interpreter services used for follow-up questions for those women whose primary language was Hmong, the participant's agreement to mammogram referral, and the provider's response if they found the culturally-aware patient education program helpful. In addition, demographic data for each Hmong woman was reviewed. The timeline unfolded without any modifications as data was collected during the projected months of February through May 2018. Seven physicians, one physician assistant, and two nurse practitioners took part of this quality improvement project. All providers were primary care family practice providers.

Sample Characteristics

The available sample size for the QI project was ten primary care providers in family practice offices in rural Burke County, North Carolina that included seven physicians (five medical doctors and two doctors of osteopathic medicine), one physician assistant, and two family nurse practitioners. Medical School Headquarters (2017) differentiates a medical doctor as a physician that practices the classical form of allopathic medicine focused on the diagnosis and treatment of human disease whereas doctors of osteopathic medicine focus on a more holistic view of the patient with a special interest on the prevention of disease. The physician assistant and the family nurse practitioners at both practices are primary care providers and are responsible for their patient's preventative health measures. While all of the providers agreed to

participate in the project, seven actually provided culturally-aware mammogram education to Hmong women and collected data during the selected time period (see Table 1).

Table 1

Provider Characteristics Participating in the Culturally-aware Patient Education Project

Provider Type	Male	Female	Number of Educational Sessions
M.D.	1	—	1
M.D.	1	—	1
M.D.	—	1	1
M.D.	—	1	1
M.D.	—	1	2
D.O.	1	—	2
D.O.	—	1	—
P.A.	1	—	—
FNP	—	1	12
FNP	—	1	—
Totals (N=10)	4	6	

Note. Three out of the 10 providers did not participate in the educational sessions. Medical Doctor (M.D., $n = 5$), Doctor of Osteopathic Medicine (D.O., $n = 2$), Physician Assistant (P.A., $n = 1$), Family Nurse Practitioner (FNP, $n = 2$). Created for the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials".

Twenty Hmong women participated in the culturally-aware patient educational materials sessions presented by the providers in the QI project. 100% were due for a routine screening mammogram. Nine out of the twenty women had never had an initial screening mammogram. Demographic data was collected for each Hmong woman. The women who participated in the educational sessions had an age range of 40-71 years. The average age of these women was 55.1 years with a standard deviation of 9.45 years. The median age was 58 years. All of the women that participated in the culturally-aware educational sessions have lived in the U.S. for at least 20 years. The range for the number of years living in the U.S. was 20-40 years with the mean of 31.8 years and a standard deviation of 4.38 years. The median was 32.5 years living in the U.S. (see Figure 2).

Figure 2. Number of Years Hmong Women Participants Lived in the U.S.

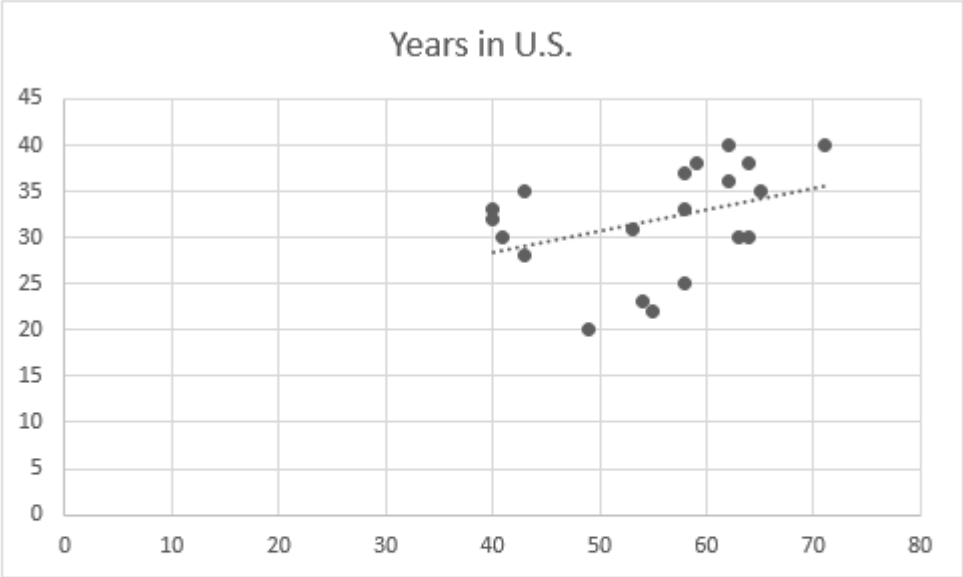

Figure 2. Scatter plot of the number of years lived in the U.S. of the Hmong women, 40-71 years of age, which participated in the culturally-aware mammogram patient educational sessions. The range for the number of years living in the U.S. was 20-40 years with a mean of 31.8 years and standard deviation of 4.38 years. The median number of years living in the U.S was 32.5 years. Created for the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials".

The majority of the women (70%) noted Hmong as their primary language as only six women spoke English as their primary language, which represented 30% of the participants. Of those that spoke English as their primary language, four of the women were in their forties while the other two were ages 59 and 62 (see Figure 3). All of the women that spoke Hmong had an interpreter available for follow-up questions after the educational sessions. However, none of the providers utilized the Carolinas HealthCare System Blue Ridge organizational approved interpreter or the iPad interpreter services. The providers continued to use non-approved office staff interpreters or family members.

Figure 3. Language Spoken by Hmong Women Participants

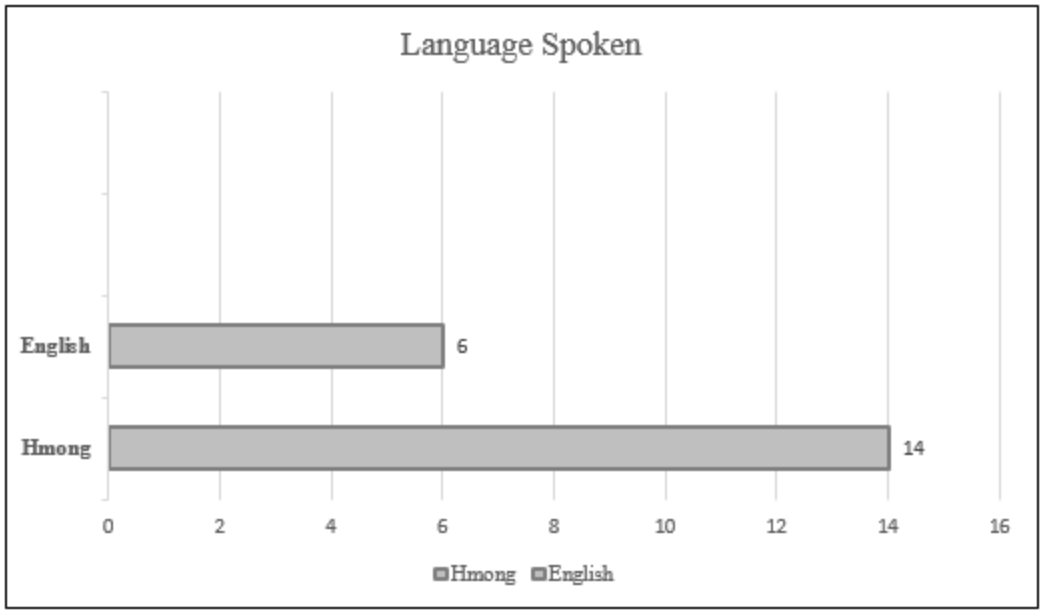

Figure 3. Indicates the primary language spoken for the Hmong women participants in the QI project. Total participants (N = 20). English primary language (n = 6) and Hmong primary language (n = 14). Created for the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Educational Materials".

Major Findings

The seven providers that participated in the QI project educated twenty Hmong women about mammograms during their routine office visits. One of the providers, a family nurse practitioner and team leader for the QI project, provided twelve of the patient educational encounters. The majority of the Hmong women participants spoke Hmong as their primary language. However, none of the providers utilized the QI project Carolinas HealthCare System Blue Ridge organization's in-person interpreter or the iPad interpreter service available in the primary care offices. Although living in the U.S. an average of 31.8 years, nine of the twenty participants had never had an initial screening mammogram. The remainder had a previous screening mammogram but was not current with the recommended guidelines and represented a gap in health maintenance and preventative services (see Figure 4)

Figure 4. Hmong Women Participant History of Previous Mammogram

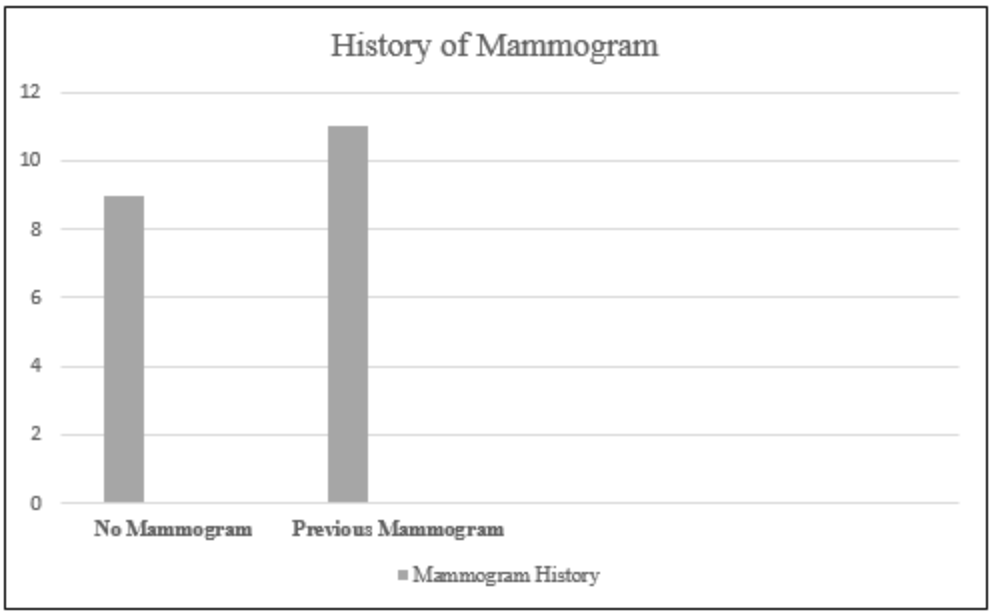

Figure 4. QI project of Hmong women participant history of previous mammogram. Total (N = 20). No history of previous screening mammogram (n = 9). History of previous screening mammogram (n = 11). Created for the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials".

Ninety percent of the participants viewed the videos created for this project. There were six English-speaking and twelve Hmong speaking participants who watched the videos. Two participants, ages 65 and 71, did not watch the videos and the providers elected to give the participants the handout "Hmong Breast Self-Awareness" card entitled *"Paub yus lum mis kom zoo"* from the Susan G. Komen foundation (2017). The 71 year old had a previous mammogram and after reading the handout agreed to have an updated mammogram. However, the 65-year-old Hmong woman had not received an initial mammogram and did not agree to a mammogram referral after reading the handout. Three of the twenty participants (ages 58, 64, and 65) had never had a mammogram and watched the Hmong version video and received the handout. After the educational session, only one woman agreed to a mammogram referral.

Four questions were identified prior to data collection and were answered after completion of this QI project. The first question found that eighty percent of the Hmong women participants who completed a culturally-aware educational session by the participating primary care providers agreed to have a mammogram referral. The providers used the culturally-aware videos created for the QI project 90% of the time to educate patients. Only two patients received the educational handout. The second question asked which method was most effective. The culturally-aware videos demonstrated the most effective means of education as 15 out of 18 participants or 83% who watched the video agreed to a mammogram referral (see Figure 5).

Figure 5. Hmong Women Participants Who Watched the Culturally-aware Video and Agreed to a Mammogram Referral

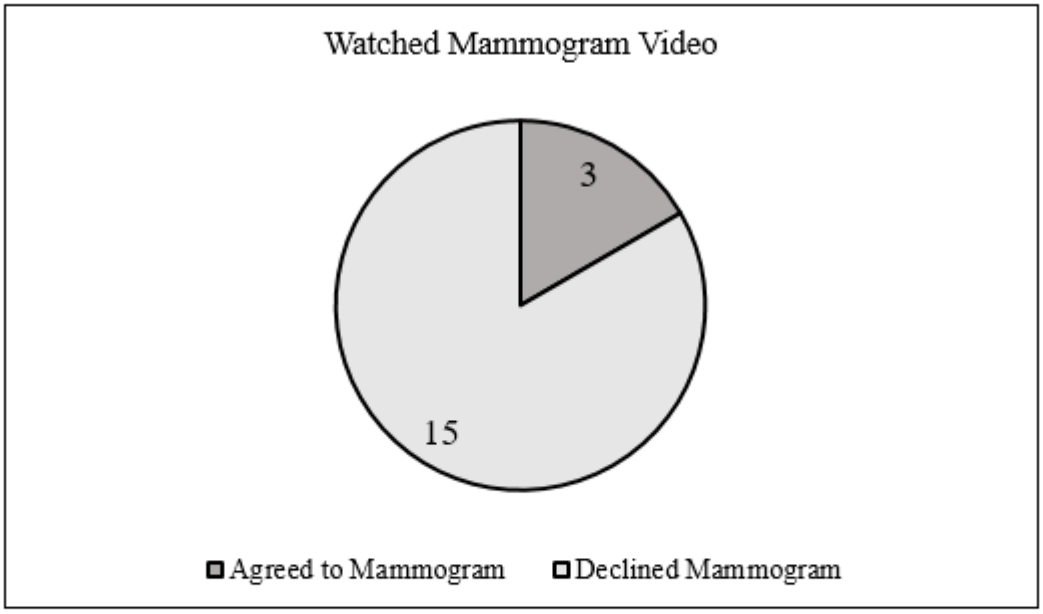

Figure 5. Describes the number of Hmong women participants that watched the culturally-aware videos created for this project and their agreement to participate in a mammogram referral afterwards. Total (N = 18). Agreed to have a mammogram referral (n = 15). Declined mammogram referral (n = 3). Created for the QI project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials".

The third question examined the format of interpreter services utilized for follow-up questions. Unfortunately the QI project did not demonstrate utilization of approved in-person or iPad interpreter services as the providers continued to use family members or non-approved Hmong-speaking office staff members. The last question explored the sample providers' perceptions of benefits in using the culturally-aware educational materials. Nineteen out of twenty encounters or 95% found the culturally-aware patient educational encounters beneficial. Only one provider did not find the project helpful as the particular Hmong woman participant spoke English and usually obtains a routine screening mammogram. However, the reason for not being up to date was a lack of insurance and not an educational need deficit as indicated by the comments from the provider. This provider only submitted one patient educational encounter. The remaining six providers found the sessions helpful. The providers indicated on the QI data collection various comments regarding these sessions (see Appendix L). Additional comments noted that several of the providers suggested future culturally-aware projects be created including colon cancer screenings and diabetes education.

Summary

Seven out of the ten providers participated in the QI project and utilized culturally-aware patient educational materials for 20 Hmong women in need of a routine screening mammogram. The Hmong women were 40-71 years of age and living in the U.S. for an average of 31.8 years. Seventy percent of the women primarily spoke Hmong with the remaining noting English as their primary language. 80% or 16 out of 20 women agreed to a mammogram referral after the educational encounter. The videos were more effective than the handout as 83% of the women who watched a video agreed to a screening mammogram. Only one woman who received the handout alone agreed to a screening mammogram.

Chapter V

Discussion

The health belief model examines health behaviors that are determined by one's personal beliefs or perceptions about a disease. One's personal beliefs are influenced by culture, which may affect the likelihood to accept recommended preventative health actions by providers. Hmong women are presented with multiple barriers to screening mammograms as discussed throughout this project. While providing culturally-aware patient education does not set out to change culture, providers can address some of the known barriers to preventative healthcare and demystifying the susceptibility and severity of illnesses that present early without symptoms.

Addressing Language Barriers

As the Hmong population continues to grow in the Hickory-Lenoir-Morganton statistical metropolitan region, healthcare organizations must address the healthcare concerns for the Hmong residents in the community. One of the major barriers to screening mammograms in this population is a language barrier as noted in the literature (Cobb, 2010; Lee & Vang, 2010). Ethically and legally, patients with limited English proficiency (LEP) should be provided with translated materials and interpreter services. Basu, Costa, & Jain (2017) remind providers that President Clinton signed executive order 13166 entitled *Improving Access to Services for Persons with Limited English Proficiency* in 2000 which is the cornerstone for the provision of oral interpreters and written translation services for patients with LEP. The authors note that there are increased risks for errors without involving a qualified medical interpreter.

The culturally-aware handout and videos created for this project attempted to address the language barriers for this population concerning mammogram screenings. The videos proved to be more effective than the handout and similarities were noted in the literature as health literacy

and inability to read their own native language are barriers to mammograms in Hmong women. Those individuals that watched the culturally-aware videos, whether in English or Hmong, were more likely to agree to a screening mammogram. This finding reflected Wang et al. (2012) who found that a culturally-targeted video significantly increased the mammogram screening rates for low-acculturated Chinese American women when compared to a generic video or fact sheet. However, creating videos for this project provided some challenges. One of the important lessons learned for this project was that the Hmong video had a run time that was twice as long as the English version despite containing the same content. The Hmong language requires additional words and syllables when translating and interpreting the English language. The English version of the video was 5 minutes and the Hmong version was a little over 10 minutes This is an important aspect to remember as educational videos about 10 minutes long may prove to be too time consuming in a primary care setting.

Prior to initiating this QI project, providers were instructed to utilize an in-person or the iPad interpreter service. However, none of the providers utilized these methods for follow-up questions. An additional note, during the project time frame, the in-person interpreter for the Carolinas HealthCare System Blue Ridge organization was male and only available during the office hours of 3p-5pm. Having a male interpreter can be awkward when discussing private issues with Hmong women. In addition, Hmong patients in a primary care office are not always scheduled during the in-person translator's available hours. In a hospital setting, an in-person translator could be accessed more efficiently. Since completion of this QI project, the Patient Experience leader has recruited a female Hmong interpreter but still with limitations during primary care office hours.

The intended solution for primary care management of interpreter service was to utilize the iPad interpreter services. During the initial conversation with the informatics and QI team, it was noted that one of the QI project sites did not have the organizational iPad interpreter program available and one was purchased for that office by Carolinas HealthCare System Blue Ridge. When utilizing the iPad interpreter services, gender specific interpreters could be requested. However, the iPad interpreter service program was still time consuming because of time needed to retrieve the iPad and log onto the system. In addition, patients voiced that the screen was too small for them to view the person providing the interpreter services and that there was a sense of mistrust of the interpreter on the screen. Patients noted that they did not know the person associated with the iPad interpreter service and that they would prefer to have their family member or medical office assistant that speaks Hmong interpret for them because of an increase sense of trust with family members and familiar office staff.

Incorporating interpreter services in primary care practices is essential. Moch, Nassery, & Fareed (2014) gives suggestions to overcome language barriers and improve the quality of care for LEP patients. The first step is to identify the need within an organization by noting the number or proportion of patients with LEP who are likely to be cared for within various settings (Moch et al. 2014). Following the findings of this QI project, the QI leader met with the administrative team to discuss ways to improve the identification of Hmong women, as one of the issues noted during the planning phase of this project was that ethnicity was not clearly indicated and the QI project leader and the informatics team had to rely on the inefficient method of selecting clan names to identify Hmong women. Since the completion of the QI project, a new registration system has been placed independently of the findings of this project but consistent with the results that mandates race and ethnicity to be identified of all patients. The second step

as noted by Moch et al. (2014) is to develop a policy for communicating with LEP patients. The QI leader met with the Quality Improvement team after the completion of this project to discuss developing a policy that not only outlines the steps needed to communicate with LEP patients, but also allows additional time for patient encounters in order to provide interpreter services in all outpatient facilities within the organization. Additional thoughts were discussed on how to communicate with LEP patients on the phone for patient reminders and other communication encounters. Moch et al (2014) note that employing bilingual staff members to provide interpreter services is financially sound advice. However, the authors notes that the staff need to be adequately trained to be competent in medical interpretation. Two potential strategies have been discussed by the QI leader and the quality improvement team at Carolinas HealthCare System Blue Ridge that addresses these concerns. First, the organization should employ additional Hmong interpreters to improve access during routine office hours while employing both genders that would allow discussion of sensitive issues. Second, there are several medical office assistants already employed by the organization but are not approved medical interpreters that have the potential to become certified. This would help alleviate the current provider uncertainty that the information being interpreted is correct. In addition, certifying current staff to become approved interpreters would provide monetary incentives for the Hmong staff if adequately trained. The organization may also be able to recruit a Hmong provider in the future that would be a trusted asset to the Hmong community. And lastly, have commonly used forms translated into Hmong for those that can read and understand these documents.

Addressing Cultural Issues

Although the QI project was set in a rural primary care setting in North Carolina and only provided a small number of Hmong women participants (N = 20), cultural barriers were noted in

this project similar to those found in larger U.S. metropolitan regions. The QI project noted related findings of Lee & Vang (2010) that Asian Americans do not undergo cancer screening because they view the testing as unnecessary in the absence of symptoms. In addition, Sparks et al. (2014) note that caring for traditional Hmong women is difficult for the provider when convincing Hmong women to undergo mammogram screening without symptoms. Lor et al. (2013) described misconceptions regarding breast lumps noting that even with the presence of a palpable lump, breast cancer lumps were felt to be a clogged milk duct or boil. While none of the Hmong women participants presented with a breast lump for evaluation, the culturally-aware videos and the translated handout discussed these cultural barriers. The videos strongly recommended notifying a healthcare provider in the presence of a lump for further evaluation.

Lor et al. (2013) noted that Hmong women have a sense of worry about privacy and understanding the results of the mammogram which the QI project videos addressed. One participant in the QI project reported she was less afraid to receive a mammogram after watching the video and a mammogram referral was made for a screening mammogram. The videos also addressed the location of the local mammography centers and the need for follow-up tests if an abnormal mammogram was noted. In addition the QI project videos noted that the spouse was allowed to accompany the woman during the mammogram and safely stand behind the X-ray shield with the mammogram technician. Involving the spouse in the mammogram encounter as noted in the video echoes the findings of the California Breast Health Project for Hmong Women and Men (Kagawa-Singer et al., 2009) and the works by Lee et al. (2014) that noted that couples interventions increased breast cancer screening among Korean Americans.

With regards of the small number of Hmong women participants in the QI project and noting that all eligible providers did not contribute to the QI project, a root cause analysis may be

indicated in future studies. Findings from this type of analysis may demonstrate additional reasons that providers did not participate in the QI project or if self-identified Hmong women due a screening mammogram were not offered the culturally-aware patient educational materials. These concerns were not incorporated into the QI project design.

Future plans to improve mammogram referrals in Hmong women served by the Carolinas HealthCare System Blue Ridge organization included taking a more active role in addressing the Hmong patriarchal society beliefs. One suggestion included having workshops for the Hmong community on health initiatives for both men and women in small joint sessions that review mammograms and other preventive health measures. In addition, the organization plans to actively participate in Hmong community events such as the Hmong New Year's statewide festival held locally to provide information regarding mammogram breast cancer screening, preventative health measures, and chronic disease management.

Thorburn et al. (2012) and Smalkoski et al. note that trust in your provider is essential whether utilizing traditional or western medicine. Both authors strongly encourage providers to understand and incorporate traditional beliefs in western treatment plans. While all of the Hmong women were provided culturally-aware patient educational materials during a routine office exam with their primary care provider and had medical office assistants of Hmong origin that spoke the language, none of the providers were Hmong or able to confirm that the information was adequately interpreted by family members or non-certified Hmong-speaking staff. During the planning phase of this project, contact with large Hmong communities in California and Minnesota noted that Hmong providers and local Hmong TV stations provide patient education. While this is not an option at this time for the Carolinas HealthCare System Blue Ridge organization, future strategies may be to recruit a Hmong provider for the area.

This QI project helped amplify the patient education encounter by influencing the knowledge, skills, and behaviors of the healthcare providers in the two practice sites. The key aim of this project was to improve mammogram referrals by improving communication with Hmong women regarding the need for screening mammograms. The results of this QI project demonstrated improved mammogram referral rates for the Hmong women that participated in the culturally-aware educational materials. While the Carolinas HealthCare System Blue Ridge organization's Hmong mammogram compliance rates appear to be higher than the national average, there were needed areas of improvement.

Dissemination of the results of a QI project is an important aspect of evaluating the results and the mission of the improvement process. QI projects demonstrate real world knowledge that impacts healthcare. Communicating these findings to nurses, interdisciplinary teams, and policy makers is an essential part of contributing to the nursing profession. As a nursing leader, dissemination is vital to advancing the growing body of nursing knowledge and evaluate if the QI project met the needs of the participating organization.

During this project, one of the positive outcomes of this project is that the QI project leader was asked to be on the cultural diversity committee for the Carolinas HealthCare System Blue Ridge organization as the only healthcare provider on the team. This opportunity provides a unique role to represent healthcare providers and influence decision making throughout the organization. This plan will further increase and enhance innovations affecting various cultures in the community while advocating expanding equity in service provision for diverse populations.

Budget

Prior to the initiation of the QI project, Carolinas HealthCare System Blue Ridge provided interpreter services utilizing an on-site list of approved trained interpreters. Although none of the providers utilized this method to education Hmong women on the need for screening mammograms, it is important to discuss the costs of such services. The current organizational contract for an in-person interpreter is a two-hour minimum at $40 per hour and standard IRS mileage rate. The average cost per patient encounter is $86. In addition, while the iPad interpreter services were available to use during the QI project, none of the providers utilized this method to communicate with the Hmong women. The cost for this service is $1.25 per minute. The average cost to Carolinas HealthCare System Blue Ridge is $18.75 per patient encounter. These costs are similar to the findings of Jacobs, Ryan, Henrichs, & Weiss (2018) who note that in-person rates range from $45-$150/hour and $1.95-$3.49/minute for video remote interpreting services. Jacobs, et al. (2018) reports the cost for interpreter services are "worth it" as malpractice lawsuits can result from adverse patient outcomes due to incorrect language interpreters (p. 74).

During the making of the videos, a female translator served as interpreter for the video. The process to create the Hmong version of the video was a two-step process that included 8 hours to translate the English script into Hmong and another 8 hours to do the voice over recording with synchronization of the audio visuals. The costs of translating the script was $25/hour ($200 for 8 hours) and recording the video $20/hour ($160 for 8 hours). The Patient Experience Director was able to incorporate the cost of the video into the Patient Experience 2017 yearly budget as this will benefit not only the participants of the QI project but future Hmong women that have the opportunity to watch the videos. The marketing team spent

approximately 20 hours creating the videos with the QI project leader, Patient Experience Director, and mammography center staff. As future Hmong women will be able to view the culturally-aware patient education videos within the Carolinas HealthCare System Blue Ridge organization, costs for time spent on the videos was placed in the marketing budget and without a cost analysis to the specific QI project. Plans for these videos are to have them available in all primary care and women's health offices and perhaps be shown on the organization's web site during October, which is breast cancer awareness month. The QI project leader was successful in mobilizing a multi-disciplinary team to participate in the formulation of the project with the belief that cultural health awareness is an important aspect of promoting equity in healthcare. The QI project leader provided additional supply costs of $150 that included printing of materials and the pink notebooks presented to each provider.

Lessons Learned

Prior to implementing the QI project, the project leader presented the idea to the quality improvement and informatics team, marketing staff, and the Director of Patient Experience during a formal presentation. The Carolinas HealthCare System Blue Ridge's organizational members attending the presentation noted the potential benefits of the project and a decision was made to invest in the QI project financially and utilize a teamwork approach. Through the team's efforts, the videos created for this project were professional quality and are appropriate to use within the organization. Prior to developing a QI project, it is important to know key personnel that may influence project support within the participating organization.

This project has led to increased provider recognition of the positive effects on using culturally-aware videos to educate patients on a variety of topics. As previously mentioned, participating providers noted that educational videos are an effective way to educate patients on

preventative recommendations. The long-term goal for the QI project leader is to develop a cultural video library to be used to educate patients on a variety of topics within the Carolinas HealthCare System Blue Ridge organization. Ideas for use of the videos include viewing in the waiting room or the patient exam rooms while the patient is waiting for the provider to see the patient. Future thoughts include having the videos sent out to particular patients via email or sending a text with a link encouraging patients to view educational videos based on race, ethnicity, health literacy and health educational needs. Culturally-aware videos may be a part of the solution in improving healthcare and bringing equity to vulnerable populations.

National Objectives

This QI project increased awareness of the need and benefit of culturally-aware educational materials and the adoption of use by primary care providers in a rural setting in North Carolina for Hmong women. As the US becomes increasingly culturally diverse, nurse leaders must be aware of the cultural needs to educate patients by addressing the barriers to self-efficacy as indicated in the health belief model. QI projects such as "Improving Mammogram Referrals in Hmong Women by Utilizing Culturally-aware Patient Education Materials" can be applied to any cultural group to promote equity in diverse cultures.

The future of our nation's healthcare is focused on achieving objectives for improving health of all Americans by empowering individuals to make informed health decisions, achieve health equity in diverse populations, eliminate healthcare disparities, and therefore improve the health of all groups (HealthyPeople.gov, 2018). This QI project addressed these objectives by promoting equitable breast cancer screenings in Hmong women. As previous noted, Kue et al. (2014) noted that despite Hmong women living in the U.S. for over 30 years, only 30% of Hmong women overall follow the recommended guidelines, a number that is 45% lower than

white women and other ethnic groups. This QI project found similar findings as the average Hmong woman participant has lived in the U.S. for 31.8 years with a standard deviation of 4.38 years. While not all of the Hmong women who participated in the educational sessions agreed to a screening mammogram, the providers empowered them to make an informed healthcare decision.

The Institute for Health Improvement has developed a framework that optimizes health system performance by improving the patient experience; improving the health of populations; and reducing the per capita cost of health care (Institute for Health Improvement, 2018). This framework is known as the Triple Aim. QI projects that focus on culturally-aware initiatives should attempt to meet the criteria of the Triple Aim for health system performance. The QI project met the first aspect of the Triple Aim by improving the patient experience. Patient experiences were enhanced as educational sessions were tailored to cultural needs of Hmong women by alleviating the language barrier and health literacy components through providing culturally-aware videos in English and Hmong along with translated handouts. Other positive patient experiences were noted from the comments of the Hmong women who participated in the educational sessions. Some of the women remarked their appreciation of the efforts to provide a cultural video, feelings of alleviating fears, and finding the videos informative.

Improving the health of populations is the second aspect of the Triple Aim initiative. Social determinants of health such as culture has been linked to healthcare disparities. According to Depke & Onitilo (2011), Asian American and Pacific Islander women are more likely to die from breast cancer than any other ethnic group due to large tumor size and lymph node involvement at time of diagnosis. Additionally, Lor & Bowers (2014) note that Hmong women have higher mortality rates from breast cancer than other Asian American groups and non-

Hispanic Whites. Finding breast cancer tumors at an early stage is the first step in improving breast cancer mortality rates for the Hmong population. While results of the screening mammograms was not part of this QI project, 80% of the Hmong women that participated in the educational sessions agreed to a screening mammogram.

Reducing the per capita cost of health care is the third aspect of the Triple Aim initiative. The economic costs of breast cancer can be devastating to the life of Hmong women when early stages of breast cancer go unrecognized. Additionally, increased medical costs accrue in treating late stage breast cancer in these women. The actual patient cost of a screening mammogram at Carolinas HealthCare System Blue Ridge is $255 and is covered 100% by preventative services for those that have commercial insurance, Medicare, and North Carolina Medicaid. The actual cost to the mammography center for a screening mammogram is $125. For those that are uninsured, the Carolinas HealthCare System Blue Ridge organization has programs available at no or reduced costs. Early detection of breast cancer through screening mammogram is typically associated with lower costs of treatment. The economic costs of advanced stage breast cancer treatments are overwhelming. In a retrospective study of over 8,000 women with breast cancer, Blumen, Fitch, & Polkus (2016) noted that breast cancer treatment and other medical costs increased by stage at the time of diagnosis. More specifically, in the study, individual patient costs for stage I/II was $97,066; stage III $159,442; and stage IV $182,655. Additionally, the Centers for Disease Control and Prevention (2016) noted the lost productivity costs associated with breast cancer survivors in the work force to be estimated at over $1.5 billion dollars due to missed days from work. While some may argue that screening mammograms may lead to unnecessary costs for additional tests such as ultrasounds and biopsies, the relatively low costs of

a screening mammogram offsets the high economic per capita costs to treat late stage breast cancer found in Hmong women.

Conclusion

The aim of this QI project was to open the dialogue between providers in primary care and Hmong women in rural North Carolina by providing culturally-aware patient education materials regarding screening mammograms. Utilizing the health belief model as a framework for the QI project, the constructs of the theory were addressed throughout this project. Hmong women typically do not perceive the susceptibility and severity of breast cancer. Therefore, they do not understand the benefits of having a screening mammogram. Several barriers were addressed in the educational sessions that included the beliefs of Hmong women and men that breast cancer does not occur in Hmong women and that they are protected from the disease through breast-feeding their infants. Additional worries that the mammogram would hurt and uncertainty of findings were discussed in the videos. However, as QI project leader, future projects should strongly address the patriarchal beliefs related to breast cancer screening by mammogram. Trust in a provider and feelings that the provider attempts to understand their culture can act as a positive cue to action for preventative healthcare services in the absence of symptoms as traditional Hmong women seek healthcare when symptoms are present. Improving self-efficacy skills by providing patient education and information that allows individuals to make an informed consent regarding their own healthcare is crucial to improving the health of populations.

Caring for Hmong patients presents multiple barriers to preventative screening measures but is an important aspect for the growing Hmong population in the Hickory-Lenoir-Morganton area. The initial objective for the QI project leader was to provide a stepping stone of equity in

healthcare for the Hmong patients in the community. This objective was met through the "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Educational Materials" QI project as the organization approved of the project outline, supported the development of the culturally-aware educational materials, and have initiated plans for change as recommended by the QI leader based on the findings of the project. The second objective was to promote the idea that Carolinas HealthCare System Blue Ridge cares for the Hmong community and strives to be the chosen regional healthcare provider organization for this population. Additional services and improvement projects are needed to achieve this goal as recognized by the project findings. Improving the mammogram referral rates in Hmong women provides the first step of this process, one screening mammogram at a time. Reiterating the motto, *Healthy Wife, Healthy Family, Healthy Community,* the groundwork has been laid to meet the healthcare needs of Hmong residents in rural North Carolina.

Chapter VI

DNP Essentials Impact

This DNP project "Improving Mammogram Referrals in Hmong Women Utilizing Culturally-aware Patient Education Materials" met the requirements for the DNP program at East Carolina University and the American Association of Colleges of Nursing DNP Essentials. The DNP Essentials is a requisite for completion of an accredited DNP program (American Association of Colleges of Nursing, 2018). Throughout the QI project, there is evidence of utilization of quality improvement strategies, evidence-based practice, leadership, systems change, health care policy advocacy, interprofessional collaboration for improving patient and population outcomes and thereby improving our nation's health.

The goal of QI projects is to demonstrate advanced nursing practice through designing, implementing, and evaluating nursing interventions to promote quality health care. Quality was achieved by alleviating patient worry and allowing informed consent to screening mammograms through providing culturally-aware patient educational materials. In addition, quality was improved by increasing the mammogram referral rates in these women and improved the quality indicator benchmark set by the Carolinas HealthCare System Blue Ridge. Continued efforts to improve the mammogram referral rates will demonstrate quality outcomes by recognizing breast cancer in earlier stages for this population. By applying evidence-based practice to reduce health disparities in cultural groups, QI projects demonstrate the DNP Essentials and promote leadership as a DNP prepared nurse. For a detailed description on the DNP Essentials and specifics of how this project met the intent of these guidelines, see Appendix M.

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APPENDICES

Appendix A

East Carolina University College of Nursing DNP Project Approval

ECU CON DNP PROJECT EVALUATION

Student: **Sandra Wilson** Course Faculty: Tillman Date of Review: 6/20/2017

Review Type: ☒**Mid Term** or ☐**Final** Project Site: **Carolinas Healthcare: Blue Ridge**

Project Title: **Improving Mammogram Referrals in Hmong Women Utilizing Hmong Translated Patient Education Materials**

DNP Projects should be designed so that processes and/or outcomes will be evaluated to guide practice and policy and address all the DNP Essentials. Clinical significance is as important in guiding practice as statistical significance is in evaluating research. All Criteria must be met for student to progress to NURS 8272 DNP Project II.

Criteria	Met	Not Met	Unclear	Rationale
1. Is the project feasible and realistic within the timeframe of the program of study?	XX			Student discussed some timeframe in proposal, she has support from her organization, and is motivated
2. Is there evidence to support the need for the project at the specific site?	XX			Used brief lit review. "Hmong women are of interest as the Morganton-Lenoir-Hickory region, where I practice, is the fifth largest metropolitan region for Hmong groups according to the 2010 US Census (Pfeifer, Sullivan, Yang, & Yang, 2012)." At Carolinas Healthcare Systems Blue Ridge (CHSBR), mammogram rates are slightly better than the national average but still do not meet the 85% benchmark set by the organization. Additionally, there remains a disparity among Hmong women, as only 57% are up-to-date on the recommendations as compared to 73% of all women."
3. Does the project include a theoretical framework for implementation?	XX			Health Belief Model; Previously written about in theory course; Appropriate for culturally-motivated care improvement projects such as this.
4. Is the project supported by evidence provided through existing scholarly literature?	XX			In a review of the literature, several studies (Hou, Sealy, & Kabiru, 2011; Lee, Menon, Nandy, Szalacha, Kviz, Cho, Miller, & Park, 2014; Sun, Sarma, Moyer, & Messina, 2015; Wang, Schwartz, Brown, Maxwell, Lee, Adams, & Mandelblatt, 2013) demonstrated that the use of culturally-specific patient education materials and programs increased the likelihood of successful referrals for mammograms in Asian populations.
5. Does the project focus on a change that impacts healthcare outcomes either through direct or indirect care/clinical practice?	XX			Both directly and indirectly, some concern RE: IRB
6. Will the project solve systems or practice problems or directly inform clinical practice?	XX			Yes, mitigate cultural and language barrier while increasing mammography rates
7. Does the project have a systems (micro-, meso-, or macro- level) or population/aggregate focus? (Intended project population clearly defined).	XX			Micro-system focus that may extend to other healthcare procedures
8. Does the project demonstrate implementation in the appropriate setting or area of practice? (Site letter of support is required prior to final approval).	XX			Student works for the system, though letter of support and IRB are not yet obtained
9. Does the project address outcomes associated with the Triple Aim and/or Healthy People 2020?	XX			Both. "The financial impacts of advanced staged breast cancer would reduce, meeting Triple Aim goals. Two objectives addressed in Healthy People 2020 note disparities among Asian ethnic groups. These objectives include: C-18.1, increase the proportion of women who were counseled by their providers about mammograms and HC/HIT-2.2, increase the proportion of persons who report that their health care providers always explained things so they could understand them (Healthy People, 2017)."
10. Does the project include proposal overall measurable outcomes?	XX			"Descriptive statistics will be used to evaluate the data collected to determine whether the process of this culturally appropriate educational program improves the percentage of Hmong women being referred for mammogram screening."
11. Does the project provide a foundation for future practice scholarship and interprofessional leadership?	XX			Yes, this may extend to the entire health system and/or be utilized locally (micro-system) for healthcare procedures, increases interprofessional awareness and practice with a specific minority population.

DNP I Faculty comments/discussion ☒**Met 100%** OR ☐**Did not meet 100%.** Explain:

The American Cancer Society (2017) recommends initial breast cancer screening by mammography starting at the age of 40 and continue as long as a woman is in good health. Certain populations note disparities in mammogram rates. According to the Centers of Disease Control and Prevention (2017), 67% of all US women participate in routine screening. However, only 30% of Hmong women follow the recommended guidelines, which is 45 % lower than white women and other minority groups (Kue, Zukoski, Keon, & Thorburn, 2014). Underutilization of mammograms may lead to advanced staging of breast cancer and greater

Updated March 2017/mhs/BS

difficulty treating this disease, higher medical costs, and increased mortality rates. Hmong women are of interest as the Morganton-Lenoir-Hickory region, where I practice, is the fifth largest metropolitan region for Hmong groups according to the 2010 US Census (Pfeifer, Sullivan, Yang, & Yang, 2012).

At Carolinas Healthcare Systems Blue Ridge (CHSBR), mammogram rates are slightly better than the national average but still do not meet the 85% benchmark set by the organization. Additionally, there remains a disparity among Hmong women, as only 57% are up-to-date on the recommendations as compared to 73% of all women. One of the difficulties in referring Hmong women for mammograms is lack of culturally appropriate patient education materials for providers to utilize when discussing mammograms. In a review of the literature, several studies (Hou, Sealy, & Kabiru, 2011; Lee, Menon, Nandy, Szaladha, Kviz, Cho, Miller, & Park, 2014; Sun, Sarma, Moyer, & Messina, 2015; Wang, Schwartz, Brown, Maxwell, Lee, Adams, & Mandelblatt, 2012) demonstrated that the use of culturally-specific patient education materials and programs increased the likelihood of successful referrals for mammograms in Asian populations.

Providing a culturally appropriate mammogram patient education and referral program is essential to the success of referring Hmong women for screening mammograms. Utilizing the Health Belief Model, I propose to create and apply a culturally-aware strategy for Hmong women in order to increase mammography referrals for this population. The program will include scheduling Hmong women for healthcare appointments between 3:00-5:00pm when a Hmong interpreter is available; providing a written Hmong-translated mammogram patient education handout; and developing a culturally appropriate mammography video that the provider can show during the office visit. Three providers (family nurse practitioner, physician assistant, and their supervising physician) will have access to the interpreter, handout, and video and then indicate if the patient agreed to be scheduled for a mammogram after the program encounter. Descriptive statistics will be used to evaluate the data collected to determine whether the process of this culturally appropriate educational program improves the percentage of Hmong women being referred for mammogram screening. The program will be developed during the DNP3 course and data collected during the DNP III course. The project will focus on both direct and indirect clinical practice while addressing systems practice issues that are unmet in this population utilizing a micro systems change approach.

The goal of an appropriate DNP quality improvement project should address patient outcomes associated with the Triple Aim and/or Healthy People 2020. This project would meet both. Utilizing mammograms in Hmong women is appropriate in the early detection of breast cancer. Therefore, the financial aspects of advanced staged breast cancer would reduce, meeting Triple Aim goals. Two objectives addressed in Healthy People 2020 note disparities among Asian ethnic groups. These objectives include: C-18.1, Increase the proportion of women who were counseled by their providers about mammograms and HC/HIT-2.2, Increase the proportion of persons who report that their health care providers always explained things so they could understand them (Healthy People, 2017). Additionally, this proposed project demonstrates interprofessional leadership that can transcend into other Hmong patient educational needs.

References

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Centers for Disease Control and Prevention. (2017). *National center for health statistics: Mammography.* Retrieved from https://www.cdc.gov/nchs/fastats/mammography.htm

Healthy People. (2017a). *C-18.1 Increase the proportion of women who were counseled by their providers about mammograms.* Retrieved from https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4057

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Updated March 2017/mtu/BS

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Pfeifer, M., Sullivan, J., Yang, K., & Yang, W. (2012). Hmong population and demographic trends in the 2010 census and 2010 American community survey. *Hmong Studies Journal, 13*(2), 1-31. Retrieved from http://hmongstudies.org/PfeiferSullivanYangWYang4SJS13.2.pdf

Sun, Y., Sarma, E., Moyer, A., & Messina, C. (2015). Promoting mammography screening among Chinese American women using a message-framing intervention. *Patient Education and Counseling, 98*(2015), 878-883. doi: 10.1016/j.pec.2015.03.021

Wang, J., Schwartz, M., Brown, R., Maxwell, A., Lee, M., Adams, I., & Mandelblatt, J. (2012). Results of a randomized controlled trial testing the efficacy of a culturally-targeted and a generic video on mammography screening among Chinese-American immigrants. *Cancer Epidemiology Biomarkers Prevention, 21*(11), 1923-1932. doi: 10.1158/1055- 9965.EPI-12-0821

Action Plan: What does the student need to do to meet the unmet needs? Student action plan should include the specific areas needing additional development with specific dates of completion. Student will continue to refine the project proposal until approved:

Faculty Reviewer #1 Signature: Jan Tillman **Date:** 6/26/2017

Faculty Reviewer #2 Signature: Tracey Bell (by phone) **Date:** 6/26/2017

As the DNP Program Director, I have reviewed this project and ☐ **Approve** *OR* ☐ **Do not approve** this project.

Comments:

Appendix B

East Carolina University Projects IRB Review

ECU

Projects Requiring IRB Review vs. Quality Improvement, Quality Assessment, or Quality Assurance: A Worksheet to Assist in Determining When IRB Review is Required

Use this worksheet to help determine whether a proposed activity or project involving humans or their individually identifiable information is considered research needing IRB review or a quality related activity that would not require IRB approval.

	True	False
The PRIMARY purpose of the proposed activity or project is to learn about or learn from existing care to IMPROVE what is done here at the local institution with regard to patient outcomes, efficiency, cost, patient/staff satisfaction, etc.	☒	☐
The activity or project would be carried out even if there was no possibility of publication in a journal or presentation at an academic meeting. (**Please note that answering "True" to this statement does not preclude publication of a quality activity.)	☒	☐
The activity or project falls under well-accepted care practices/guidelines.	☒	☐
The activity or project involves no more than minimal risk procedures meaning the probability and magnitude of harm or discomfort anticipated are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.	☒	☐

If **any** of the above answers is "False", a submission for IRB approval is most likely needed. If all the above answers are "True", then it is very likely that IRB approval is not required. Please contact the Office of Research Integrity and Compliance (ORIC) with any questions at 252-744-2914 or umcirb@ecu.edu. If you would like the ORIC to verify that an activity or project is not human subject research, please provide this form along with a summary of your activity to the ORIC at umcirb@ecu.edu and the following page will be completed and returned to you for your records.

Project title: ***Improving Mammogram Referrals in Hmong Women Utilizing Culturally Appropriate Patient Education Materials***

Summary of activity including information about project aims/objectives, methods for carrying out the project and information about data to be collected (you may instead attach documentation describing your proposal):

(Documentation was attached)

*** The ORIC will contact you if any further information is needed to make this determination. Please note that if the ORIC determines the activity is not human subject research, then any presentation, publication, etc. should not refer to the activity as "human subject research", "exempt research" or "expedited research".

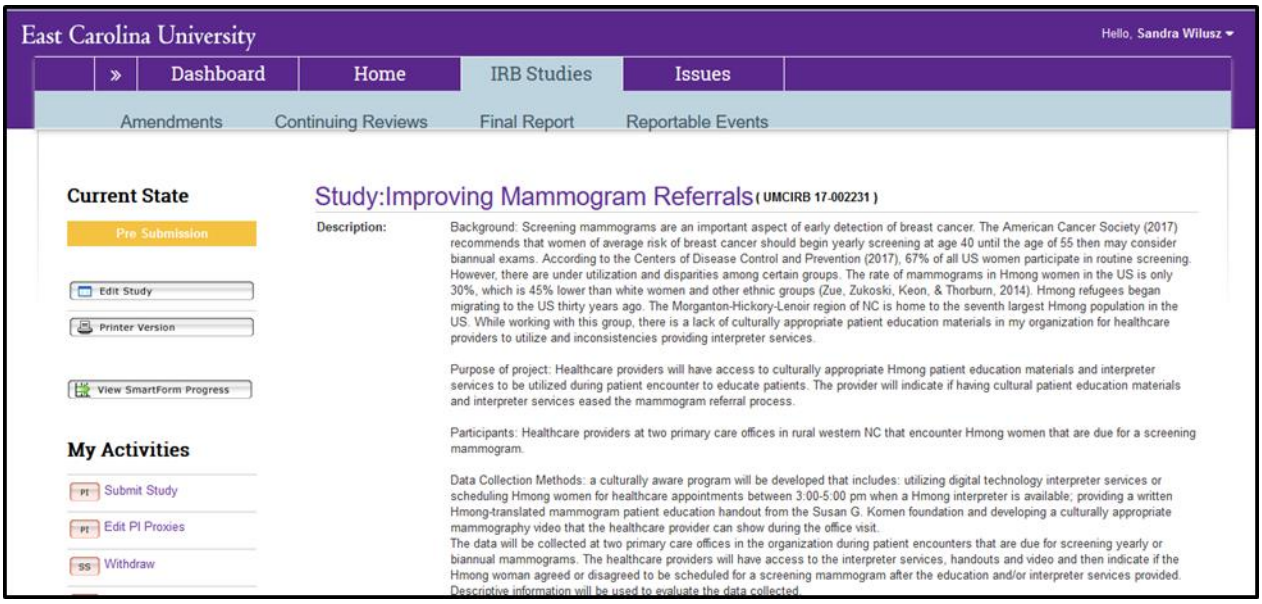
ORIC Determination:

☒ Not Human Research: The ORIC has determined that based on the description of the project, approval by the IRB is not necessary. Any changes or modifications to this project may be discussed with the ORIC at that time to ensure those changes do not elevate the project to human research that would need IRB approval.

☐ Human Research: This project requires review by the IRB prior to initiation. An application in the electronic IRB submission system should be submitted.

Appendix C

University & Medical Center Institutional Review Board Submission



Appendix D

Letters of Support

Carolinas HealthCare System
Blue Ridge

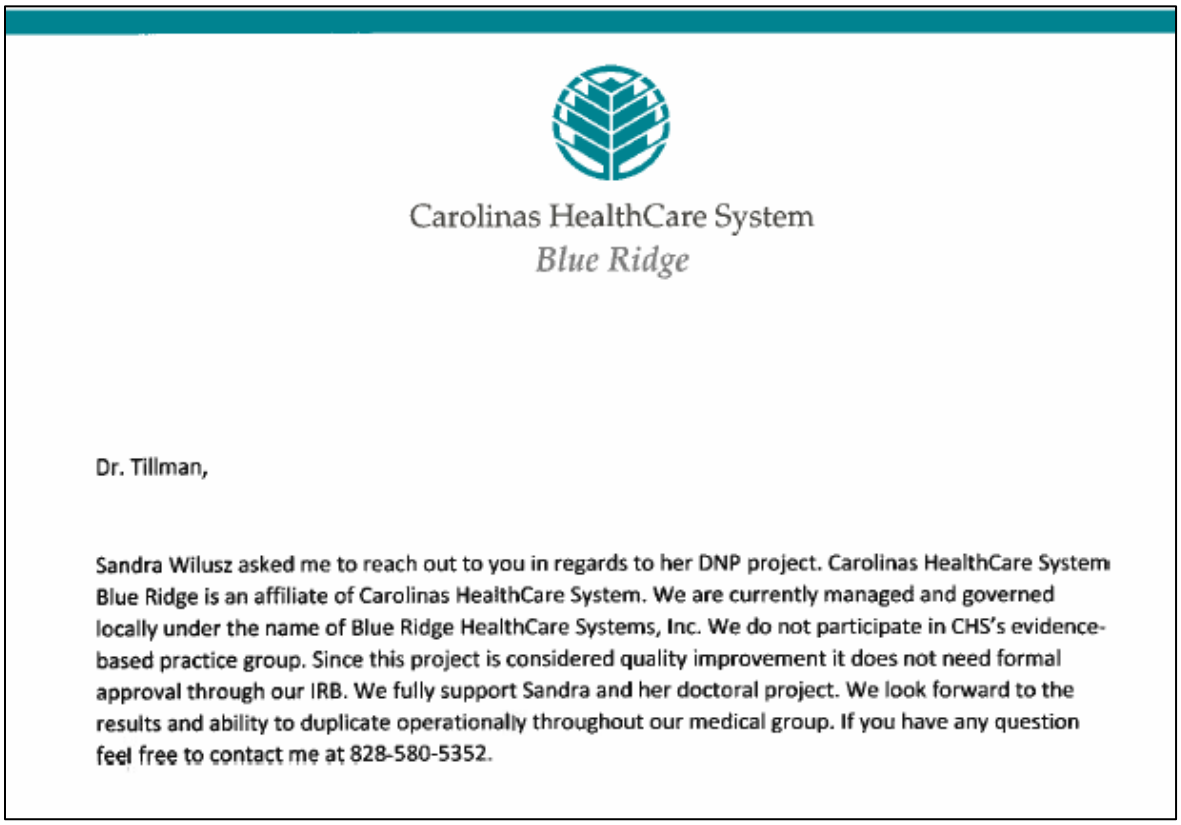
Date: June 26, 2017

To Whom It May Concern,

We at Carolinas HealthCare System Blue Ridge and Blue Ridge Medical Group have reviewed Sandra Wilusz's DNP Project titled "Improving Mammogram Referrals in Hmong Women Utilizing Hmong Translated Patient Education Materials". Ms. Wilusz has organizational support and approval to conduct her project within our institution. We understand that for Ms. Wilusz to achieve completion of the DNP program, dissemination of the project will be required by East Carolina University, which will include a public presentation related to the project, and a manuscript submission will be encouraged.

Our organization has deemed this project as a Quality Improvement initiative and does not require institutional IRB review.

Thank you



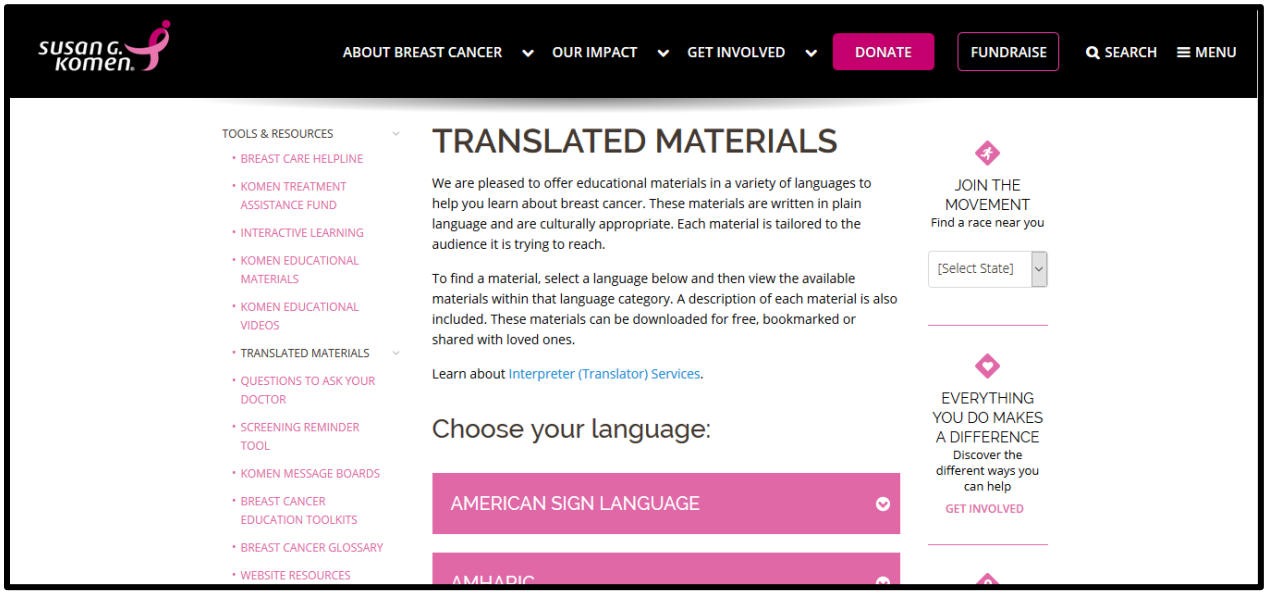
Carolinas HealthCare System
Blue Ridge

Dr. Tillman,

Sandra Wilusz asked me to reach out to you in regards to her DNP project. Carolinas HealthCare System Blue Ridge is an affiliate of Carolinas HealthCare System. We are currently managed and governed locally under the name of Blue Ridge HealthCare Systems, Inc. We do not participate in CHS's evidence-based practice group. Since this project is considered quality improvement it does not need formal approval through our IRB. We fully support Sandra and her doctoral project. We look forward to the results and ability to duplicate operationally throughout our medical group. If you have any question feel free to contact me at 828-580-5352.

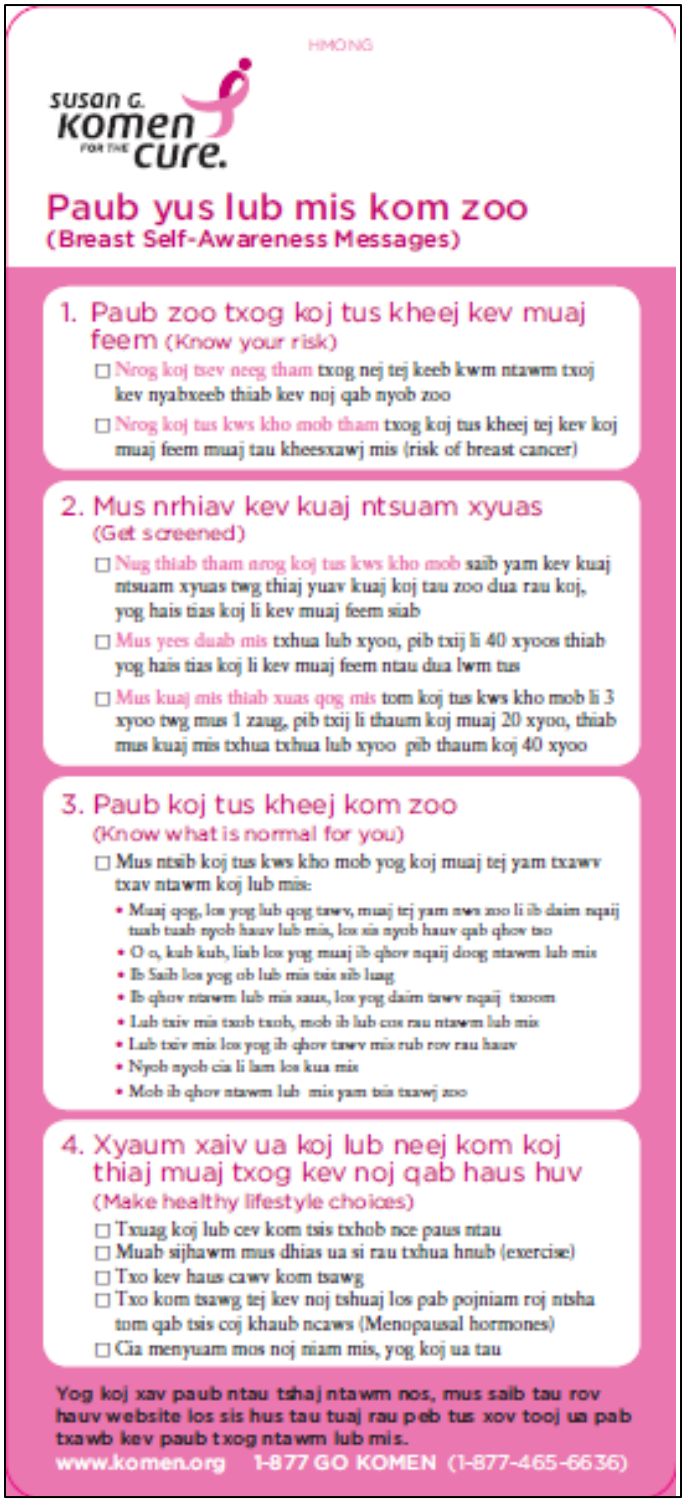
Appendix E

Permission to Use Tools



Appendix F

Komen Foundation Tools



HMONG

susan g. komen for the cure.

Paub yus lub mis kom zoo
(Breast Self-Awareness Messages)

1. Paub zoo txog koj tus kheej kev muaj feem (Know your risk)

☐ Nrog koj tsev neeg tham txog nej tej keeb kwm ntawm txoj kev nyabxeeb thiab kev noj qab nyob zoo

☐ Nrog koj tus kws kho mob tham txog koj tus kheej tej kev koj muaj feem muaj tau kheesxawj mis (risk of breast cancer)

2. Mus nrhiav kev kuaj ntsuam xyuas
(Get screened)

☐ Nug thiab tham nrog koj tus kws kho mob saib yam kev kuaj ntsuam xyuas twg thiaj yuav kuaj koj tau zoo dua rau koj, yog hais tias koj li kev muaj feem siab

☐ Mus yees duab mis txhua lub xyoo, pib txij li 40 xyoos thiab yog hais tias koj li kev muaj feem ntau dua lwm tus

☐ Mus kuaj mis thiab xuas qog mis tom koj tus kws kho mob li 3 xyoo twg mus 1 zaug, pib txij li thaum koj muaj 20 xyoo, thiab mus kuaj mis txhua txhua lub xyoo pib thaum koj 40 xyoo

3. Paub koj tus kheej kom zoo
(Know what is normal for you)

☐ Mus ntsib koj tus kws kho mob yog koj muaj tej yam txawv txav ntawm koj lub mis:

- Muaj qog, los yog lub qog tawv, muaj tej yam nws zoo li ib daim ngaij tuab tuab nyob hauv lub mis, los xis nyob hauv qab qhov tso
- O o, kub kub, liab los yog muaj ib qhov ngaij doog ntawm lub mis
- Ib Sab los yog ob lub mis tsis sib luag
- Ib qhov ntawm lub mis xuas, los yog daim tawv ngaij txoom
- Lub txiv mis txob txob, mob ib lub cos rau ntawm lub mis
- Lub txiv mis los yog ib qhov tawv mis rub rov rau hauv
- Nyob nyob cia li lam los kua mis
- Mob ib qhov ntawm lub mis yam tsis txawj zoo

4. Xyaum xaiv ua koj lub neej kom koj thiaj muaj txog kev noj qab haus huv
(Make healthy lifestyle choices)

☐ Txuag koj lub cev kom tsis txhob nce paus ntau
☐ Muab sijhawm mus dhias ua si rau txhua hnub (exercise)
☐ Txo kev haus cawv kom tsawg
☐ Txo kom tsawg tej kev noj tshuaj los pab pojniam roj ntsha tom qab tsis coj khaub ncaws (Menopausal hormones)
☐ Cia menyuam mos noj niam mis, yog koj ua tau

Yog koj xav paub ntau tshaj ntawm nos, mus saib tau rov hauv website los sis hus tau tuaj rau peb tus xov tooj ua pab txawb kev paub txog ntawm lub mis.

www.komen.org 1-877 GO KOMEN (1-877-465-6636)


Susan G. Komen for the Cure.
Paub koj tus kheej kom zoo
(Know what is normal for you)
Cov kev pib mob ntawm kheeskawj mis nov nws tsis zoo tib yam rau txhua tus pojniam. Qhov uas tseem ceeb tshaj mas yog koj yuav tsum paub zoo txoj koj lub mis, xwb li qhov uas koj pom thiab qhov koj mloog tau tias nws zoo li cas. Yog koj paub tau tias muaj tej yam txawv txav zoo li pib mob, koj yuav tsum tau mus ntsib koj tus kws kho mob.
Yog koj pom muaj tej yam txawv zoo li cov sob lus hauv qab no tsim nyog hais qhia rau koj tus kws kho mob:
• Muaj qog, los yog lub qog tawv, muaj tej yam nws zoo li ib daim ngaij tuab tuab nyob hauv lub mis, los sis nyob hauv qab qhov tso
• O o, kub kub, liab los yog muaj ib qhov ngaij doog ntawm lub mis
• Ib Saib los yog ob lub mis tsis sib luag
• Ib qhov ntawm lub mis saus, los yog daim tawv ngaij txoom
• Lub txiv mis txob txob, mob ib lub cos rau ntawm lub mis
• Lub txiv mis los yog ib qhov tawv mis rub rov rau hauv
• Nyob nyob cia li lam los kua mis
• Mob ib qhov ntawm lub mis yam tsis txawj zoo


susan g. komen.
Breast Self-Awareness Messages
1. Know your risk
Talk to both sides of your family to learn about your family health history.
Talk to a doctor about your risk of breast cancer.
2. Get screened
Talk with a doctor about which screening tests are right for you if you are at higher risk.
Have a mammogram every year starting at age 40 if you are at average risk.
Have a clinical breast exam at least every 3 years starting at age 20, and every year starting at age 40.
Sign up for your screening reminder at komen.org/reminder.
3. Know what is normal for you
See a doctor if you notice any of these breast changes:
• Lump, hard knot or thickening inside the breast or underarm area
• Swelling, warmth, redness or darkening of the breast
• Change in the size or shape of the breast
• Dimpling or puckering of the skin
• Itchy, scaly sore or rash on the nipple
• Pulling in of your nipple or other parts of the breast
• Nipple discharge that starts suddenly
• New pain in one spot that does not go away
4. Make healthy lifestyle choices
Maintain a healthy weight.
Add exercise into your routine.
Limit alcohol intake.
Limit menopausal hormone use.
Breastfeed, if you can.
For more information, visit our website or call our breast care helpline.
www.komen.org 1-877 GO KOMEN (1-877-465-6636)


susan g. komen.
Know What is Normal For You
The signs of breast cancer are not the same for all women. It is important to know how your breasts normally look and feel. If you notice any change, see a doctor.
Changes that should be reported include:
• Lump, hard knot or thickening inside the breast or underarm area
• Swelling, warmth, redness or darkening of the breast
• Change in the size or shape of the breast
• Dimpling or puckering of the skin
• Itchy, scaly sore or rash on the nipple
• Pulling in of your nipple or other parts of the breast
• Nipple discharge that starts suddenly
• New pain in one spot that does not go away

Appendix G

Timeline

Table 1 Timeline for Doctor of Nursing Practice Project

Date	Task	Complete/Incomplete
August 2016-May 2017	Explore project topic: Improve mammograms in Hmong women in rural primary care practices	**complete**
August 2016-present	Review of the literature for topic of interest	**complete**
August 2016-present	Search for translated cultural handout available at no or little costs through recognized resource	**complete**
May 2017	Define project topic: Improve primary care mammogram referrals in Hmong women	**complete**
June-July 2017	Explore and define theoretical framework to guide project: Health Belief Model	**complete**
June 2017	Select site champion: Dr. Barbara Nagy	**complete**
June-July 2017	Establish project committee	**complete**
June 2017	Submit project proposal draft	**complete**
June 26, 2017	Submit project timeline	**complete**
June 30, 2017	Submit first draft of DNP 1 paper	**complete**
July 2017	Establish how the project will be implemented	**complete**
July 2017	Submit final draft of DNP 1 paper and other deliverables; finalize project approval	**complete**
August 2017	Meet with committee members to discuss ongoing project development	**complete**
August 2017	Submit project for IRB approval	**complete**
September 2017	Print color handouts to be used in patient education and develop script for cultural video	**complete**
November 2017	Film and edit cultural video	**complete**
November 2017	Discuss with IT application of link for video on site computer systems	**complete**
November 2017	Submit deliverables for DNP II	**complete**
January 2018	Initiate cultural program for providers at two primary office locations that include available translator, translated handout and cultural video	**complete**
February- May 2018	Collect data from each encounter of utilization of cultural program	**complete**
April 2018	Submit deliverables for DNP III	**complete**
May 2018	Close collection of data	**complete**
May 2018	Input information into Excel	**complete**
June 2018	Submit final paper & deliverables for DNP IV	**complete**
July 2018	Disseminate project information to organization and ECU faculty	**complete**
August 2018	Graduation from DNP program at ECU	**complete**

Appendix H

Data Collection Tool

Improving Mammogram Referrals in Hmong Women

Date: _____ Age: _____ Primary Language: _____

Number of years living in the United States? _____

Personal history of ever receiving a mammogram? Yes_____ No _____

Method of Patient Education

(Place an "X" in the appropriate line)

1. ***Primary language English?***

   YES_____Show **English** version of the "Hmong Mammogram Educational Video"

2. ***Primary language Hmong?***

   YES _____Show **Hmong** version of the "Hmong Mammogram Educational Video" and provide patient with interpreter services for follow-up questions.

   In person interpreter? _____

   I-Pad interpreter? _____

3. ***Can patient read and verbalize understanding of Hmong?***

   Yes_____ Provide handout "***Paub yus lub mis kom zoo***" (Breast Self-Awareness Messages) and provide patient with interpreter services for follow-up questions.

   In person interpreter? _____

   I-Pad interpreter? _____

4. ***After educational session, did Hmong woman agree to mammogram referral?***

   YES _____

   NO _____

   Did provider find this helpful? YES _____ NO_____

   Comments: _____

   _____Provider Initials: _____

Appendix I

Data Collection Tool Instruction Sheet

Instructions For: ***Improving Mammogram Referrals in Hmong Women***
DNP Quality Improvement Project
Sandra Wilusz, MSN, RN, FNP-BC
East Carolina University

Thank you for helping me with this important Quality Improvement (QI) project. The goal is to improve the process of mammogram referral rates in Hmong women in our area by providing culturally appropriate patient education materials. The QI project is open to all women who self-identify as Hmong ages 40-80 that are due for a yearly or biannual screening mammogram. Patient education materials will be based on the following criteria:

1. ***Is the patient's primary language English?***

   Yes_____ Show **English** version of the "Hmong Mammogram Educational Video"

   No _____ Show **Hmong** version of the "Hmong Mammogram Educational Video" and provide patient with interpreter services for follow-up questions.

2. ***Can patient read and verbalize understanding of Hmong?***

   Yes_____ Provide handout "**Paub yus lub mis kom zoo**" (Breast Self-Awareness Messages) and provide patient with interpreter services for follow-up questions.

Complete the data collection sheet and place in collection folder. Data collection will end Friday May 4, 2018. ***Please remember, do not collect any patient PHI on the data collection sheet.***

Appendix J

Access to Hmong Mammogram Videos

Access to Hmong Mammogram Videos

1. To access the video, click on the Google Chrome icon on the computer tool bar. This will open the People Connect web browser.

2. At the top of the screen, you will see a link to the You Tube videos.

3. Open the appropriate link. Either the English or the Hmong version. If the link is missing, here are copies of the links that you can type in the address bar.

   English Hmong Mammogram Video **https://youtu.be/Jw-PSYarcCg**

   Hmong Mammogram Video **https://youtu.be/nHYDJYc3QwM**

4. You may want to maximize the screen for better viewing by hitting the maximize button in the corner of the screen.

5. Please make sure the video is audible. You may select the speaker icon at the bottom of the screen to adjust the volume.

Appendix K

Excel Data Collection Sheet

Date	Age	Language	Yrs in US	Prev Mamo	Interpreter	I-Pad	Video Version	Handout	Agree to Mamo	Helpful
4/17/2018	65	Hmong	35	No	Yes	No	None	Yes	No	Yes
2/8/2018	58	Hmong	33	No	Yes	No	Hmong	Yes	No	Yes
3/16/2018	54	Hmong	23	No	Yes	No	Hmong	No	No	Yes
3/13/2018	63	Hmong	30	No	Yes	No	Hmong	Yes	No	Yes
4/2/2018	41	English	30	No	n/a	n/a	English	No	Yes	Yes
4/15/2018	43	English	35	No	n/a	n/a	English	No	Yes	Yes
2/7/2018	49	Hmong	20	Yes	Yes	No	Hmong	No	Yes	Yes
4/26/2018	64	Hmong	30	Yes	Yes	No	Hmong	No	Yes	Yes
4/19/2018	58	Hmong	37	Yes	Yes	No	Hmong	No	Yes	Yes
4/24/2018	43	Hmong	28	Yes	Yes	No	Hmong	No	Yes	Yes
3/7/2018	40	English	33	No	n/a	n/a	English	No	Yes	Yes
4/18/2018	40	English	32	No	n/a	n/a	English	No	Yes	Yes
3/13/2018	58	Hmong	25	Yes	Yes	No	Hmong	No	Yes	Yes
2/27/2018	55	Hmong	22	Yes	Yes	No	Hmong	No	Yes	Yes
2/18/2018	71	Hmong	40	Yes	Yes	No	None	Yes	Yes	Yes
2/16/2018	64	Hmong	38	No	Yes	No	Hmong	Yes	Yes	Yes
3/14/2018	62	English	40	Yes	n/a	n/a	English	No	Yes	Yes
2/27/2018	62	Hmong	36	Yes	Yes	No	Hmong	No	Yes	Yes
2/7/2018	53	Hmong	31	Yes	Yes	No	Hmong	No	Yes	Yes
2/14/2018	59	English	38	Yes	n/a	n/a	English	No	Yes	No
	Range		**Range**							
	40-71		20-40							
	Mean	6 English	**Mean**	9 None	6 n/a	6 n/a	6 English	5 Yes	16 Yes	19 Yes
	55.1	14 Hmong	31.8	11 Prev	14 Yes	14 No	12 Hmong	15 No	4 No	1 No
	St Dev	30% English	**St Dev**	45% None			2 None	25% H	80% Yes	95% Yes
	9.45293	70% Hmong	4.38406	55% Prev			90% Video	3 H &V	20% No	5% No
	Median		**Median**							
	58		32.5					15% both		

Appendix L

Provider Comments

Comments by Providers for Each Encounter
1. Interpreter was daughter. 2. None 3. Even though patient did not agree to mammogram, I felt she was provided adequate information to make an informed consent to mammogram 4. Have discussed with her previously and still declines mammogram. 5. Patient commented on appreciation for efforts to provide cultural video. 6. Reported she was less afraid of getting a mammogram after watching video. 7. Patient reported she learned something new about mammograms 8. None 9. Patient reported she was glad she watched the video. 10. Patient is required to have yearly mammogram due to insurance, but was behind on exam. 11. Patient is a RN and found the video helpful. 12. Patient reported she knew she needed a mammogram but found the video informative. 13. Patient was behind on mammogram screening and now agrees after watching the video. 14. Had seen patient twice this year prior to this visit. She now agrees to mammogram after watching the video. 15. Mammogram ordered. 16. Patient agrees to mammogram later after she returns from Laos. 17. Always gets mammogram but forgot last year. 18. None 19. None 20. She speaks English and the reason for no mammogram is no insurance. So different issues.

Appendix M

American Association of Colleges of Nursing (2018) DNP Essentials

Essentials	Competency / Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	• Analyzes and uses information to develop practice • Integrates knowledge from humanities and science into context of nursing • Translates research to improve practice • Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	• Review of Hmong mammogram rates in organization prior to project development • Health Belief Model for framework of project • Review of literature to develop project design • Applied findings in research to develop culturally-aware patient educational materials (videos & handouts) to improve mammogram referrals
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	• Develops and evaluates practice based on science and integrates policy and humanities • Assumes and ensures accountability for quality care and patient safety • Demonstrates critical and reflective thinking • Advocates for improved quality, access, and cost of health care; monitors costs and budgets • Develops and implements innovations incorporating principles of change • Effectively communicates practice knowledge in writing and orally to improve quality • Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	• The project leader developed the QI project to improve the provider practice when educating Hmong women on screening mammograms utilizing literature findings that note culture and language as barriers. • Maintained patient confidentiality when collecting data and avoided any patient identifiers • Design of the project required critical thinking outside of the current practice within the organization to educate women and provide translated materials • Improving mammogram rates notes quality care. Mammograms are cost effective in finding early breast cancer compared to costs of treatment in late stage disease • The QI project was an innovative approach to provide the providers with culturally-aware education in a user friendly format

		• The paper for this project reflects practice knowledge in writing whereas oral communication was presented during the poster presentation
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	• Critically analyzes literature to determine best practices • Implements evaluation processes to measure process and patient outcomes • Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients • Applies knowledge to develop practice guidelines • Uses informatics to identify, analyze, and predict best practice and patient outcome • Collaborate in research and disseminate findings	• Reviewed literature that noted culturally-aware practice in Hmong women and other ethnic groups to improve mammograms. Literature suggest to address language and cultural issues when designing QI projects in ethnic groups. • Developed data collection tool to measure outcomes of provider's educational sessions • The design of the project ensured equitable quality care as previous practice did not consider language barriers or cultural issues • Knowledge found in the literature helped frame the project design as cultural videos were found to be more effective than generic videos or handouts • Met with the informatics team to find mammogram statistics in Hmong women for our organization • Collaborated with the QI team to develop project and disseminated findings with the administrative, QI, and patient experience teams
Essential IV ***Information Systems – Technology & Patient Care Technology for the Improvement &***	• Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery & quality of care • Analyze and operationalize patient care technologies • Evaluate technology regarding ethics, efficiency and accuracy	• Utilized Excel format to formulate data statistics and create graphs/charts to demonstrate findings. In addition, used the YouTube format to play videos on provider computers • Review of current practice when educating Hmong women and lack of appropriate interpreters.

Transformation of Health Care	• Evaluates systems of care using health information technologies	Information was found to be inadequate which lead to the design of the project. • Project was taken to the organizational IRB committee at CHSBR and the ECU Medical Projects Review and deemed QI project and not medical research
Essential V ***Health Care Policy of Advocacy in Health Care***	• Analyzes health policy from the perspective of patients, nursing and other stakeholders • Provides leadership in developing and implementing health policy • Influences policymakers, formally and informally, in local and global settings • Educates stakeholders regarding policy • Advocates for nursing within the policy arena • Participates in policy agendas that assist with finance, regulation and health care delivery • Advocates for equitable and ethical health care	• Reviewed the findings with the organizational QI team from the perspective of nursing staff and time constraints of the providers to promote improvement in mammograms in this group. Mammogram rates are a quality indicator set by the organization. • The QI project leader developed the program and is in the process of developing a policy for other primary care offices to utilize • Gained support from the administrative team of organization to proceed with recommendations noted in the QI project • Now member of the patient experience team that influences equitable and ethical healthcare • Providing interpreters to low English proficient patients is ethically and legally imperative. Current practice was not sufficient.
Essential VI ***Interprofessional Collaboration for Improving Patient & Population Health Outcomes***	• Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship • Provide leadership to interprofessional care teams • Consult intraprofessionally and interprofessionally to develop systems of care in complex settings	• Able to communicate with administrative and QI teams to gain approval to develop QI project. Information was presented on the findings noted in the literature • Worked with multiple members of interprofessional teams and lead the QI project: MOA, PA, NP, MD, DO, mammography center

		staff, marketing, QI team, administration, patient experience team leader, interpreter, office manager • Met and consulted with various members of the teams throughout the project to collect data from two primary care offices without disrupting the patient care or extending the patient office visit
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	• Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery • Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care • Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity	• Review of mammogram statistics in the Hmong population as the cornerstone of the QI project. Addressed the Triple Aim initiative • Developed culturally-aware patient educational materials that providers utilized to educate Hmong women in need of a mammogram. The design of the project included developing videos, providing interpreters, and translated materials • The QI project improved mammogram referral rates in the Hmong women who participated in the program
Essential VIII ***Advanced Nursing Practice***	• Design, implement & evaluate nursing interventions to promote quality • Develop & maintain patient relationships • Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes • Mentor and support fellow nurses • Provide support for individuals and systems experiencing change and transitions • Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	• The QI project was designed by the project leader that promoted quality in this group • Participated in thee QI project as a PCP and maintained patient relationships • Project design demonstrated advanced clinical judgement to recognize a gap in care in this group as standard education was ineffective as it was not culturally based or even provided in the Hmong language • The outcome measure was improved mammogram referral rates in previous mammogram gaps in Hmong women

Appendix N

Literature Matrix

Title of Project: Improving Mammogram Referrals in Hmong Women Utilizing Culturally-Aware Patient Education Materials

Author	Title	Name Of Journal	Year	Purpose	Study Design	Sample Size	Data Source	Key Point	Evaluation of Article
Ahmad, F., Mahmood, S., Pietkiewicz, I., McDonald, L., & Ginsburg, O.	Concept mapping with South Asian Immigrant women: Barriers to mammography and solutions	*Journal of Immigrant Minority Health, 2012*(14), 242-250	2012	Examine the barriers to mammography and possible solutions	Qualitative study	n= 60	Pub Med Ovid	Mammogram barriers	Level 6
Ahmed, F., Abel, G., Lloyd, C., Burt, J., & Roland, M.	Does the availability of a South Asian language in practices improve reports of doctor-patient communication from South Asian patients? Cross sectional analysis of a national patient survey in English general practices	*Biomed Central, 16*(55), 1-12	2015	Evaluate if minorities have better outcomes if the doctor and patient share ethnicity and/or language	Survey data analysis	n= 190,582	Pub Med Ovid	Patient experiences between different ethnic groups	Level 5
Baisch, M., Vang, P., & Peterman, B.	An exploration of Hmong women's perspectives on cancer	*Asian Nursing Research, 2*(2), 82-91	2008	Explore the perspectives of Hmong women on cancer, using focus groups as the research method	Qualitative research design using focus group interviews	n=14	Pub Med CINAHL Ovid	Hmong beliefs about traditional and Western health care practices and provider trust.	Level 6

Baker, D., R.Meinikow, J., Ly, M., Shoultz, J., Niederhauser, V., & Diaz-Escamilla	Translation of health surveys using mixed methods	*Journal of Nursing Scholarship , 42*(4), 430-438Nursing Scholarship	2010	Determine the effectiveness of a process-based translation method for a health survey instrument in the Hmong community	Cross-sectional survey research design	n= 202	Pub Med CINAHL Ovid	Multiple methods are needed to provide effective methods to translate health surveys	Level 6
Basu,G., Costa,V., & Jain, P.	Clinicians' obligations to use qualified medical interpreters when caring for patients with limited English proficiency	*American Medical Association Journal of Ethics, 19*(3), 245-252	2017	Case study with the role of a medical interpreter	Case Study	n=1	Pub Med	Clinicians are obligated to create systems and culture that ensures quality care for patients with LEP	Level 6
Blumen, H., Fitch, K., & Polkus, V.	Comparison of treatment costs for breast cancer, by tumor stage and type of service	*American Health and Drug Benefits, 9*(1), 23-32	2016	Quantify the stage-dependent average per capita costs of breast cancer treatment in commercially insured patients	Retrospective population study	n= 8360	Pub Med	Treating advanced versus early stage breast cancer is associated with significant increases in costs	Level 4
Brodie, K., & Burt, J.	Language spoken at home and the association between ethnicity and doctor-patient communication in primary care: Analysis of survey data for South Asia and White British patients	*British Medical Journal,2016*(6), 1-8	2015	Investigate how language spoken at home mediates the doctor-patient relationship	Survey data analysis	n= 5870	Pub Med	Disparity is largely mediated by language	Level 4

Burt, J., Lloyd, C., Campbell, J., Roland, M., & Abel, G.	Variations in GP-patient communication by ethnicity, age, and gender	*British Journal of General Practice,66*(642), e47-52	2015	Determine how reported GP-patient communication varies between patients from different ethnic groups	Data analysis	n= 1,599,801	Pub Med Ovid	Difference in perception of older, female, Asian patients and younger any other white patients.	Level 4
Capps, L.	Ua Neeb Khy: A Hmong American healing ceremony	*Journal of Holistic Nursing, 29*(2), 98-106	2011	Analyze a spiritual healing ceremony performed by a spiritual leader	Qualitative ethnographic case study	n=1	Pub Med CINAHL	Awareness of the symbolic aspects of rituals is useful to health practitioners for a holistic care	Level 6
Chin, M., Clarke, A., Nocon, R., Casey, A., Goddu, A., Keesecker, N., & Cook, S.	A roadmap and best practices for organizations to reduce racial and ethnic disparities in Health Care	*Journal of General Internal Medicine, 27*(80, 992-1000	2012	Systematic review that produced a roadmap to reduce disparities	Systematic review	n= 12	Pub Med Ovid	Culturally tailored interventions reduce disparities	Level 5
Cobb, T.	Strategies for providing cultural competent health care for Hmong Americans	*Journal of Cultural Diversity, 17*(3), 79-83	2010	Enumerate the barriers to providing health care to Hmong Americans	Review of the literature	N/A	Pub Med Ovid	Cultural exchange is encouraged as well as the need for basic cultural awareness	Level 5
Coburn, C. & Weismuller, P.	Asian motivators for health promotion	*Journal of Transcultural Nursing, 23*(2), 205-214	2012	Compare elements of the motivation process across cultures	Review of literature	N/A	Pub Med CINAHL Ovid	The Precede-Proceed model is appropriate in the Asian setting	Level 5

Culhane-Perez, K. ,D. Vawater, P. Xiong, B. Babbit, & M. Solberg	Healing by heart: Clinical and ethical case stories of Hmong families and western providers	*Hmong Culture: Tradition and Change.* Vanderbilt University Press	2003	Discuss case studies and findings of Hmong culture	Case Studies	N/A	Google Scholar	Review of traditional Hmong health care practices	Level 6
Deavenport, A., Modeste, N., Marshak, H., Neish, C.	Closing the gap in mammogram screening: An experimental intervention among low-income Hispanic women in community health clinics	*Health Education and Behavior, 38*(5), 452-461	2011	Effects of targeted cancer prevention education in Hispanic women	Control group	n= 210	Pub Med Ovid	Using the HBM, a cultural video and handout improved perceived benefits and lowered barriers to receiving mammograms	Level 4
Depke, J. & Onitilo, A.	Coalition building and the intervention wheel to address breast cancer screening for Hmong women	*Clinical Medicine & Research, 9*(10), 1-6	2011	Discuss the intervention wheel model for use in breast cancer screening in Hmong women	Review of the literature	N/A	Pub Med Ovid	Utilizing the Intervention Wheel is a unique method of addressing the breast health needs of Hmong women	Level 5
Franzen-Castle, L. & Smith, C.	Shifts in Hmong culture: Competing medical frameworks	*Journal of Immigrant Minority Health, 2013*(15), 829-835	2013	Examine how language contraction, acculturation, and perception impact medicinal practices among Hmong	Qualitative research	n= 137	Pub Med Ovid	Acculturation affects traditional medicine and therapies	Level 6

Guvenc, G., Akyuz, A., & Acikel, C.	Health Belief Model scale for cervical and pap smear tests	*Journal of Advanced Nursing, 67*(2), 428-437	2011	Applying the HBM for cervical cancer and the Pap smear test	Qualitative research	n= 237	CINAHL	The HBM was found to be a valid and reliable tool in assessing the women's health beliefs	Level 6
Heydari, E. & Noroozi, A.	Comparison of two different educational methods for teachers' mammography based on the health belief model	*Asian Pacific Journal of Cancer Prevention, 16*, 6981-6986	2015	Compare the effectiveness of two different educational methods for mammography based on the HBM	Randomized trail	n= 120	Pub Med Ovid	HBM can raise knowledge and increase participation in mammography especially in group education	Level 2
Hou, N., & Hou, D.	A trend analysis of breast cancer incidence rates in the United States from 2000-2009 shows a recent increase	*Breast Cancer Research and Treatment, 2014*(138), 633-641	2013	Review of data of breast cancer incidence	Review of data	n= 677,774	Google Scholar	Significant increase of breast cancer incidence in Asian/Pacific Islanders	Level 5
Hou, S., Sealy, D., & Kabiru, C.	Closing the disparity gap: Cancer screening interventions among Asians, a systematic literature review	*Asian Pacific Journal of Cancer Prevention, 12*, 3133-3139	2011	Explore the effectiveness of culturally-appropriate interventions	Systematic review of the literature	n= 36	Pub Med Ovid	Culturally appropriate interventions can improve cancer screening behaviors among Asian populations	Level 5
Jacobs,B., Ryan,A., Henrichs,K., & Weiss,B.	Medical interpreters in outpatient practice	*Annals of Family Practice,* 16*(1), 70-76*	2018	Provide overview of federal requirements related to interpreter services for non-English speaking patients	expert opinion	N/A	Pub Med	Language assistant services must be included for those receiving federal financial assistance	Level 7

Kagawa-Singer, M., Tanjasiri, S., Valdex, A., Yu, H., & Foo, M.	Outcomes of a breast health project for Hmong women and men in California	*American Journal of Public Health, 99*(S2), S467-S473	2009	Test a culturally based breast cancer screening program among low-income Hmong women	quasi-experimental cohort design with 2 intervention cities	n= 434	Pub Med Ovid	Culturally informed education materials were effective in conveying the importance of maintaining and monitoring breast health	Level 3
Kharameh, Z, Foroozangar, S, Zamanian, H	Psychometric properties of the Persian version of Champion's Health Belief model scale for colorectal cancer screening	*Asian Pacific Journal of Cancer Prevention, 15*(11), 4595-4599	2015	Adapt the Persian version of Champion's HBM of breast cancer screening applied to colorectal cancer screening	Cross sectional design	n= 200	Pub Med Ovid	The Persian version has good psychometric properties and could be applied to colorectal screening	Level 4
Khuu, B., Lee, H., & Zhou, A.	Health literacy and associated factors among Hmong American immigrants: Addressing the health disparities	*Journal of Community Health, 43*(1), 11-18	2017	Examine health literacy levels among Hmong Americans	Cross sectional survey	n= 168	Pub Med Ovid	Health literacy levels were found to differ significantly based on the number of years living in the U.S.	Level 4
Koca, D., Ozdemir, O., Akdeniz, H., Unal, O. & Yilmaz, U.	Changes in the attitudes and behavior of relatives of breast cancer patients concerning cancer prevention and screening	*Asian Pacific Journal of Cancer Prevention, 14*(10), 593-5697	2014	Evaluate the changes in attitudes in mammogram screening of patients with family members with breast cancer	Qualitative research	n=171	Pub Med Ovid	Awareness on breast cancer among relatives is useful for the management of health problems	Level 6

Kue, J., Thorburn, S., & Keon, K.	Research challenges and lessons learned from conducting community-based research with the Hmong community	*Health Promotion Practice, 16*(3), 411-418	2015	Shares lessons learned from conducting qualitative research with the Hmong community	Qualitative research	17 key informants & 84 Hmong women	Pub Med Ovid	Provide guidance in conducting research with the Hmong and can inform future research and other similar underserved populations	Level 6
Kue, J., Zukoski, A., Keon, K., & Thorburn, S.	Breast and cervical cancer screening: exploring perceptions and barriers with Hmong women and men in Oregon	*Ethnicity & Health, 19*(3), 311-327	2014	Evaluate Hmong women and men's perceptions of breast and cervical cancer and screening.	qualitative study	n=83	Pub Med Ovid	Findings imply that developing culturally appropriate interventions to breast and cervical cancer screening is needed.	Level 6
Lee, E., Menon, U., Nandy, K., Szalacha, L.,Kviz, F., Cho, Y., Miller, A., & Park, H.	The effect of a couples intervention to increase breast cancer screening among Korean Americans	*Oncology Nurse Forum, 41*(3), E185-E193	2014	To assess the efficacy of a culture specific intervention designed to target Korean couples	Randomized, longitudinal controlled design	n= 211	Pub Med CINAHL Ovid	The culture specific program was effective in increasing mammograms in this group	Level 2
Lee, H.,Stange, M., & Ahluwalia, J.	Breast cancer screening behaviors among Korean American immigrant women: Findings from the Health Belief Model	*Journal of Transcultural Nursing, 26*(5), 450-457	2015	Examine the utilization of CBE and mammograms in Korean American women and the HBM	Cross sectional qualitative survey	n = 202	Pub Med CINAHL Ovid	The HBM should be considered when promoting breast cancer screening	Level 6

Lee, H., & Vang, S.	Barriers to cancer screening in Hmong Americans: The influences of health care accessibility, culture, and cancer literacy	*Journal of Community Health, 2010*(35), 302-314	2010	Examine barriers to cancer screening for Hmong Americans	Systematic review of the literature	n= 26	Pub Med	Barriers reviewed	Level 5
Lee, H., & Vang, S.	Cultural Beliefs and clinical breast examinations in Hmong American women: The crucial role of modesty	*Journal of Immigrant Minority Health, 2015*(17), 746-755	2015	Examined cultural factors associated with breast cancer screening utilization in Hmong American women	Cross-sectional survey research design. Convenience sampling	n= 164	Pub Med	Endorsing more modest views was the greatest barrier to ever having a CBE.	Level 4
Lee-Lin, F., Nguyen, T., Pedhiwala, N., Dieckmann, n., & Menon, U.	A breast health educational program for Chinese-American women: 3 to 12 month post intervention effect	*American Journal of Health Promotion, 29*(3), 173-181	2015	Culturally targeted breast cancer screening educational program in Chinese-American immigrant women	Randomized controlled trial	n= 300	Google Scholar	Culturally targeted educational programs significantly increased mammogram use among Chinese-American immigrant women	Level 2

Lim, J.	Linguistic and ethnic disparities in breast and cervical cancer screening and health risk behaviors among Latina and Asian American women	*Journal of Women's Health, 19*(6), 1097-1107	2010	Describe breast and cervical cancer screening patterns and health risk behaviors for Latina and Asian American women	Random digital survey	n= 6051	Pub Med Ovid	Cultural context interventions have greater sustainable benefits to promote cancer screening	Level 2
Lor, M., & Bowers, B.	Evaluating teaching techniques in the Hmong breast and cervical cancer health awareness project	*Journal of Cancer Education, 29*(20), 38-365	2014	Evaluate the Hmong Health Awareness Project	Qualitative data collection	Female n= 120, Male n= 30	Pub Med Ovid	Increased their understanding of the importance of breast and cervical cancer screening. Men expressed support for screening after the workshops.	Level 6
Lor, M. & Chewning, B.	Telephone interpreter discrepancies: videotapes of Hmong medication consultations	*International Journal of Pharmacy Practices, 24* (1), 30-9	2016	Explore the quality of telephone interpretation during medication consults	Descriptive design	n= 6	Pub Med Ovid	Use of interpreter services does not ensure correct communication in Low English Proficiency patients	Level 6

Lor, M., Khang, P., Xiong, P, Moua, K., & Lauver, D.	Understanding Hmong women's beliefs, feelings, norms, and external conditions about breast and cervical cancer screening	*Public Health Nursing, 30*(5), 420-428	2013	Describe the beliefs, feelings, norms, and external conditions regarding breast and cervical cancer screening in Hmong women	Descriptive design	n= 16	Pub Med CINAHL Ovid	Hmong women's beliefs, affect, cultural norms and external conditions helped to understand their use of breast and cervical cancer screening.	Level 6
Lor, M., Xiong, P., Park, L., Schwei, R., & Jacobs, E.	Western or traditional healers? Understanding decision making in the Hmong population	*Western Journal of Nursing Research, 39*(3), 400-415	2017	Influence of cultural values, beliefs, and traditional health practices on immigrants health care	Qualitative research	n= 11	CINAHL	Health care decisions depended on whether or not participants classified their illness as spiritual or not	Level 6
Lor, M., Xiong, P., Schwei, R., Bowers,, B., & Jacobs, E.	Limited English proficient Hmong and Spanish speaking patients' perceptions of the quality of interpreter services	*International Journal of Nursing Studies, 54*(2016), 75-83	2016	Examine Hmong and Spanish speaking patients' perceptions of interpreter service in cancer preventive services	Qualitative design with focus groups	n= 20	Pub Med CINAHL Ovid	Hmong participants described issues with poor interpreter services	Level 6

Lor, P.	A Hmong professional woman's reflections and perspectives on the influences affecting the changing roles of Hmong women in America	*Journal of Cultural Diversity, 20*(1), 40-48	2013	Gain insight into challenges and experiences on the changing roles of Hmong women	Case Study	n= 1	Pub Med Ovid	Roles and responsibilities of Hmong women are changing	Level 6
Lu, M., Moritz, S., Lorenzetti, D., Sykes, L., Straus, S, & Quan, H.	A systematic review of interventions to increase breast and cervical cancer screening uptake among Asian women	*Biomed Central Public Health*, 12: 413	2012	Review the literature of the effectiveness of cancer screening interventions in Asian women	Systematic review	n=18	Pub Med Ovid	Effectiveness of existing interventions may hinge on a variety of factors	Level 5
Mandelblatt, J., Stout, N., Schecter, C., et al.	Collaborative modeling of the benefits and harms associated with different U.S. breast cancer screening strategies	*Annals of Internal Medicine, 164*(4), 215-230	2016	Evaluate screening outcome in mammograms	Review of data	N/A	Pub Med	Biannual screening is efficient for average risk patients	Level 5
Menion, U., Szalacha, L. & Prabhughate, A.	Breast and cervical cancer screening among South Asian immigrants in the United States	*Cancer Nursing, 35*(4), 278-287	2012	Assess breast and cervical cancer screening in a community sample	Descriptive design	n= 198	Pub Med CINAHL Ovid	Additional studies are needed on cultural aspects of screening tests	Level 6
Miller, J., King, J., Joseph, D., & Richardson, L.	Breast cancer screening among adult women: Behavioral risk factor surveillance system, United States, 2010	*Morbidity and Mortality Weekly Report*, 61, 45-50	2012	Estimate the prevalence of breast cancer screening using mammography in women 40 years and up	Data analysis	n= 221,241	Pub Med Ovid	Mammogram statistics	Level 4

Moch,R., Nassery,H., & Fareed. T.	Incorporating medical interpretation into your practice	*Family Practice Management, 21*(2), 16-21	2014	Review of need for medical interpreters to improve care and avoid legal trouble	expert opinion	N/A	Pub Med	Expert opinion and review of medical interpretation	Level 7
Nergiz-Eroglu, & Kilic, D.	Knowledge, attitude and beliefs women attending mammography units have regarding breast cancer and early diagnosis	*Asian Pacific Journal of Cancer Prevention,* 12, 1855-1860	2012	Determine the knowledge, attitudes, and beliefs women attending mammography units have regarding breast cancer and early diagnosis	Descriptive design	n= 333	Pub Med Ovid	Women attending peer education have a higher knowledge about breast cancer and early diagnosis and more positive health beliefs regarding breast cancer screening	Level 6
Nguyen, A., Belgrave, F., & Sholley, B.	Development of a breast and cervical cancer screening intervention for Vietnamese American women: A community-based participatory approach	*Health Promotion Practice, 12*(6), 876-886	2011	Evaluate community-based participatory guidance in increasing knowledge in cancer prevention participants in the Vietnam community	Qualitative data collection	Female n=23, Male n= 19	Pub Med Ovid	CBPR is an effective approach in developing interventions that will be culturally sensitive to local ethnic-minority community populations	Level 6

Nonzee, N., Ragas, D., Luu, T., Phisuthikul, A., Tom, L., Dong, X., & Simon, M.	Delays in cancer care among low-income minorities despite access	*Journal of Women's Health, 24*(6), 506-514	2015	Identify reasons why low-income women adhered to or delayed breast or cervical cancer screenings, f/u and treatment despite access to cancer-care related services	Qualitative data collection	n= 138	Pub Med Ovid	Interventions targeting increased adherence should be proactive, culturally and patient-informed education	Level 6
O'Donnell, S., Goldstein, B., DiMatteo, M., Fox, S., John, C., & Obrzut, J.	Adherence to mammography and colorectal cancer screening in women 50-80 years of age: The role of psychological distress	*Women's Health Issues, 20*(5), 343-349	2010	Examine the impact of women's attitudes and health beliefs regarding breast and colorectal cancer screening practices	Retrospective population study	n= 905	Pub Med Ovid	Psychological stress seems to be a negative impact a patient's desire to adhere to breast cancer and colorectal screenings. Based on the HBM	Level 4
Papic, O. Malak, Z., & Rosenburg, E.	Survey of family physicians' perspectives on management of immigrant patients: Attitudes, barriers, strategies, and training needs	*Patient Education and Counseling, 86*(2), 205-209	2012	Evaluate family physicians perspectives on the care of immigrants	Qualitative data collection	n= 598	Pub Med Ovid	Family physicians find communication difficulties the key barrier and would like to see the access to interpreters improved	Level 6

Park, S., Chung, C., & Cochrane, B.	Effects of tailored message education about breast cancer risk appraisal for obese women	*Oncology Nurse Forum, 40*(6), E382-E392	2013	Examine the effects of tailored message education about breast cancer risks in Korean women	Pre-test, post-test	n= 64	Pub Med CINAHL	Tailored message education showed significantly higher score changes on awareness of mammogram needs	Level 4
Park, K., Hong, W, Kye, S., Jung, E., Kim, M., & Park, H.	Community-based interventions to promote breast cancer awareness and screening: The Korean experience	*Biomed Central Public Health, 11*(1) 468	2011	Promote screening mammograms in urban Korea by dispelling myths	Survey	n= 2480	Google Scholar	Multiple methods increased breast cancer screenings	Level 6
Perez, M., & Thao, C.	Understanding barriers to prevention of ntshav qab zib/nsthaav qaab zib: A Hmong perspective	*Hmong Studies Journal, 10*, 1-23	2009	Record barriers to addressing diabetes in the Hmong community	Qualitative data collection	n= 10	Hmong Resource Library	Barriers for diabetes prevention	Level 6
Pfeifer, M., Sullivan, J., Yang, K., & Yang, W.	Hmong population and demographic trends in the 2010 census and 2010 American community survey	*Hmong Studies Journal, 13* (2), 1-32	2013	Describe findings of the 2010 census and 2010 American community survey in the Hmong population	Survey	N/A	Hmong Resource Library	There is undercounting of the Hmong community related to language and cultural barriers, lack of community outreach, choosing of national origin.	Level 6

Poonawalla, I., Goyal, S., Mehrotra, N., Allicock, M. & Balasubramanian, B.	Attitudes of South Asian women to breast health and breast cancer screenings: Findings from a community based sample in the United States	Asian Pacific Journal of Cancer Prevention, 15(20), 8719-8724	2015	Describe attitudes of South Asians towards breast health and screening in a community sample	Survey	n= 124	Pub Med	Increasing awareness of breast cancer risk for South Asian women may have a beneficial effect on cancer incidence	Level 6
Pourat, N., Kagawa-Singer, M., Breen, N., & Sripipatana, A.	Access versus acculturation: Identifying Modifiable factors to promote cancer screening among Asian American women	*Medical Care, 48*(12), 1088-1096	2010	Compare relative impact of access versus acculturation on breast and cervical cancer screening for AA subgroups	Qualitative research design	n= 4360	Pub Med Ovid	Access explained more variation than acculturation	Level 6
Reach, G.	Patient education, nudge, and manipulation: Defining the ethical conditions of the person-centered model of care	*Patient Preference and Adherence, 2016*(10), 459-468	2016	Patient education may be a manipulation that is organized for the good of patients in a paternalistic framework	Review of the literature	N/A	Pub Med Ovid	Patient education may represent a form of persuasion without being accused of patient deception and manipulation	Level 5
Rosenstock, I.	Historical origins of the HBM	*Health Education Monograph, 2*(4) 328-335	1974	Discuss the origins of the HBM	Review	N/A	Google Scholar	Background of the HBM	Level 7

Schuster, A., Frick, K., Huh, B., Kim, K., Kim, M., & Han, H.	Economic evaluation of a community health worker-led literacy intervention to promote cancer screening among Korean American women	*Journal of Health Care for the Poor and Underserved, 26*(2015), 431-440	2015	Cost-effectiveness of a health literacy-focused intervention to promote breast and cervical cancer screening among Korean American women	Cluster-randomized controlled trial	n= 560	Pub Med	The program offered a more cost-effective approach for promoting cancer screening to reduce cancer disparities among recent immigrant women	Level 2
Sentell, T., & Braun, K.	Low health literacy, limited English proficiency, and health status in Asians, Latinos, and other racial/ethnic groups in California	*Journal of Health Communicatio n, 17*(Suppl 3), 82-99	2012	Evaluate the effect of low health literacy	Random digital survey	n= 51,048	Pub Med	Low English proficienc y were more likely to report poor health status	Level 2
Shippee, N, Pintor, j., McAlpine, D. & Beebe, T.	Need, availability, and quality of interpreter services among publicly insured Latino, Hmong and Somali individuals in Minnesota	*Journal of Health Care for the Poor and Underserved, 23*(2012), 1073-1081	2012	Compare need and availability of interpreters	Qualitative design	n= 2489	Pub Med Ovid	Hmong reported lower access to professional interpreters. Further training is needed for this group	Level 5

Shoemaker, M., & White, M.	Breast and cervical cancer screening among Asian subgroups in the USA: Estimates from the National Health Interview Survey, 2008, 2010, and 2013	*Cancer Causes Controlled*, 27, 825-829	2016	Describe variants in mammography and Pap test use across and within subgroups of Asian women in the USA	Data analysis	n= 1538	Pub Med Ovid	Mammogram statistics	Level 4
Smalkoski, K., Herther, N., Xiong, Z., Ritesema, K, Vang, R., Zheng, R.	Health disparities research in the Hmong American community: Implications for practice and policy	*Hmong Studies Journal, 13*(2), 1-31	2012	Review of medical studies since 1990 that focuses on Hmong health issues	Review of the literature	N/A	Hmong Resource Library	Support is needed to address the health needs of this significantly growing population.	Level 5
Sparks, S., & Vang, P.	The development of the Milwaukee Consortium for Hmong health: Capacity building through direct community engagement	*Progressive Community Health Partnership, 9*(3), 405-12	2015	Describes the establishment and community engagement efforts of the Milwaukee Consortium for Hmong health	N/A	N/A	Pub Med Ovid	Developed to provide education and outreach efforts and helped to ensure fit with community perspectives	Level 7
Sparks, S., Vang, P., Peterman, B., Phillips, L., & Moua, M.	Commentary: Utilizing community-engaged approaches to investigate and address Hmong women's cancer disparities	*Hmong Studies Journal, 15* (1), 1-18	2014	Review how the community-engaged approach was critical in identifying factors contributing to Hmong cancer disparities and appropriate interventions	N/A	N/A	Hmong Resource Library	Using community dialogues and lay health education is critical to the acceptance and success of the Consortium and the project	Level 7

Sun, y., Sarma, E., Moyer, A., Messina, C.	Promoting mammography screening among Chinese American women using a message framing intervention	*Patient Education and Counseling, 98*, 878-883	2015	Examine the role of women's perceptions about the relative pros and cons of mammography	Random controlled trial	n= 143	Pub Med Ovid	Women who received a framed message were significantly more likely to have obtained a mammogram	Level 2
Tanjasri,S., Kagawa-singer, M., Foo, M., Chao, M., Linayao-Putman, I., Nuguyen, J., Pirumyan, G., & Valdez, A.	Designing culturally and linguistically appropriate health interventions : The "Life is Precious" Hmong Breast Cancer Study	*Health Education & Behavior, 34* (1), 140-153	2007	Aimed to develop a culturally and linguistically appropriate intervention to improve the breast cancer screening rates among Hmong women in Fresno & San Diego, California.	3-year quasi-experimental study	Female n= 302 and Men n= 314	Pub Med Ovid	Targeted men and women, more positive attitudes and behavioral intentions for CBE and mammograms. Used flip-chart, brochure and video.	Level 4
Thalacker, K.	Hypertension and the Hmong community: Using the Health Belief Model for Health Promotion	*Health Promotion Practice, 12*(4) 538-543	2011	Discussion of application of the HBM in the Hmong community	N/A	N/A	Pub Med Ovid	The HBM can be used to promote and encourage positive health behaviors in Hmong populations	Level 7

Thornburn, S, Keon, K., & Kue, J.	Sources of breast and cervical cancer information for Hmong women and men	*Women's Health, 53*(5), 468-478	2013	Explore sources of information about breast and cervical cancer screening and identify barriers	Qualitative research	n= 84	Pub Med Ovid	Health care providers and the internet were the most frequently cited sources of informati on about breast and cervical cancer screening. Other sources were family, friends, and other media	Level 6
Thornburn, S., Kue, J., Keon, K., & Lo, P.	Medical mistrust and discriminatio n in health care: A qualitative study of Hmong women and men	*Journal of Community Health, 37*(4), 822-829	2012	Evaluate medical mistrust and discrimination in health care in the Hmong population	Qualitative research	n=83	Pub Med Ovid	Trust was described as a positive influence in screening. Medical mistrust was not significant barriers to breast and cervical cancer screening	Level 6
Thornburn, S. Kue, J., Keon, K., & Zukoski, A.	"We don't talk about it" and other interpersonal influences on Hmong women's breast and cervical cancer screening decisions	*Health Education Research, 28*(5), 760-771	2012	Explored family and clan influences on Hmong women's breast and cervical cancer screening attitudes and behaviors	Qualitative research	n= 83	Pub Med Ovid	Hmong families do not discuss breast and cervical cancer screening; families can provide encourage ment or discourag e screening	Level 6

Tsai, T., & Lee, S.	Health literacy as the missing link in the provision of immigrant health care: A qualitative study of Southeast Asian immigrant women in Taiwan	*International Journal of Nursing Studies, 54*(2016), 65-74	2016	Explore and understand specific language and communication problems experiences by Southeast Asian women in Taiwan	Qualitative study	n= 23	Pub Med CINAHL Ovid	Limited language and health literacy skills creates challenges in navigating the health care system, interacting with health care providers and gaining access to care	Level 6
Tuzcu, A., & Bahar, Z.	Barriers and facilitators to breast cancer screening among migrant women within Turkey	*Journal of Transcultural Nursing, 26*(1), 7-56	2015	Examine facilitators and barriers that migrant women in Turkey identified related to BSE, CBE, and mammography	Qualitative design with focus groups	n= 39	Pub Med CINAHL Ovid	Focus groups conducted with the HBM were effective in explaining barriers and facilitators in screening behaviors	Level 6
VanDyke, S. & Shell, M.	Health beliefs and breast cancer screening in rural Appalachia: and evaluation of the Health Belief Model	*The Journal of Rural Health, 00*(201), 1-11	2016	Examine the role of the HBM in predicting breast cancer screening among women in rural Appalachia	Qualitative research	n= 170	Pub Med Ovid	Fewer perceived barriers predicted greater mammogram frequency using the HBM	Level 6

Vang, P.	Using mammography screening: Hmong women's perceptions and beliefs	*Hmong Studies Journal, 10* (1), 1-29	2009	Explore factors that influence Hmong women's willingness to be screened for breast cancer.	Qualitative research using the Grounded theory	n= 15	Hmong Resource Library	Breast health messages have a significant influence on Hmong women's decision to seek preventative breast care.	Level 6
Vidaeff, A., Kerrigan, A., & Monga, M.	Cross-cultural barriers to health care	*Southern Medical Journal, 108*(1), 1-4	2015	Review cross-cultural barriers to health care	Literature review	N/A	Ovid	Culturally sensitive providers are able to bridge the differences to accomplish clear and effective communication	Level 5
Wang, J., Schwartz, M., Brown, R., Maxwell, ., Lee, M., Adams, I., & Mandelblatt, J.	Results of a randomized controlled trial testing the efficacy of a culturally-targeted and a generic video on mammography screening among Chinese-American immigrants	*Cancer Epidemiology Biomarkers and Prevention, 21*(11), 1923-1932	2012	Compare the effects of a culturally-targeted and generic but linguistically appropriate intervention program	Randomized control trial	n= 664	Pub Med Ovid	The culturally-targeted video significantly increased mammogram screening women over the fact sheet	Level 2

Wang, J., Schwartz, M., Luta, G., Maxwell, A., & Mandelblatt, J.	Intervention tailoring for Chinese-American women: Comparing the effects of two videos on knowledge, attitudes, and intentions to obtain a mammogram	*Health Education Research, 27*(3), 523-536	2012	Describe the effects of using the Health Belief Model toward mammograms.	Randomized control trial	n=592	Pub Med Ovid	The generic video increased screening intentions twice as much as the cultural group	Level 2
Warner, E. , Tamimi, R., Hughes, M., Ottesen, R., Wong, Y., Edge, S., Theriault, R., et al	Time to diagnosis and breast cancer stage by race/ethnicity	*Breast Cancer Research and Treatment, 2012*(136), 813-821	2012	Examine differences in time to diagnosis by race/ethnicity	Data analysis	n= 25,510	Google Scholar	Mammogram statistics	Level 4
Watson-Johnson, L., DeGroff, A., Steele, B., Revels, m., Smith, J., Justen, E., Barron-Simpson, R., Sanders, L., & Richardson, L.	Mammography adherence: A qualitative study	Journal of Women's Health, 20(12), 1887-1894	2011	Explore the reasons that women who previously adherent with regular mammograms no longer were screened	Qualitative study	n= 128	Ovid	Breast cancer screening with mammography is an individual behavior, therefore individual behavioral strategies will continue to be needed	Level 6
Wharam, J, Landon, B., Zhang, F.,Xu, X, Soumerai, S., & Ross-Degnan, D.	Mammography rates 3 years after the 2009 US Preventative services task force guidelines	*Journal of Clinical Oncology, 33*(9), 1067-74	2015	Report mammogram screening rates	Data analysis	n= 6,360,624	Pub Med	Mammogram statistics	Level 4

Wichachai, S, Songserm, No, Akakul, T., & Kuasiri, C.	Effects of application of social marketing theory and the Health Belief Model in promoting cervical cancer screening among targeted women in Sisaket Province, Thailand	*Asian Pacific Journal of Cancer Prevention, 17*(7), 3505-3510	2017	Evaluate the effectiveness of social marketing theory and HBM in promoting cervical cancer screening	Quasi-experimental design	n= 92	Pub Med, Ovid	Appropriate communication process in behavioral modification to prevent cervical cancer is effective	Level 3
Wu, T., & Lin, C.	Developing and evaluation an individually tailored intervention to increase mammography adherence among Chinese American women	*Cancer Nursing, 38*(1), 40-49	2015	Compare the efficacy of an individually tailored telephone counseling and National Cancer Institute brochure	Randomized control single-blind study	n= 193	Pub Med, CINAHL	Both increased mammogram awareness	Level 6
Xiong, Z., Smalkoski, K., Herther, N., Ritsema, K., Vang, R., & Zheng, R.	Health disparities research in the Hmong American community: Implications for practice and policies	*Hmong Studies Journal, 13*, 1-32	2013	Describe health disparities in the Hmong community	Survey and census data	N/A	Hmong Resource Library	This population is often excluded in large-scale research studies as they are often included in Asian American group.	Level 6