PERCEIVED BARRIERS TO PREVENTIVE SCREENINGS BY INDIVIDUALS 18 YEARS AND OLDER WITH HEALTH INSURANCE

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MSN, Clarion and Edinboro Universities, 2016

A Thesis Submitted to Clarion and Edinboro Universities
In Partial Fulfillment of the Requirements for the Master of Science in Nursing Degree

4/21/16	PhD
Date	Committee Chair
4/28/16	
Date	Committee Member
4/20/16	
Date	Committee Member
4/21/16	
Date	Dean, Venango College of Clarion University

Acknowledgements

We would like to thank the members of our thesis committee including: Dr. Lana Smith, Dr. Colleen Barrett, and Amy Lee for their editing and advising during the thesis process. We would also like to thank our families for their understanding and patience through the thesis research process.

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Abstract

Preventive services are imperative to reducing morbidity and mortality rates by identifying and treating disease processes early. Previous research frequently focused on health insurance as a barrier. Minimal research has been conducted since the onset of the Affordable Care Act to identify current barriers. This study was a non-experimental cross sectional design survey that sought to identify primary barriers to receipt of eight preventive services in adults ages 18 and older with health insurance. Participants were also surveyed regarding the likelihood of receiving preventive services if the stated barrier was removed.

Health promotion is a collaborative effort between patient and the health care providers. A systems model of clinical preventive care by Judith Walsh, MD, MPH and Stephen McPhee, MD focuses on the interaction between the patient, providers, and takes into consideration the healthcare delivery system. This study focused on the patient's perspective of this theory covering three identified factors that either promote or inhibit preventive services.

The barriers cited by participants included: lack of a primary care provider, never being informed by provider regarding need of service, and time constraints. Across the preventive screenings, participants reported a positive correlation between likelihood of receiving services if the barrier were removed. This suggests the importance for patients

to establish a relationship with a provider and for the provider to educate and encourage preventive services. Future research should focus on interventions to remove barriers and assess patient follow through. Additional research can focus on barriers from a provider's perspective.

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Chapter 1
Introduction

Despite strong evidence relating to preventive services and disease prevention, a gap exists between services that are recommended and actual practice (Grunfeld et al., 2013). Screenings aimed at preventing or detecting early onset of disease processes are either not completed or not done in a timely manner, leading to the potential of late disease detection and the possibility of higher costs associated with treatment. Both men and women of all ages, income levels, and perceived state of health are affected when they do not receive age appropriate preventive screenings at the recommended time (Centers for Disease Control and Prevention [CDC], 2013). The purpose of this non-experimental cross sectional study was to examine the most common barriers in receiving preventive health screenings perceived by adult participants ages 18 years and older who currently have health insurance. The study examined perceptions or actual barriers participants' experienced that contributed to a reduction in receiving preventive health screenings. Participants were asked to complete an online researcher designed survey addressing several barriers to preventive screenings.

Background of the Problem

The Affordable Care Act (ACA) was passed in 2010 leading to the expansion of health insurance access and coverage requirements for clinical preventive services (Fox & Shaw, 2014). Those with insurance limitations or lack of insurance are at risk for a higher occurrence of missed preventive screenings (CDC, 2013). Overall, individuals receiving certain clinical preventive services are low, but there is higher incidence for individuals with insurance coverage or higher incomes (Fox & Shaw, 2014). An analysis by McMorrow, Kenney, and Goin (2014) suggests that individuals who receive new

insurance coverage or additional benefits due to the ACA will have increased use of health care services. It is yet to be seen whether these expansions will increase consumer compliance with preventive screening.

According to Kaiser Family Foundation, (2013) factors that may prohibit patient participation in preventive services include copayments, deductibles, transportation issues, lack of a consistent provider, and insurance issues. Individuals across the country often lack follow through and encounter financial restraints in health care. Poor compliance with preventive care puts society at risk for increased mortality and morbidity rates that could be avoided with proper preventive health services (Shippee et al., 2012). Long term effects of poor compliance include increases in society's financial burden by having to absorb the increased cost of disease related expenses instead of the minimal costs of prevention (Clark, 2010). Barriers to preventive screenings exist in both the patient and the provider realm. According to the Agency for Healthcare and Research Quality (AHRQ), several groups of individuals such as the poor, racial, or ethnic minorities have difficulty obtaining preventive services (AHRQ, 2014a). Federally qualified health centers that are designated to serve low income and underserved populations did not perform basic screenings due to potential positive screening results and cost of follow through treatment (Daly, Levy, Moss, & Bay, 2015). Identifying common barriers to prevention will allow future interventions to influence change for both patients and providers.

A systems model of clinical preventive care by Judith Walsh, MD, MPH and Stephen McPhee, MD (1992) served as the theoretical framework for this study. The premise of this theory is reduction in disease prevalence, morbidity, and mortality by

both patient and physician preventive behaviors (Walsh & McPhee, 1992). This theory encompasses both the patient and the physician while considering the health care system. Both patients and physicians are described with three sets of factors: predisposing, enabling, and reinforcing. This study examined only the patient aspect of this theory.

Statement of the Problem

Under the ACA health insurers must cover, without a deductible, preventive services that are deemed to be necessary and recommended (O'Connor et al., 2013). While the ACA has increased access to insurance and thus preventive care, other factors may continue to influence patient participation. The future of healthcare must focus on prevention. Understanding patient barriers for not obtaining preventive screenings will help guide services and education by providers. Providers can tailor their approach when discussing prevention to patients. This may include reminders, discussions about procedures to reduce anxiety, and assistance in navigating insurance issues. Reducing costs associated with curative care can benefit both the patient and the healthcare system.

Research Question

What barriers do individuals self-report on an online survey that contribute to noncompliance with recommended preventive screenings in adult participants with health insurance ages 18 years and older?

Definition of Terms

Noncompliance. Not following a prescribed course of treatment. "Failure or refusal to comply" ("Noncompliance," n.d., para. 1).

Preventive. "Hindering the occurrence of an illness or lowering the incidence of a disease. Prophylactic" ("Preventive", n.d., para. 2).

Screenings. "An examination of an individual or group to determine healthy individuals from those who have an undiagnosed health condition or those who are at high risk" ("Screening," n.d., para. 2).

Barriers. "A boundary or a limit; any obstacle, impediment, or something that separates, obstructs, or impedes behavior" ("Barriers," n.d., para. 1). This can be anything that inhibits an individual's ability to obtain a preventive screening.

Need for the Study

The issue of whether prevention saves money has been a debate for decades. It is estimated that increased use of these services could save more than two million life-years annually, and would result in billions of dollars in health care savings (Maciosek, Coffield, Flottemesch, Edwards, & Solberg, 2010). Over 85 cents of every healthcare dollar spent in the United States is spent on chronic disease treatment and management; many of these chronic diseases are preventable (O'Connor et al., 2013). What is causing patients who are medically insured not to receive potentially lifesaving prevention screenings? Do we still have a cure versus prevention focus in relation to medicine (Cogan, 2011)? Research has focused in the past on various factors including insurance, race, socioeconomic status, and education and the impact of these factors on access to preventive healthcare (Gai & Feng, 2013). It is important to continue to address these factors with the onset of the ACA, in order to design public health policies to promote follow through on preventive screenings.

Significance of the Problem

The goals of the Healthy People 2020 initiative include an increase in the number of individuals receiving preventive screening services for cancer, chronic disease, and vaccine compliance (Healthy People 2020, 2015). With the implementation of insurance for everyone, it is unknown whether preventive screening compliance will increase to meet these goals or if patients will now cite other reasons for a lack of follow through. Primary care providers (PCP) are responsible for chronic disease prevention and screening services offered to patients by the healthcare system. Despite multiple methods of encouraging prevention, patient follow through with preventive screenings is poor. Reasons for this include: lack of patient awareness, embarrassment, fear of pain or other side effects, lack of insurance, and patient feeling asymptomatic or feel they are not susceptible to disease (Zhang & Fish, 2012). Shippee et al. (2012) looked at preventive screenings among predominantly Caucasian individuals in a high socioeconomic class with access to care. The results indicated the following: colorectal cancer screening (79%), mammography (89%), cervical cancer screening (91%), and pneumococcal vaccination (62%). While less than ideal adherence has been typically blamed on socioeconomic status, race, ethnic groups, and insurance, the authors of this study suggest that other factors facilitate compliance. Research should focus on determining the patient barriers to follow through on preventive screenings.

Assumptions

Assumptions of our research include:

1. Participant accessibility to electronic device with internet capabilities
2. Fluent in reading and understanding the English language

3. Familiar with how to complete an online survey
4. Provide accurate and honest answers to the best of their understanding

Summary of the Problem

Assessment of preventive screening use is an important part of measuring goals and determining areas of improvement. This allows providers, policy makers, and insurance companies to focus on the identified barriers to increase screening compliance (Ahluwalia, Bolen, & Garvin, 2007). While the ACA has increased access to insurance and thus preventive care, other factors may continue to influence patient participation. Researching the barriers to preventive care after the implementation of the ACA will provide valuable insight for PCP's, allowing them a greater understanding of current issues when encouraging prevention. Interventions to increase prevention compliance will lead to a long-term decrease in health care expenditures and an increase in overall health of consumers.

Chapter 2

Review of Related Literature

Research has identified barriers in terms of access to recommended preventive screenings. These disparities have been shown to exist across gender, race, ethnicity, education, socioeconomic status, and age groups. Disparities also exist relating to cost, insurance coverage, access to care, work constraints, and provider constraints. The United States Preventive Service Task Force (USPSTF) grades recommendations A, B, C, D, and I. Services with an "A" or "B" indicate that the benefit to receiving these services are moderate to substantial while those with "C" and "D" ratings indicate small or no benefit (USPSTF, 2015). A rating of "I" indicates that the evidence is inconclusive and an appropriate recommendation cannot be made (USPSTF, 2015). Much of the research focuses on USPSTF ratings of "A" or "B" in terms of necessity. These screenings include such services as mammograms, blood pressure, colorectal cancer, lipid, and vaccinations (USPSTF, 2015). The review of literature suggests it is often difficult to identify one single source of disparity in relation to screening access and compliance. Examples of this include race being combined with education and access to care issues or age being related to certain gender differences. The studies that were reviewed often discovered barriers among several groups and patterns among these results. Though it is difficult to isolate one particular group that is susceptible to preventive screening disparities, the common result remains, that access to and use of preventive screenings are not equal and disparities continue to exist. Much of the current research, completed to date, utilizes the Medical Expenditure Panel Survey (MEPS) and Behavioral Risk Factor Surveillance System (BRFSS) survey to pull data suggesting they

are all reporting and relying on the same information, rather than seeking new participants and survey results. This suggests more current and diverse studies need to be completed to add to the current research findings in relation to differences among access to preventive screenings.

Demographics

Vaidya, Partha, and Karmakar (2012) researched gender differences in relation to utilizing recommended screenings such as blood pressure, lipid, colorectal, and vaccinations in a retrospective, cross-sectional design. Researchers reviewed the MEPS from 2008. This survey is supported by the US Department of Health and Human Services and randomly selects 15,000 households to survey on various medical data including expenditures, medications, health status, and access to care. Gender was the primary independent variable while adherence to preventive screening guidelines was the dependent variable. The sample number of respondents was 33,066, however variations of this number met criteria for each particular screening (21,132= blood pressure; 30,629 = dental; 21,207 =influenza shots; 19.498= lipid screening; 4291=colorectal). Researchers found that gender was a predictor of utilization in all preventive services except colorectal screenings. Women accessed preventive services at 52% to 57% while their male counterparts were 43% to 48% compliant with a chi square for all, $p < .01$ (except colorectal $p=.1864$). This study also showed that 12% of women reported not seeing a doctor in the past year as opposed to 25% of males. The researchers suggest that the possibility of increased physician visits demonstrated by women may increase screening compliance, as they are less likely to be missed than their male counterparts who are not regularly seeing a physician. It is also suggested that the possibility that

women play a lead role in managing family healthcare, combined with men having a lack of health seeking behavior may also lead to the increased utilization and compliance by women.

Gai and Feng (2013) also utilized the MEPS survey in their research. Their study sought to identify factors that contributed to individuals seeking preventive services for the first time. Data was extracted and included nine panels spanning 2000 to 2008. The average number of participants in each panel was 17,176, with a range of 11,133 to 22,701, dependent on the year of the survey. The study identified those who responded "never" when asked if they had received healthcare screenings or prevention services. These individuals were tracked during the survey and trends were analyzed for those respondents that answered "never" during the first year and those who responded positively to having accessed screenings during the second year of the survey. Researchers found gender differences among initiation of some services. Females were more likely than males to initiate all services except colorectal screenings. Initiation varied from the lowest being the influenza vaccinations (OR=1.15) to the highest being blood pressure screenings (OR= 1.94). This suggests that females may initiate preventive screenings more frequently than males, thus increasing their overall long-term utilization as found by Vaidya, Partha, and Karmakar (2012). Researchers also identified race, ethnicity, access, and insurance as important indicators of transition to first time use. It was determined that Blacks, Asians, and Hispanics were more likely than Caucasians to initiate lipid screenings, mammograms, and influenza vaccinations. Researchers were unsure if this result was due to more Caucasians not having answered "never" on the initial survey. The results suggest that racial and ethnic

minorities are more likely to transition to first time use; however, this does not support other research suggesting that the continued usage of preventive services among these individuals remains low.

Shenson et al. (2012) analyzed data from the 2008 BRFSS, specifically looking at those respondents up to date with vaccinations, mammograms, Pap tests, and colorectal screenings. Survey years included 2002, 2004, 2006, and 2008 with their analysis being primarily on 2008 data. The study sample included 121,365 adults ages 65 and older. Races identified included Caucasian, Black, or Hispanic. Other races were excluded due to low response rates. While the primary goal of this research was to determine strategies for increasing complete compliance with older adults, they also found gender and racial disparities. Researchers identified overall low up to date prevention rates among all participants, however it was clear that racial and ethnic minorities were significantly lower than their Caucasian counterparts. The lowest compliance in being up to date was among Hispanic women at 26.5% while the highest was among white men at 44.7%. This disputes previously reviewed research suggesting women are overall more compliant in terms of preventive screenings. Supporting the previous research, they also found Caucasian women to have the lowest rate of colorectal cancer screening compliance. Interestingly, researchers found trends in terms of low compliance in regards to receipt of vaccinations. Black women were least likely to obtain influenza vaccinations while Black men and Hispanic men and women were least likely to obtain pneumococcal vaccinations. This research supports continued disparities across race and gender in relation to being up to date with preventive screening

recommendations, however disputes previous findings of increased compliance among women.

Mochari-Greenberger, Mills, Simpson, and Mosca (2010) conducted a study using random digit dialing to obtain a sample of 1008 women. Races included in the sample were 17% Hispanic, 22% Black, and 61% Caucasian. Participants were given a verbal questionnaire designed to assess barriers as well as recent access to preventive services and knowledge of risk factors. The focus of the study was cardiovascular disease prevention and whether race or ethnicity was associated with knowledge and preventive screening utilization and access. Researchers found the knowledge levels varied among races and identified both Black and Hispanic participants lacking knowledge in terms of risk factors including cholesterol levels and blood pressure in comparison to Caucasian participants. Black and Hispanic participants seem to be influenced by both healthcare professionals and family or friends in terms of prevention. Black and Hispanic women were more likely to report taking actions due to recommendations from professionals (59% and 54%) compared to Caucasian women (43%). Hispanic women also reported doing so due to a family or friend recommendation (29%) compared to Caucasian women (19%). Interestingly, Black women were more likely to seek out care due to symptoms (30%) compared to Caucasian women (23%). A co-existing factor reported with race included lack of money for health insurance. This was reported at a rate of 37% for Black women as opposed to 26% for Caucasian women. Results of this study suggest a positive influence by healthcare professionals, family, and friends, especially among minority populations, in regards to prevention.

Oliver, Grindel, DeCoster, Ford, and Martin (2011) completed a non-experimental exploratory study that included a convenience sample of 94 rural male participants (primarily Black) ages 40 and older. The study was designed to identify a link between benefits and barriers to prostate screenings. While the study had a small sample size, an interestingly large number of respondents reported compliance. Of the participants, 83.3% reported having at least one prostate-specific antigen (PSA) blood screening with 72.1% having one in the past year. Of those participants, 66.3% reported having a digital rectal exam completed with 62.5% having one in the past year. Participants did express concerns that are pertinent to provider education including lack of understanding of test (68.7%), embarrassment (74.2%), and pain (66%). Participants reported the following prevention screening influences: health care providers (81.8%), family (59.5%), and friends (51.7%). They also identified written education materials and media sources as influential (58.8% and 56.4% respectively). The results of this study supports the research findings of Mochari-Greenberger, Mills, Simpson, and Mosca (2010) in terms of prevention influences on racial minorities. This research suggests that interventions provided by health care providers and targeted education can increase preventive screening compliance among minority populations. This study was particularly limited due to size, specific geographic location, and convenience sampling however, results could be replicated on a larger scale.

Stanley, King, Thomas, and Richardson (2013) utilized data from the 2010 BRFSS specifically looking at factors associated with lack of colorectal cancer screening compliance. Participants reported overall high compliance rates at 65.7%, although

34.3% reported either having never received a screening or not being up to date with colorectal cancer screening. Racial, gender, and age disparities were found among the results. Asian, Native Hawaiian, Pacific Islanders, and non-Hispanics reported a 38.2% rate of never receiving a colorectal screening. Participants ages 50-59 reported a 36.6% rate of never being screened. This study also suggests that other demographics including income and access to care play a role in colorectal cancer screening compliance, both of which are reported more frequently by minority populations.

DeJesus et al. (2011) reviewed patient records in an attempt to identify characteristics that predicted follow through with osteoporosis screening recommendations. While the purpose of the study included comparing data prior to and after implementation of a clinical decision support tool, the study also found demographic differences in those compliant with screening recommendations. For the purpose of our research, the focus is on these demographic findings. An independent data abstractor reviewed all records of female patients aged 65 years or older. These patients were seen in the Family Medicine and Primary Care Internal Medicine practice sites in 2007, prior to utilizing the clinical decision support tool, and in 2008, one-year post implementation. Patient characteristics, which included age, sex, race, marital status, residence, comorbidity, type of clinic visit (full or limited examination), and provider specialty (primary care internal medicine or family medicine) were identified. Screening follow through after recommendation by a provider was 76.3% in 2007 and 81.4% in 2008. The researchers suggested the results indicated that Caucasians were more likely to be screened; however, a limitation of this study is that the majority of participants were Caucasian. Women with comorbidities had increased screening rates,

as well as results showing women with a diagnosis of cancer or rheumatoid arthritis were 50% more likely to be screened. In contrast to previous studies, age was inversely correlated in terms of screening follow through, and provider screening was missed more frequently in women over age 80. Comparing this to previously mentioned research, it suggests that age and preventive screening compliance varies in relation to specific screening. A goal of Healthy People 2020 includes increasing compliance with preventive screenings. This particular study showed an increase in compliance with the implementation of their clinical decision making tool, something that could aid other practices with increasing compliance (DeJesus et al., 2011).

Block, Jarlenski, Wu, and Bennett (2013) also conducted a data analysis utilizing the BRFSS from 2006, 2008, and 2010. The purpose of the study was to determine changes in mammography usage based on USPSTF recommendation changes. The study also examined mammography compliance among age groups. Across all three survey years, younger women (ages 40-49) were less likely to report having at least one mammogram at 83.3% compared to older women (ages 50-74) at 94.4%. Utilizing 2010 results, as they are most recent, only 51.7% of younger women (ages 40-49) and 62.4% of older women (ages 50-74) reported having a mammogram. Also found, and supported in previously reviewed studies, is that people who report seeing a health care provider in the past year are more likely to be compliant in preventive screening follow through. This study found that in 2010, those that reported a health care visit were 61% (ages 40-49) and 70% (ages 50-74) more likely to report having a mammogram. While this study did not identify differences in usage due to changes in screening recommendations, it did identify age barriers to screening follow through.

Work Related Issues

A study by Yao, Dembe, Wickizer, and Lu (2015) researched how time constraints related to work affected the likelihood of obtaining several preventive screenings. This study utilized data obtained from the MEPS on five different preventive screenings. Participants were employed full time, ages 18-64 years, and were covered by private health insurance at the time of the survey. Participants working over 60 hours per week were significantly less likely to obtain dental services (OR = 0.81, 95% CI: 0.72-0.91) and mammography (OR= 0.47, 95% CI: 0.31-0.73). Female participants that worked 51-60 hours weekly were less likely to obtain a Pap smear (OR=0.67, 95% CI: 0.46-0.696). Practitioners need to be aware of preventive barriers when participating in the care of working individuals. Based on these findings, long hours can create difficulties in receiving certain preventive services such as dental, breast cancer, and cervical cancer screenings.

Peipins, Soman, Berkowitz, and White (2012) analyzed data from the 2008 National Health Interview survey to compare paid sick leaves with the utilization of mammography, Pap testing, endoscopy, fecal occult blood test, and medical-care seeking. A significant proportion of the working population (38%) does not have access to paid sick leave, consisting of approximately 47 million adults. This proportion consists mostly of service workers, construction and maintenance, transportation workers, and part-time workers. These individuals are vulnerable because of the necessity of a person's occupation in relation to their income, medical benefits, and retirement (Peipins, Soman, Berkowitz, & White, 2012). The relationship between participants with paid sick

leave and those without show significant findings in several areas studied. Mammography was utilized 83.6% with those with sick leave compared to 75.8% (95% CI, p <0.001) of those participants without paid sick leave. Pap test showed 89.9% to 86.4% (CI 95%, p <0.001), and endoscopy 52.7% to 43.1% (CI 95%, p <0.001) respectively. The number of physician visits in the past year was also a significant finding between the two groups, 84% with sick leave compared to 72% (CI 95%, p <0.001) for those without paid sick leave. The findings suggest that although individuals may have health insurance, out of pocket costs such as unpaid time off work to obtain preventive screenings deter individuals from utilization of these services.

Financial Barriers Including Costs

Several articles demonstrate that income and costs play a significant role in an individual receiving preventive screenings. McMorrow, Kenney, and Goin (2014) utilized data from the MEPS to measure utilization of eight preventive services among adults 400% below the federal poverty level in comparison to adults with higher incomes. The data was compiled from 2005-2010 prior to onset of the ACA. Results showed higher income women were more likely to receive a Pap (7.9%) and mammogram (16.3%) than lower income levels. Older adults with higher incomes were more likely to receive a colorectal cancer screening (15%), blood pressure screening (8.5%), and cholesterol screening (16.8%) than the lower income populations (McMorrow, Kenney, & Goin, 2014). While the ACA is expected to decrease barriers related to lack of health insurance coverage, costs will continue to impact access to preventive care services.

Green, Johnson, and Yarborough (2014) explored patient perspectives on how participants sought out health care and the reasons for delaying or avoiding routine preventive health care services. During hour-long interviews, five general themes were identified from the 150 respondents including: provider-patient relationships, financial obstacles, time barriers, burdensome processes, dealing with the system, and timing of or delays in seeking care (Green, Johnson, & Yarborough, 2014). Participants report the following themes that facilitate the use of routine preventive health care screenings: collaborative relationships with their PCPs (13.3%), welcoming staff at offices (14%), and receiving education about the value of preventive services (14.7%). Participants report that barriers included costs (7.3%) and restraints on time (18.7%). While most studies find costs related to healthcare as an issue to obtaining services, the participants in this study report an increased likelihood of completing preventive screenings to obtain a personal financial advantage with decreased co-pays or premiums. Time constraints are an increasing concern for the working public. Making time to be seen by a PCP may require patients to take time off work, which can be a major financial burden.

Clark et al. (2014) examined preventive care pre and post healthcare reform in Massachusetts between 2004 -2010 on an ethnically diverse group of women (n=1,214). Prior to the reform, this group of individuals did not have previous health care coverage. Rates of receiving blood pressure screening post reform increased across all type of insurance payers (OR=1.44, $p< 0.05$) and mammography increased significantly (OR=1.58, $p< 0.05$) with state subsidized private insurance. This study removed a common barrier, the lack of health insurance, and still found that low-income women ineligible for all other types of insurance (n=372) required additional assistance

to assure the utilization of preventive screenings, such as state safety-net funds. These results point to the need for the continued expansion of insurance coverage for low-income individuals to increase the rate of receipt of preventive screenings.

Shippee et al. (2012) examined preventive screening compliance without the factor of income. The authors studied a large sample of participants (n= 6,889) and compared their adherence without the association of socioeconomic status, race, and access to care barriers. The data from the study was extracted from the charts of individuals that were presenting to be enrolled into an Executive Health Program at the Mayo Clinic in Rochester, New York. Results showed less than ideal rates of adherence for several services including colorectal cancer screening (78.86%) and Pneumococcal immunization (62.57%) being the lowest. Mammography and cervical cancer screening had adherence rates of 89% and 91% respectively, with tetanus immunization at 82% (Shippee et al., 2012). This group of individuals lacking typical socioeconomic barriers suggests that some continued noncompliance is based on personal beliefs or perhaps beyond the control of the health care system. While receipt of services is higher among these participants, the question remains is there an upper limit to adherence to preventive care screenings?

Chronic Medical Conditions

Many individuals are affected by chronic medical conditions or physical disabilities. These individuals are at risk for not receiving recommended preventive screenings related to the chronic nature of their affliction. A qualitative study done by Kroll, Jones, Kehn, and Neri (2006) investigated barriers to preventive health care

services in adults with physical disabilities. Two different categories of barriers were identified, structural-environmental and process related which included lack of knowledge of physical conditions. Some participants in this study described a lack of preventive care because providers became used to treating only the condition that caused the physical disability or because they viewed the patient as being chronically ill. Another recurring theme was the reluctant acceptance of relinquishing control to improve the patient – provider relationship. Participants felt they should not challenge physicians or irritate them in order to receive good service (Kroll, Jones, Kehn, & Neri, 2006).

Besides physical disabilities, patients with chronic medical conditions often come across similar barriers to preventive services. A report from the CDC in the Journal of Women's Health examined data from three national surveys including the MEPS, the National Health and Nutrition Examination Survey (NHANES) and the National Health Interview Survey (NHIS) comparing diabetic women versus non-diabetic women and the use of recommended preventive care services (Owens et al., 2008). Preventive areas measured included dental, immunizations, cardiovascular, cancer specific and diabetes specific care. The researchers found that younger diabetic women under age 45 years and those with lower educational levels are at greater risk of not receiving diabetes specific preventive services including a hemoglobin A1c, a dilated eye exam, and a foot examination (Owens et al., 2008). The study also found significant results in receiving a cervical Pap smear in the last three years. Older women over 65 years with diabetes were less likely than diabetic women ages 45-65 years (53.5% vs. 79%, $p<0.01$) to have received a Pap smear. The gap increases compared to diabetic women ages 18-44 with a rate of screening at 87.5% (Owens et al., 2008). It is important to note that some areas

such as smoking cessation education was higher in diabetic patients compared to non-diabetics (84.6% vs. 64.9%, $p<0.01$) and receiving an influenza vaccine (49.7% vs. 21.9%). This study suggests that having a chronic disease such as diabetes may act as a barrier to receiving certain preventive screening services.

A retrospective cohort study of HIV positive women (n=192) at the University of Utah Infections Diseases Clinic examined the use of multiple preventive health screenings (Simonsen et al., 2014). HIV positive women face many barriers to preventive screenings, from socioeconomic to the stigma of having a positive diagnosis. In this study, women were found to have profoundly low results of several preventive screenings. Only 37% of women received testing for sexually transmitted infection such as gonorrhea, chlamydia, and syphilis, and 33.9% of HIV positive women received safe sex counseling. Other preventive service screening rates included: Pap tests 56.8%, mammography 65%, and only 10% for colorectal cancer screening (indicated for women over age 50). In contrast to the majority of racial disparities typically observed, Caucasian women (n=33, 25.6%, $p= 0.001$) had less counseling on safe sex compared to non-white women (n= 31, 55.4%, p=0.001). This study points to the need to overcome certain stigmas such as socioeconomic status and ethnicity in regards to preventive care and education for those with chronic medical conditions.

Drenkard, Rask, Easley, Bao, and Lim (2013) conducted a cross sectional study of 751 participants with Systemic Lupus Erythematosus (SLE) selected from the Georgians Organized Against Lupus (GOAL) cohort and 9,040 patients selected from the BRFSS, of whom 938 had diabetes mellitus. Participants were examined for the percentage of primary preventive screenings received. SLE is frequently complicated by comorbid

conditions that may be preventable with proper preventive services, especially immunizations, cardiovascular, and cancer risk reduction. The researchers found similarly low rates for both the SLE and diabetic groups of patients (22.5% and 27.6% respectively) compared to the participants without SLE or diabetes (45.7%) in receiving all of the combined recommended preventive screenings. With less than a quarter of SLE participants receiving all of the combined preventive services, it is vital to understand barriers that those with chronic conditions report in receiving preventive services. Further understanding of certain disease processes may also assist PCP's in assuring appropriate preventive screenings are not missed.

Theoretical Framework

A systems model of clinical preventive care by Judith Walsh, MD, MPH and Stephen McPhee, MD served as the theoretical framework for this study. This theory incorporates the patient, the physician, and includes the health care system. Both patient and physician are described with three sets of factors: predisposing, enabling, and reinforcing. The three patient factors that are described in the systems model of clinical preventive care were addressed in this study. Although physician preventive barriers and the health care system are important aspects of this theory, they were not included. Due to the limited scope of this study, the focus will be from the patient perspective.

The predisposing patient factors include demographic, beliefs, attitudes, motivation, self-efficacy, and health value. Predisposing factors are a determinant of how motivated or engaged the patient is in preventive care (Walsh & McPhee, 1992). Predisposing physician factors include sociodemographic, personal health habits,

attitudes and interests in prevention, and perception about their role in preventive care activities. Patient enabling factors are the resources and skills required to perform an action. Enabling factors include knowledge and education, physiologic factors including underlying addictions, skills such as reading levels, and logistical matters including schedules and convenience. Physician enabling factors include prevention training and specialty, technical expertise, understanding of current preventive screening regulations, and logistics relating to time, required staff, and necessary equipment. The last major component is reinforcing factors. Reinforcing factors for the patient are important to initiate and repeat the behavior for long-term change. Social support is an important aspect to reinforce behavior (Walsh & McPhee, 1992). Reinforcing factors for physicians are important but often not obvious. Factors include finding an incident case through screening, patient satisfaction, colleague support, approval, and communication (Walsh & McPhee, 1992).

System and organizational factors affect both the patient and the physician for a multitude of reasons. Examples include access to medical care, availability of specific preventive screening, cost for the patient, and reimbursement for the facility. Logistical factors include organizational priorities, time restrictions, and coordination with community resources (Walsh & McPhee, 1992). Situational factors include "cues to action" which are adapted from the health belief model (Walsh & McPhee, 1992). These include external cues such as reminders for both patient and physician for preventive screenings or internal cues such as symptoms of a disease process. Important considerations for preventive screenings are efficacy and efficiency of the test. The preventive screening must not have a high false positive rate and must be cost effective

(Walsh & McPhee, 1992). The model's weaknesses include not encompassing the family aspect of care, the static nature, and the factors are not weighted. Strengths of this model include the focus on both patient and physician and their relationship, the inclusion of the health care delivery system, and the ability to apply to a multitude of preventive care situations (Walsh & McPhee, 1992). The need for future research should be directed towards identification of the most influential barriers. When barriers are identified as either patient, physician, system, or situational, efforts to improve care can be made (Walsh & McPhee, 1992).

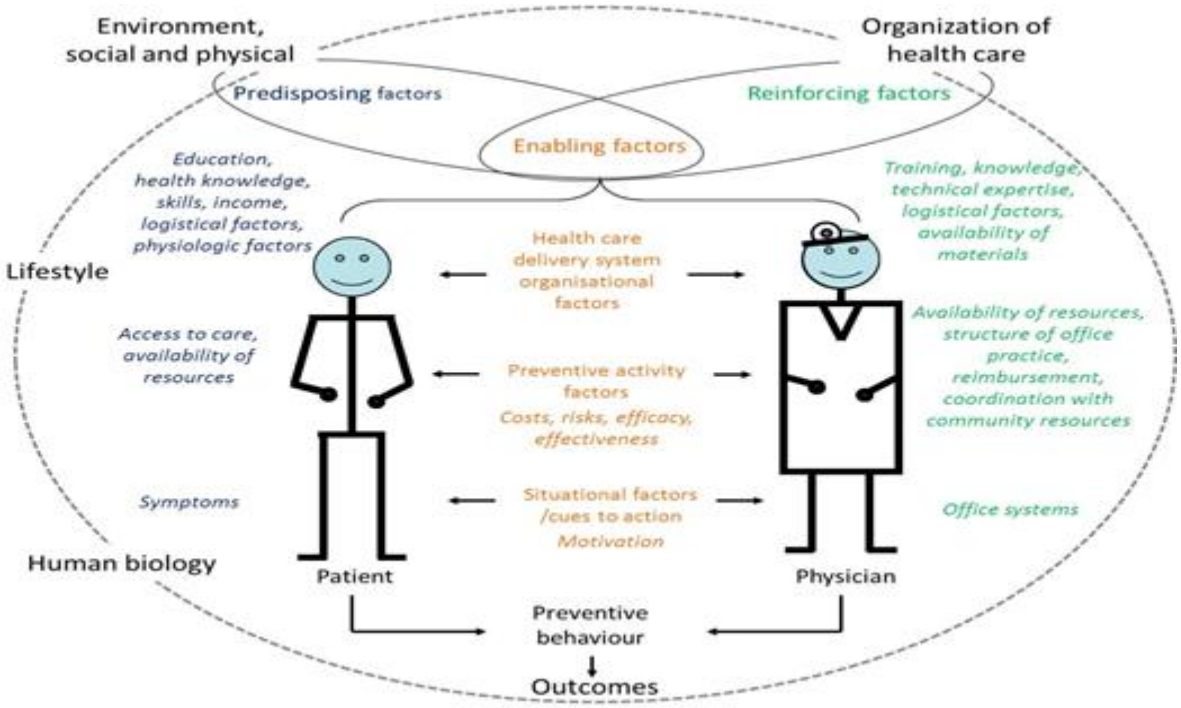

Figure 1. A systems model of clinical preventive care (Adapted from Walsh & McPhee, 1992). See Appendix A for permission letter from authors.

Summary of the Review of Related Literature

Research has shown a variety of barriers related to utilization of preventive care screenings. Although some barriers are more evident than others, the reasons that individuals do not receive preventive care screenings are multifaceted. Demographic barriers include ethnicity, gender, and income, with the most susceptible members of each group presenting with the least amount of compliance to preventive screenings. Financial barriers are another prevalent issue noted in the review of literature, relating to either lack of insurance or lack of money for the actual exam. Work related issues blend with the issue of time and financial restraints, in regards to time off for procedures leading to a lack of pay or sick time. Another broad group of individuals that experience barriers to preventive services are those with chronic medical conditions and physical disabilities. The research points mostly to disadvantaged individuals, yet those without many of the typical susceptibilities remain ambiguous in regards to barriers to preventive screenings. This study will use Walsh and McPhee's systems model of clinical preventive care theory to identify predisposing, enabling and reinforcing factors from a patient perspective regarding recommended preventive screenings. Examining barriers after the onset of the ACA and its expansions can identify current issues and trends in preventive care.

Chapter 3 will discuss the methodology utilized for this study along with the research design, sample, and setting. Ethical considerations, data collection, and data analysis will be identified.

Chapter 3

Methodology

This study examined perceived barriers that adult individuals report to preventive screenings, omitting the usual barrier of lack of health insurance. This chapter will discuss the research design along with the setting, sample, instrumentation, data collection, and data analysis.

Research Design

The study was a non-experimental cross sectional design, with the data being collected over a period of two weeks. Polit and Beck (2014) describe using cross sectional studies for collecting data on both independent and outcome variables simultaneously, where the independent variable has occurred in the past. Participants were asked to complete an online questionnaire with no planned interventions. The survey was also utilized for participants to describe past experiences regarding barriers that the individual encountered that made them delay or omit a recommended preventive screening, making this a descriptive study. An analysis was made to identify the relationship between variables relating to individuals receiving preventive care.

Setting

The setting for the study was individuals residing in the United States that had access to any electronic device with internet capabilities. Participants accessed Survey Monkey from a link provided from their social media accounts in any physical location that enabled them to access the link. Location subtypes included rural, urban, and suburban.

Sample

The accessible sample population included participants ages 18 years and older that had health insurance and access to any electronic device with internet capabilities to participate in this survey. The participants must also speak and read English fluently. The study used a convenience sample of participants accessible from the researcher's social media contacts. There was a prompt for participants via social media to complete the survey and share leading to network sampling. This allowed for inclusion of participants of diverse demographics, rather than being limited to a local region. Exclusion criteria for this study included any participant that was less than 18 years of age, without healthcare coverage, without access to an electronic device with internet capabilities, and any person incarcerated at the time of the survey. Participants were excluded that were incapable of independently completing the survey including those with intellectual developmental disorders or educationally disadvantaged persons.

The potential sample size was unknown, although there was a potential for a large amount of participants with utilizing social media. Factors that influenced the sample included time frame of data collection, budget, and response rate achieved via social media and forwarding of survey link. Achieving an even demographic ratio of participants assists in the generalizability of the data. Polit and Beck (2014) describe the importance of external validity as the ability to generalize results to a larger population and to be able to replicate the results. It was unknown if racial and ethnic profiles would be a diverse sample.

The link was sent out via Facebook by both researchers at random intervals to maximize potential respondents. Due to the nature of utilizing social media, the true

sample size was unknown, however a goal of 100 completed survey responses was set. A two-week deadline was established for survey completion and any late surveys were excluded from the data analysis.

Ethical Considerations

No ethical issues relating to this study were anticipated. The survey protected anonymity of participants by not asking identifying information of the individual and were completed at a time and location that was convenient for the participant. There was no anticipated harm to expectant mothers or their fetuses if they chose to participate. All participants were informed prior to inclusion of the study as per Clarion University Institutional Review Board (IRB) about the voluntary nature of the study, length of time for completion, and the ability to not answer any question that made them uncomfortable. Participants had the ability to decline or terminate participation in the survey if they desired. Both researchers completed the Collaborative Institutional Training Initiative (CITI) as per university guidelines (see appendix B for copies of certifications).

Instrumentation

The survey tool utilized for research was a combination of questions retrieved from the widely utilized MEPS as well as several questions of the researchers' design. Questions were drawn from the 2014 version of the MEPS that is widely utilized in prevention research and analysis (see appendix C for permission). While the MEPS includes survey components on providers, insurance, and household, the questions for our survey were retrieved from the household component. The MEPS survey is a longitudinal survey that began data collection in 1996. The goal is to provide annual data

regarding insurance coverage, health care utilization, and payment sources (Cohen, & Cohen, 2013). Participation in the MEPS survey is based on previous participation in the National Health Interview Survey (NHIS), and each MEPS panel is a nationally representative subsample from the NHIS study (Cohen, & Cohen, 2013). The longitudinal design of the study allows researchers to interview the same cohort five times during a two-year period, with interviews spaced approximately six months apart thus having overlapping panels. Data from two panels are combined to provide estimates for any particular year, with response rate averaging 50%-60% (AHRQ, n.d.). Multiple interviews during this longitudinal study allow researchers to strengthen causal inferences (Polit & Beck, 2014). The current sample size of the survey is approximately 15,000 families, or 37,000 participants (AHRQ, 2009). The large sample size increases the statistical power of this survey, and thus increases the likelihood of detecting a true relationship between the measured variables (Polit, & Beck, 2014). The nationally representative sample size of the MEPS as well as the annual replication of this study increases the external validity of this tool.

Utilization of the MEPS questionnaire in addition to questions provided by the researchers encompassed all aspects of the systems model of clinical preventive care. This theory focuses on the patient, physician, and the healthcare system. The MEPS questionnaire incorporates a household, provider, and insurance component reflective of the systems theory. The focus of the survey was on the participant or patient perspective. The questionnaire addressed participant compliance with preventive care and further identified barriers to preventive care as identified by participants. The barriers identified in the questionnaire were reflective of the systems model of clinical

preventive care that identifies the three sets of factors. Predisposing factors were reflected in demographics and participant reports of preventive care compliance, assessing health value, and motivation. Enabling factors assessed included patient knowledge and education. Reinforcing factors included social supports including family or additional community resources that assist participants in follow through. Focusing on the patient aspect of the systems model of clinical preventive care in identifying major barriers allows for improvements in access and delivery of care.

Data Collection

Researchers provided a link via social media to the questionnaire on Survey Monkey. After informed consent was given, participants were instructed to complete the questionnaire. Participants were made aware of the dates of availability of the survey. Questions were closed ended with multiple choice answers provided for the participant to choose. Participants self-reported data. Data was retrieved and analyzed by the researchers at the end of the two-week open period for survey participation.

Summary

The study was a non-experimental cross sectional design, with the data being collected over a period of two weeks. A systems model of preventive care by Judith Walsh, MD, MPH and Stephen McPhee, MD served as the theoretical framework for this study. This theory addresses issues relating to preventive care from the patient, physician, and health care system identifying three major factors including: predisposing, enabling, and reinforcing. This study focused on the patient aspect of the systems model. Participants accessed the survey via on online link provided to them. All participants resided in the United States, had computer access, was over the age of 18

years old, and had health insurance. The questionnaire contained items from the widely utilized MEPS questionnaire in addition to researcher designed questions to assess barriers related to receipt of preventive care. IRB approval was obtained prior to conducting this survey (see appendix E), and no ethical issues were identified in relation to this study. Data was collected and analyzed with the primary goal of identifying major barriers to receipt of preventive care. Chapter 4 discusses the survey results with an interpretation of the findings based on statistical analysis.

Chapter 4

Results and Discussion

Chapter four describes the findings of the survey results. Demographic data obtained is presented along with results of the questions regarding preventive services and the barriers to each service. A discussion of results will follow, along with limitations of the study.

Results

Demographics

A survey link shared by researchers via Facebook and email yielded a response rate of 255 completed surveys. A total of 41 surveys were excluded for reasons as follows: 34 were not completed, 6 respondents did not have health insurance, and one was completed after the end date set by the researchers. Of the 214 remaining completed surveys, 87.6% (n=188) of the respondents were female, 11.2% (n=24) male, and less than 0.5 % (n=1) identified as other. Age of participants ranged from 21-75 years with the average being 43.3 years of age. The majority of participants were between the ages of 30-39 (n=74), while those ages 70-79 (n=6) yielded the fewest participants. Caucasians represented the majority of participants at 93.5% (n=200). Other races represented in this survey included Latinos at 2.3% (n=5) and less than 1% from each of the following ethnicities: African-American (n=2), Asian (n=2), Native Hawaiian or Pacific Islander (n=2), and those that identified as other (n=1). Geographic regions were split into three categories with the majority of participants living in a rural setting 37.4% (n= 80), suburban 11.2% (n=24), urban 11.2% (n=24), and unanswered 1.4% (n=3). Additional demographic data is included in Figures 1, 2, 3 included below.

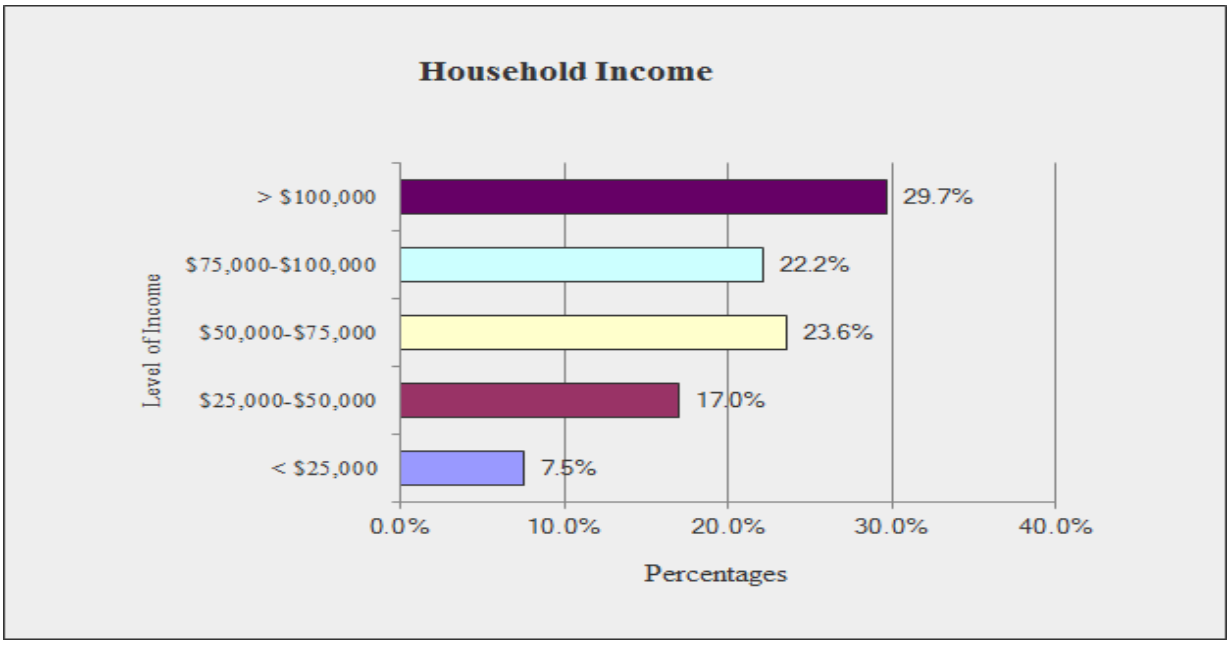

Figure 2. Household income. This figure illustrates the distribution of household income among participants.

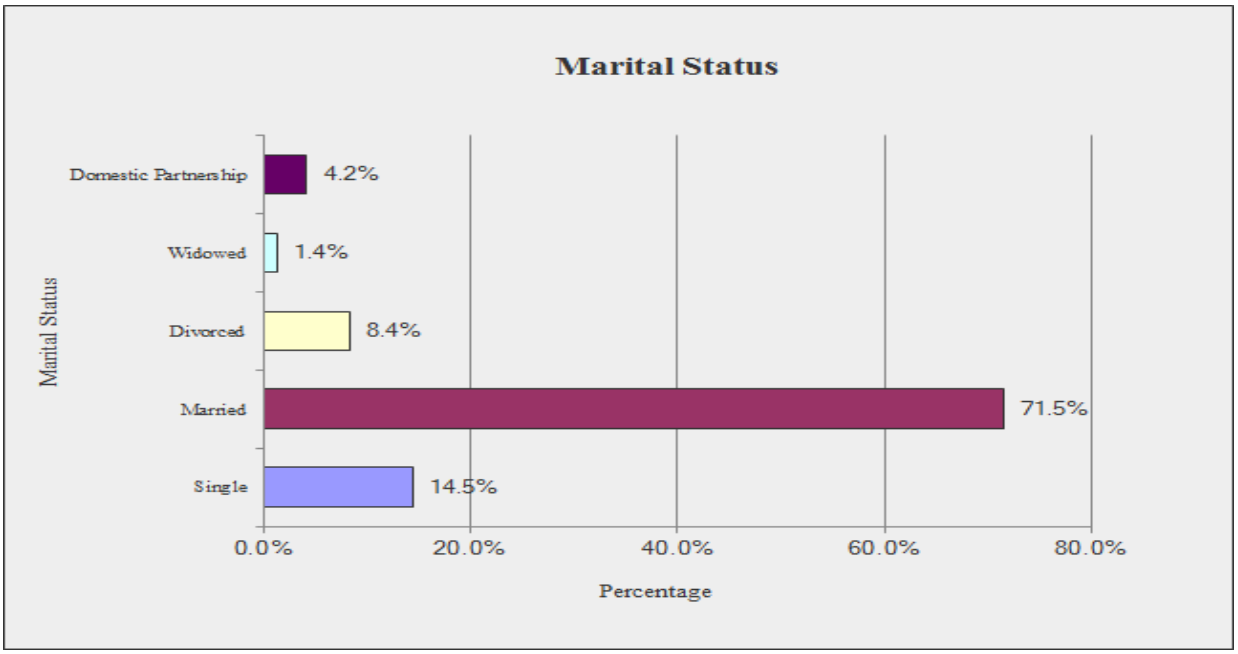

Figure 3. Marital Status. This figure illustrates marital status among participants.

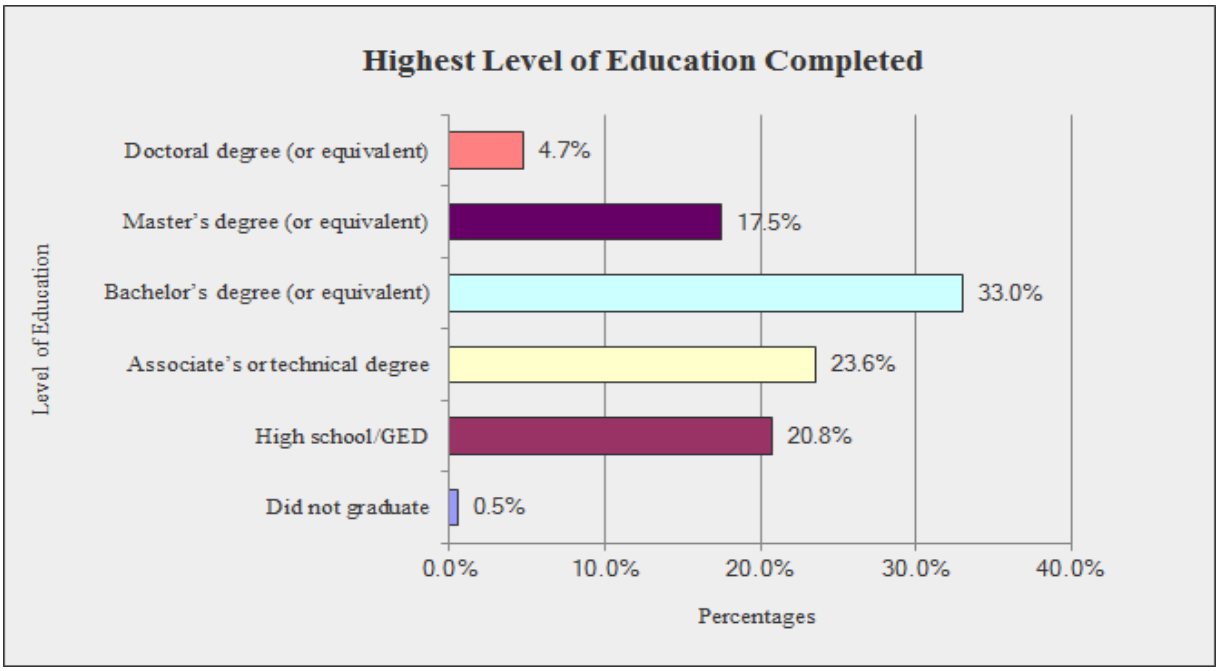

Figure 4. Highest level of education. This figure illustrates the distribution of education levels among participants.

This study sought to identify individual self-reported barriers that contribute to noncompliance with recommended preventive screenings. Questions regarding barriers based on USPSTF recommended preventive screening guidelines and included: blood pressure screening, blood cholesterol screening, fecal occult blood test, colonoscopy, cervical cancer screening (Pap), mammogram, and low dose chest CT scan for smokers. Participants were also asked about routine health screenings as these serve as a gateway to preventive services. Participants were asked to identify compliance with preventive screenings. If participants reported noncompliance with a particular preventive screening, a follow-up question was asked to identify specific barriers. Common reasons for noncompliance, identified by a comprehensive literature review, were given for participants to choose from including: lack of primary care physician (PCP), lack of transportation, distance of testing location, unable to take time

off from work, financial barriers, lack of understanding for testing, other medical conditions that are more concerning, lack of family support, lack of time to complete testing, and feeling the testing is of no benefit. In addition, participants were asked to identify how likely they were to receive the preventive screening if the barrier identified was removed. This question was answered on a Likert type scale from strongly disagree to strongly agree.

Discussion of Results

Survey data was sorted into eight separate screening categories. The data was then filtered to include only those participants whose age or gender classified them as appropriate for each particular screening. Compliant participants, or those receiving the preventive screening within the timeframe suggested by USPSTF, were separated from noncompliant participants, those that did not receive the preventive screening within the USPSTF recommended timeframe. Reported preventive screening barriers, as listed in Table 1, were recorded only from participants who were noncompliant and met USPSTF criteria for recommended screenings. To determine if the barriers reported in Table 1 were homogeneous, we performed a chi square test for each screening at the 5% significance level. Using df=77, the calculated chi square value of the data set was 181.22, therefore rejecting that the barriers are homogeneous across all preventive screenings (p<0.001).

Table 1

Frequency table of reported barriers to preventive screenings

Type of Preventive Service	I did not have a primary care physician to recommend or complete this screening	I was unable to obtain transportation or have access to transportation to complete this	The test would be too far from my home	I was unable to take time off of work to complete this screening	I did not have money to pay for this test	I don't understand why I need this test	I am afraid of receiving a positive result	I am afraid of the procedure or embarrassed to have procedure	I was never informed of needing this test/exam by my healthcare provider	I have too many other medical conditions to worry about	I do not feel that I have enough support from my family	I feel that I will have no benefit from receiving this test/exam	There was no convenient time for me to complete this test/exam.	Other	NA	Totals (n)
BP	1			1	1				1			1	1	7		13
Cholesterol	11	1			1				17			4	5	8		47
Routine Check Up	11	1		1	1				2	3		5	9	14		47
Stool for Occult Blood	7					4		1	15	1		1	1	13	6	49
Colonoscopy	2				3	1		2	2	1			1		2	14
Pap Smear	3			1		2		3	1			3	4	9	2	28
Mammography				1		1		2		1		1		1	1	8
Low Dose CT scan	1					1			2				1	2	2	9
n=	37	2	0	4	6	9	0	10	39	6	0	15	22	54	11	

Research question: What barriers do individuals self-report on an online survey that contribute to noncompliance with recommended preventive screenings in adult participants with health insurance ages 18 years and older?

Across the eight preventive services surveyed, the barriers that were reported with the most frequency were "I did not have a primary care physician to recommend or complete this screening" at 17.2% (n=37), "I was never informed of needing this test/exam by my healthcare provider" at 18.1% (n=39), and "There was no convenient time for me to complete this test/exam" at 10.2% (n=22). Participants also responded with the option of "other" at 25.1% (n=54) with the ability to free text a barrier to obtaining a specific preventive service. Reasons cited by participants included:

- "not having an order for a test,"
- "didn't feel that is was necessary,"
- "because of my age I do not feel it is necessary,"
- "too lazy,"
- "I go when I am sick so I don't feel I need to go when I am healthy,"
- "I only go to a doctor when I am sick,"
- "I do not like my PCP,"
- "I am having a hard time finding (a PCP) one close to me,"
- "no good reason."

When patients reported a barrier to obtaining a preventive service, they were also asked to report the likelihood of receiving that service if the barrier was removed. As shown in Table 2, a point value was assigned to the likelihood of receiving a missed or untimely preventive screening. Positive values indicated a likelihood of receiving the service

(strongly agree, agree) and a negative value indicates there is not a likelihood of receiving the preventive service (strongly disagree, disagree). A zero value was assigned to a "neutral" response or a "not applicable" response.

Table 2

Likert Scale

Strongly Disagree	Disagree	Neutral or N/A	Agree	Strongly Agree
-2	-1	0	1	2

Blood Pressure Screenings

Blood pressure screenings are recommended annually by the USPSTF for all adults (AHRQ, 2014b). Our survey identified thirteen participants, 6% of the total respondents, who reported noncompliance with this recommendation. Reasons for noncompliance included: no PCP at 7.7% (n=1), lack of money at 7.7% (n=1), unable to take time off of work at 7.7% (n=1), no benefit to testing at 7.7% (n=1), not informed of testing by PCP at 7.7% (n=1), no convenient time at 7.7% (n=1), and other at 30.4% (n=7). Of the thirteen participants, nine responded to the follow-up question regarding the likelihood of receiving a blood pressure screening if the particular barrier reported was removed. Of those nine responses, the average score was 0.67 with a standard deviation of 0.866 indicating that the majority of participants would receive blood pressure screenings if the barrier was removed.

Cholesterol Screening

Cholesterol screening recommendations vary depending on age and risk factors. Screenings are given an "A" or "B" recommendation by the USPSTF for both

women and men starting at age 20 with risk factors, and men 35 and over with no risk factors (AHRQ, 2014b). A recommendation of "C" for all adults over age 20 with no risk factors is given by the USPSTF indicating they are not for or against screening at this age (AHRQ, 2014b). Due to this, we included all adults age 20 and over in our survey data. Forty-seven, or 22% of the total eligible participants (n=214) reported noncompliance with cholesterol screenings. Reasons for noncompliance included: no PCP at 23.4% (n=11), no transportation at 2.1% (n=1), financial concerns at 2.1 % (n=1), not informed of testing by PCP at 36.2% (n=17), no benefit to testing at 8.5% (n=4), no convenient time at 10.6% (n=5), and other at 17% (n=8). Forty-four of the participants responded to the follow up question regarding likelihood of receiving a cholesterol screening if the stated barrier was removed. Of the forty-four responses, the average score was 0.75 with a standard deviation of 0.918 indicating that most participants would be likely to obtain this screening. A t-test was performed on the data to determine the likelihood that the average was truly positive with a result of t=5.418, p< .001.

Routine Health Screening

While the USPSTF does not include a recommendation for routine health screenings, other organizations such as the CDC recommend annual screenings for women over the age of 20 and "regularly" for men (CDC, 2015). Due to the importance of routine screenings in preventive medicine, we chose to include this screening in our survey. Survey participants over the age of 20 who have not had a routine health screening within the past year met the survey criteria for noncompliance. Forty-seven, or 22% of eligible participants (n=214) reported noncompliance with routine health screenings. Reasons for noncompliance included: no PCP at 23.4% (n=11), no

transportation at 2.1% (n=1), unable to take time off of work at 2.1% (n=1), financial concerns at 2.1% (n=1), not informed of testing by PCP at 4.3% (n=2), too many other medical conditions to worry about at 6.4% (n=3), no benefit to testing at 10.6% (n=5), no convenient time at19.1% (n=9), and other at 29.8% (n=14). Forty-five of the participants responded to the follow up question regarding likelihood of receiving a routine health screening if the stated barrier was removed. Of the forty-five responses, the average score was 0.8 with a standard deviation of 0.8686 indicating that most participants would be agreeable to obtaining a routine health screening. A t-test was performed on the data to confirm the likelihood that this average was truly positive with a t=6.1780, p<.001.

Colorectal Cancer Screening

Colorectal cancer screenings are recommended for all adults ages 50-74 (AHRQ, 2014b). Fecal occult blood testing is recommended annually, while colonoscopies are recommended at ten year intervals (AHRQ, 2014b). Both items were included in our survey. Forty-nine, 87.5% of eligible participants (n=56) reported noncompliance with annual fecal occult blood testing. Of these, reasons reported for noncompliance included: no PCP at 14.3% (n=7), fear or embarrassment at 2% (n=1), need for test unknown at 8.2% (n=4), no benefit to testing at 2% (n=1), not informed of testing by PCP at 30.6% (n=15), too many other medical problems at 2% (n=1), no convenient time at 2% (n=1), not applicable at 12.2% (n=6), and other at 26.5% (n=13). Of the forty-nine participants, forty responded to the follow-up question regarding the likelihood of receiving a fecal occult stool screening if the particular barrier reported was removed. Of the forty responses, the average score was 0.3 with a standard deviation of 1.055 indicating most participants would be unlikely to obtain a fecal occult blood test even if the barrier . A t-

test was performed on the data to determine the likelihood that the average was truly positive with a result of t=1.798, p< .0399.

Colonoscopies are recommended for colorectal cancer screening at intervals of ten years for all adults' ages 50-74 years (AHRQ, 2014b). Fourteen, 25% of eligible participants (n=56) ages 50-74 reported not having a colonoscopy within the past ten years. Reasons for noncompliance included: no PCP at 14.3% (n=2), financial concerns at 21.4% (n=3), fear or embarrassment at 14.3% (n=2), no benefit to testing at 7.1% (n=1), not informed of testing by PCP at 14.3% (n=2), too many other medical problems at 7.1% (n=1), no convenient time at 7.1% (n=1), and not applicable at 14.3% (n=2). Ten participants answered the follow-up question regarding likelihood of receiving a colonoscopy if the stated barrier was removed. The average score of respondents was 0.5 with a standard deviation of 1.138 indicating that participants were either neutral or likely to receive preventive screening if the reported barrier was removed.

Cervical Cancer Screening

Cervical cancer screening is recommended every three years with cytology (Pap smear) in women ages 21-65 years (AHRQ, 2014b). Twenty-eight, 15% of eligible respondents (n=187) reported noncompliance with Pap screenings within three years. Reasons cited were: no PCP at 10.7% (n=3), unable to take time off of work at 3.6% (n=1), need for test unknown at 7.1% (n=2), fear or embarrassment at 10.7% (n=3), no benefit to testing at 10.7% (n=3), not informed of testing by PCP at 3.6% (n=1), no convenient time at 14.3% (n=4), other at 32.1% (n=9), and not applicable at 7.1% (n=2). Twenty-three participants responded to the follow-up question indicating if they would or would not receive a cervical cancer screening if the barrier stated was

removed. The average response score was 0.96, with a standard deviation of 1.022 indicating that the majority of participants were either neutral or agreeing that they would likely receive a cervical cancer screening.

Breast Cancer Screening

Breast cancer screening recommendations vary by organization. For the purposes of this study, the USPSTF guidelines were used which recommend women ages 50-74 be screened by mammography every two years (AHRQ, 2014b). Eight, 16.3% of participants (n=49) meeting USPSTF criteria for breast cancer screening report not receiving a mammogram within the past two years. Reasons cited were: unable to take time off of work at 12.5% (n=1), need for test unknown at 12.5% (n=1), fear or embarrassment at 25% (n=2), no benefit to testing at 12.5% (n=1), too many other medical conditions at 12.5% (n=1), other at 12.5% (n=1), and not applicable at 12.5% (n=1). Seven participants responded to the follow-up question, with an average response score of 0.149 and a standard deviation of 1.215 indicating participants were neutral in terms of likelihood of receiving a mammogram if the reported barrier was removed.

Lung Cancer Screening

The USPSTF recommends low-dose computed tomography (CT scan) in adults ages 55-80 years who have a thirty-pack-year smoking history and currently smoke or have quit within the past fifteen years (AHRQ, 2014b). The results were based on the assumption that only those participants that were current or former smokers (within fifteen years) answered this question. Nine, 37.5% of eligible participants (n=24) responded that they had not received the recommended CT scan within the last year. Reasons for noncompliance included: no PCP at 11.1% (n=1), need for test

unknown at 11.1% (n=1), not informed of testing by PCP at 22.2% (n=2), no convenient time at 11.1% (n=1), other at 22.2% (n=2), and not applicable at 22.2% (n=2). Eight participants answered the follow-up question with an average score of 1 and a standard deviation of 0.925 indicating that they would receive the CT scan if the barrier stated was removed.

Literature Review

Block, Jarlenski, Wu, and Bennett (2013) conducted an analysis to identify changes in mammography compliance with USPSTF recommendation changes. In this survey, they found that people who report contact with a health care provider within the past year are more likely to be compliant with preventive screening follow through. They reported that in 2010, those that reported a health care visit were 61% (ages 40-49) and 70% (ages 50-74) more likely to report having a mammogram. Our study supports this in that participants consistently identified lack of primary care provider as a major barrier to receipt of preventive services.

Mochari-Greenberger, Mills, Simpson, and Mosca (2010) conducted a study using random digit dialing to obtain a sample of 1008 women. This study focused on barriers as well as recent access to preventive services. Black and Hispanic women reported taking actions due to recommendations from professionals (59% and 54%) compared to Caucasian women (43%). Oliver, Grindel, DeCoster, Ford, and Martin (2011) also completed a non-experimental exploratory study that included a convenience sample of 94 rural male participants (primarily Black) ages 40 and older. This study also looked at factors impacting preventive screenings, namely to prostate screening. Health care providers were reported to be a major influence to receiving a preventive screening by

81.8% of participants. Of the participants that reported barriers to the eight preventive services we surveyed, 18.6% (n=40) of the total responses were due to not being informed of the need for that particular testing by their PCP. This supports the research that providers play a pivotal role in influencing patients' perception and follow-through in relation to preventive services.

Yao, Dembe, Wickizer, and Lu (2015) utilized MEPS data to research time constraints related to work, affecting the likelihood of obtaining preventive services. Participants were adults who were employed full time and covered by private health insurance. Participants working over 60 hours per week were significantly less likely to obtain dental services and mammography. Females that worked 51-60 hours weekly were less likely to receive Pap smears. Of the participants in our survey, 80.1% (n=173) were employed. Of those employed, participants reported full time status (n=144) and part time (n=29). Participants reported time barriers at 10.3% (n=22) and no time off work at only 0.02% (n=4). Although the majority of participants were employed, work related issues were not cited as a significant reason to not obtaining preventive services. Hours of work were not obtained in this survey to correlate with the long hours reported by Yao, Dembe, Wickizer, and Lu.

Theoretical Framework

Health promotion must be a collaborative effort between patient and the health care providers. A systems model of clinical preventive care by Judith Walsh, MD, MPH and Stephen McPhee, MD focuses on the unique interaction between the patient, provider, and takes into consideration the healthcare delivery system. The three types of factors that both patient and provider encounter that either promote or inhibit preventive

services are predisposing, enabling, and reinforcing. This study focused on the patient's perspective taking into account all three types of factors.

Patient predisposing factors relate to motivation to perform particular health promotion behaviors. Demographic factors such as age, income level, and geographic area all have influences on how the participant engages in preventive behaviors, but these factors are not readily modifiable. Beliefs and attitudes including fear can prevent individuals from seeking preventive care. In this study services such as colonoscopy, Pap smear, and mammography had participants report embarrassment to receiving those services at 4.6% overall but as a top barrier in each of the three services. Participants also reported not receiving any benefit from obtaining screenings at 7% (n=15) with participants writing similar barriers into the "other" category. There was a theme regarding age and being "too young" to need screenings. One report was a 36 year old female who felt that having a routine health screening was not appropriate for her age. Another 45 year old female reported she is "too lazy" to have a routine health screening. These beliefs and attitudes towards preventive care create a challenge that health care providers must overcome.

Enabling factors included knowledge, education, and logistical matters including schedules and convenience. This study supports that enabling factors play a key role in the inhibition of obtaining preventive screenings. The responses on the survey indicate that 18.2% (n=39) of participants report a knowledge deficit related to preventive screenings making this the largest barrier. Time to conveniently have preventive screenings was also a notable factor, with noncompliance reported at 10.2% (n=22) by participants. Of those twenty-two participants reporting no convenient time, the average

age was 39.31 years and education levels as follows: high school diploma or equivalent(n=1), associates or technical degree (n=2), bachelor's degree (n =10), masters level (n=8) and no answer (n=1). The majority of the participants in this study were employed full time, 67.3% (n=144) with part time working status as the next largest group represented at 13.6% (n=29). Lack of a convenient time may be related to work schedules, inconvenient office hours, or other family commitments.

Reinforcing factors for the patient are important to initiate and repeat the behavior. Social support and the inherent reinforcement value of performing a preventive screening are both needed in initiating and maintaining long term behavior change (Walsh & McPhee, 1992). Of all the eight preventive screenings surveyed, lack of family support was never reported as a barrier. Reassurance from receiving a negative result can reinforce behaviors since preventive screenings are usually repeated at periodic intervals. The benefits to preventive care are not always immediately evident and events occurring in the distant future may be perceived as having less value (Walsh & McPhee, 1992). In this study, 7% (n=15) of participants reported that they did not feel that they would benefit from receiving preventive screenings. Patients that choose not to initiate preventive screenings will not benefit from reinforcing factors. Refer to figure five for percentage of barriers in regards to the three sets of theoretical factors.

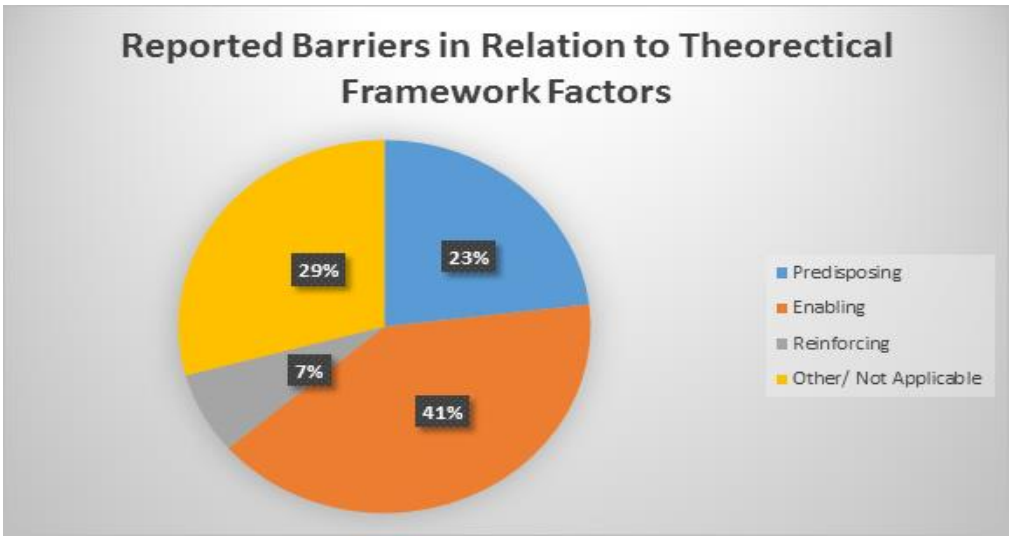

Figure 5. Reported barriers in relation to theoretical framework factors. This figure illustrates the relationship between surveyed barriers and the theoretical framework.

Limitations

Limitations of this study included issues with time, sample size, and access. There was a two week time limit for completing the survey, which limited the sample size. The sample size was also limited to the surveyor's contacts on social media and email. It was also dependent on participants sharing the survey link to increase response rate and the diversity of response. Persons without access to an electronic device with internet capabilities were not able to be included in this survey, possibly impacting the demographic variance. Due to the online format, participants could not seek clarification if they had questions related to the survey. Another limitation was that participants could either knowingly or inadvertently skip questions, as questions were not required to be answered in order to continue to the next question. This led to participants not answering some follow-up questions that were pertinent to response on a previous question.

Summary

This chapter presented the analysis of data that was obtained while researching the most commonly perceived barriers to preventive services among adults with health insurance coverage. Survey findings were reviewed and discussed in regard to each of the eight preventive services, see figure 6 for compliance across each service. The findings were also compared to the literature review to determine if the findings support current research on the subject matter. Themes that were reviewed include relationships with primary care providers, knowledge deficits related to preventive screenings, and time constraint issues. Lacking a primary care provider or not receiving information from their primary care provider was consistently cited as a barrier to preventive services. Although time constraints are an issue, work related issues were not reported as often as previous research suggests.

Figure 6. Compliance across services. This figure illustrates compliance and noncompliance rates across all eight preventive services

The findings were also discussed in relation to the theoretical framework, a systems model of clinical preventive care by Judith Walsh, MD, MPH and Stephen

McPhee, MD. While this research study only discussed the patient perspective of the theory, valuable insight was obtained in regards to factors that lead to untimely or missed preventive screenings. The overall goal of obtaining preventive screenings is to decrease the morbidity and mortality of preventable diseases. Gaining insight into what prevents people from receiving such services, when lack of health insurance is not an issue, is key to initiating change.

Chapter five will be the concluding chapter to this research study. The chapter will include a brief summary of findings along with a discussion related to implications for nursing practice. Future recommendations for research will also be discussed.

Chapter 5

Summary, Conclusions, and Recommendations

Summary of Findings

Barriers to preventive services occur across the lifespan for various reasons that are at times beyond the control of the healthcare system. Our literature review revealed that there was little research to determine the most frequently cited barriers to preventive services after the implementation of the Affordable Care Act. Research was conducted to determine what barriers patients report to preventive services when health insurance was not a contributing factor.

After a thorough review of literature, the most commonly reported barriers cited in previous research were compiled for this study. These barriers were presented to participants as common reasons not to obtain preventive healthcare services. Although there were approximately 25% of participants that did not choose a standard barrier but chose to manually enter a free form text, several common themes of barriers were identified. The results suggest that lack of a primary care provider at 17.2%, lack of knowledge at 18.1%, and time constraints at 10.2% are driving factors for not receiving preventive health screenings.

Participants were also surveyed about the likelihood of receiving a preventive service if the stated barrier was removed. Across the eight preventive screenings, participants reported a positive correlation with receiving those services if the barrier were removed. Any positive value was accepted as demonstrating a likelihood of receiving preventive services if the barrier was removed. Breast cancer screenings and colorectal cancer services, including stool for occult blood, sigmoidoscopy, and

colonoscopy, demonstrated a weak correlation in regards to receipt of services with barrier removal.

In six of the eight preventive services only one participant in each category reported that they either disagreed or strongly disagreed about receiving said service leaving the majority of patients either neutral or agreeable. This implies that interventions to lift barriers may lead to increased compliance. The two areas that multiple participants reported a higher incidence of disagreeing or strongly disagreeing included both stool blood test for colorectal cancer and colonoscopy. Of those in disagreement, the typical barrier reported was that they were never informed of needing the test at 27% or a lack of understanding of the test at 8%. Multiple factors may contribute to the compliance of obtaining colorectal cancer services.

Implications for Nursing

With the implementation of the Affordable Care Act, insurance barriers to receiving preventive services are becoming less of a primary issue. Two of the major barriers cited by participants included lack of a primary care provider at 17.2% and not being informed of needing preventive services at 18.1%. Both of these barriers can be positively impacted by healthcare professionals.

Establishing a relationship with a PCP is the first step to compliance with preventive services. It is important for all healthcare providers to encourage patients at every contact to establish a relationship with a PCP. Not having a PCP is a multifactorial issue that includes lack of available providers, emergency rooms being improperly utilized as primary providers, and office hours being inconvenient for working families. Changing how PCPs are able to provide care, including tele-doc services and

internet consultations, may be of benefit to those who no longer seek a traditional relationship or have time constraints in receiving traditional office care.

Providers are the gateway to preventive screenings for patients. Providers need to offer better education on preventive screening recommendations to patients to promote compliance. It is important for providers to encourage compliance and stress the benefits to screenings so that patients can make an informed decision regarding their healthcare. Preventive screening recommendations should be addressed at every patient contact to promote compliance.

Recommendations for Further Research

The findings of this research study suggest that additional research of preventive screening barriers is warranted. Despite the increase in health insurance coverage for patients and preventive services covered at no additional charge, compliance with services continues to be lacking. Further research should include focusing on the major barriers identified including: lack of a primary care physician, not being informed of need for testing by provider, and time constraints. For many of the screenings surveyed in this research study, participants stated they were likely to receive a preventive screening if the stated barrier were removed. Future research should further investigate this by determining patient compliance after barrier removal interventions. This could include identifying patients who do not have a PCP and pairing participants with an available provider. Researchers could then determine long term compliance with preventive services.

Future research can also be focus on providers and their impact on patient compliance. Researchers should identify preventive screening education guidelines

followed by providers and determine the impact this has on patient compliance. Participant follow through could be compared between participants who had preventive screening education versus participants that did not receive education.

This study focused on the patient's perspective regarding barriers to health care services, but this responsibility does not fall exclusively on the patient. Primary care providers and the health care system must also be held accountable and work together to offer the best possible care. Future research can explore barriers that are perceived by healthcare providers encompassing the three defined factors in the systems model of clinical preventive care. Examples of this could include: providers understanding and perception of preventive services and the impact that has on their patient population, time spent with patients during office visits and preventive screening compliance, and provider resources and patient compliance. Understanding provider and organizational barriers that impede the receipt of services could lead to a greater overall understanding of the interventions that are needed for change.

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Appendix A

McPhee, Steve <Stephen.McPhee@ucsf.edu>
Thu 7/23/2015 2:20 AM
800 Thesis
To:
Walsh, Judith <Judith.Walsh@ucsf.edu>;
Michelle Jacobson;
Cc:
Heather Madsen;
You replied on 7/25/2015 8:22 AM.
Dear Ms. Jacobson and Ms. Madsen:
Yes, this is fine with me also. Good luck with your research!
Steve McPhee
Stephen J. McPhee, M.D.
Professor of Medicine, Emeritus
Division of General Internal Medicine
Department of Medicine
1545 Divisadero Street, Suite 322
San Francisco, CA 94143-0320
DGIM Telephone: 1-415-514-8686 -- Kindly leave messages for me with the receptionist to be given to my editorial manager, Mr. Phil Tiso, if he is available or otherwise to be placed in my mailbox.
DGIM Fax: 1-415-514-8666
smcphee@medicine.ucsf.edu
NOTE: For any mail related to McGraw-Hill or other editorial matters, please send directly to my home address. If you do not have it, please e-mail me directly for it.

From: Walsh, Judith

Sent: Wednesday, July 22, 2015 8:44 PM

To: Michelle Jacobson

Cc: Heather Madsen; McPhee, Steve

Subject: Re: Systems model of clinical preventive care

Dear Michelle- thank you for asking and yes this is fine with me.

Best Judith Walsh MD
From: Michelle Jacobson <M.E.Jacobson@eagle.clarion.edu>
Date: Wednesday, July 22, 2015 5:37 PM
To: JUDITH WALSH <judith.walsh@ucsf.edu>
Cc: Heather Madsen <H.L.Madsen@eagle.clarion.edu>, "McPhee, Steve" <Stephen.McPhee@ucsf.edu>

Subject: Systems model of clinical preventive care

UCSF School of Medicine
1635 Divisadero Street
San Francisco CA 94115
Judith.Walsh@ucsf.edu
July 22, 2015

Dear Dr. Judith Walsh-Cassidy,

We are graduate nursing students at Clarion and Edinboro Universities in Pennsylvania and we are writing to you for consideration of using your systems model of clinical preventive care in our thesis project. Our thesis is patient barriers to preventive screenings in individuals 18 years and older with health insurance. After considering several theoretical frameworks, yours and Dr. McPhee's model fits our needs. Thank you for your consideration, we look forward to hearing from you.

Sincerely,

Michelle Jacobson RN, BS, CCRN and Heather Madsen, RN, BS
MSN Students
Clarion and Edinboro Universities
M.E.Jacobson@eagle.clarion.edu
H.L.Madsen@eagle.clarion.edu

Appendix B

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK REQUIREMENTS REPORT*

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

- **Name:** Michelle Jacobson (ID: 4615482)
- **Email:** m.e.jacobson@eagle.claion.edu
- **Institution Affiliation:** Edinboro University of Pennsylvania (ID: 2228)
- **Institution Unit:** Nursing

- **Curriculum Group:** Human Subject Research
- **Course Learner Group:** Student researchers
- **Stage:** Stage 1 - Student researchers

- **Report ID:** 15062124
- **Completion Date:** 02/06/2015
- **Expiration Date:** 02/05/2018
- **Minimum Passing:** 80
- **Reported Score*:** 91

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction	02/06/15	3/3 (100%)
Edinboro University of Pennsylvania	02/06/15	No Quiz
Students in Research	02/06/15	9/10 (90%)
History and Ethical Principles - SBE	02/06/15	5/5 (100%)
Defining Research with Human Subjects - SBE	02/06/15	5/5 (100%)
Privacy and Confidentiality - SBE	02/06/15	5/5 (100%)
Informed Consent - SBE	02/06/15	3/5 (60%)

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

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- **Institution Affiliation:** Edinboro University of Pennsylvania (ID: 2228)
- **Institution Unit:** Nursing

- **Curriculum Group:** RCR Course
- **Course Learner Group:** RCR FOR SOCIAL & BEHAVIORAL for Students
- **Stage:** Stage 1 - SB for Students

- **Report ID:** 15062125
- **Completion Date:** 02/12/2015
- **Expiration Date:** N/A
- **Minimum Passing:** 80
- **Reported Score*:** 96

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Plagiarism (RCR-Basic)	02/06/15	5/5 (100%)
Responsible Conduct of Research (RCR) Course Introduction	02/06/15	No Quiz
Research Misconduct (RCR-Basic)	02/06/15	5/5 (100%)
Data Management (RCR-Basic)	02/06/15	5/5 (100%)
Authorship (RCR-Basic)	02/06/15	5/5 (100%)
Peer Review (RCR-Basic)	02/12/15	5/5 (100%)
Mentoring (RCR-Basic)	02/12/15	5/5 (100%)
Using Animal Subjects in Research (RCR-Basic)	02/12/15	5/5 (100%)
Conflicts of Interest (RCR-Basic)	02/12/15	5/5 (100%)
Collaborative Research (RCR-Basic)	02/12/15	4/5 (80%)
Research Involving Human Subjects (RCR-Basic)	02/12/15	4/5 (80%)
Responsible Conduct of Research (RCR) Course Conclusion	02/12/15	No Quiz

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

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- **Institution Unit:** Nursing

- **Curriculum Group:** RCR Course
- **Course Learner Group:** RCR FOR SOCIAL & BEHAVIORAL for Students
- **Stage:** Stage 1 - SB for Students

- **Report ID:** 15062125
- **Report Date:** 02/12/2015
- **Current Score**:** 96

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Responsible Conduct of Research (RCR) Course Introduction	02/06/15	No Quiz
Using Animal Subjects in Research (RCR-Basic)	02/12/15	5/5 (100%)
Research Involving Human Subjects (RCR-Basic)	02/12/15	4/5 (80%)
Plagiarism (RCR-Basic)	02/06/15	5/5 (100%)
Authorship (RCR-Basic)	02/06/15	5/5 (100%)
Collaborative Research (RCR-Basic)	02/12/15	4/5 (80%)
Conflicts of Interest (RCR-Basic)	02/12/15	5/5 (100%)
Data Management (RCR-Basic)	02/06/15	5/5 (100%)
Mentoring (RCR-Basic)	02/12/15	5/5 (100%)
Peer Review (RCR-Basic)	02/12/15	5/5 (100%)
Research Misconduct (RCR-Basic)	02/06/15	5/5 (100%)
Responsible Conduct of Research (RCR) Course Conclusion	02/12/15	No Quiz

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

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COURSEWORK TRANSCRIPT REPORT**

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- **Institution Unit:** Nursing

- **Curriculum Group:** Human Subject Research
- **Course Learner Group:** Student researchers
- **Stage:** Stage 1 - Student researchers

- **Report ID:** 15062124
- **Report Date:** 02/12/2015
- **Current Score**:** 91

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Students in Research	02/06/15	9/10 (90%)
Edinboro University of Pennsylvania	02/06/15	No Quiz
History and Ethical Principles - SBE	02/06/15	5/5 (100%)
Defining Research with Human Subjects - SBE	02/06/15	5/5 (100%)
Belmont Report and CITI Course Introduction	02/06/15	3/3 (100%)
Informed Consent - SBE	02/06/15	3/5 (60%)
Privacy and Confidentiality - SBE	02/06/15	5/5 (100%)

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

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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK REQUIREMENTS REPORT*

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

- **Name:** Heather Madsen (ID: 4722299)
- **Email:** H.L.Madsen@eagle.clarion.edu
- **Institution Affiliation:** Edinboro University of Pennsylvania (ID: 2228)
- **Institution Unit:** Nursing

- **Curriculum Group:** Human Subject Research
- **Course Learner Group:** Student researchers
- **Stage:** Stage 1 - Student researchers

- **Report ID:** 15470135
- **Completion Date:** 04/19/2015
- **Expiration Date:** 04/18/2018
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction (ID: 1127)	04/19/15	3/3 (100%)
Students in Research (ID: 1321)	04/19/15	10/10 (100%)
History and Ethical Principles - SBE (ID: 490)	04/19/15	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	04/19/15	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	04/19/15	5/5 (100%)
Informed Consent - SBE (ID: 504)	04/19/15	5/5 (100%)

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

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COURSEWORK TRANSCRIPT REPORT**

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

- **Name:** Heather Madsen (ID: 4722299)
- **Email:** H.L.Madsen@eagle.clarion.edu
- **Institution Affiliation:** Edinboro University of Pennsylvania (ID: 2228)
- **Institution Unit:** Nursing

- **Curriculum Group:** Human Subject Research
- **Course Learner Group:** Student researchers
- **Stage:** Stage 1 - Student researchers

- **Report ID:** 15470135
- **Report Date:** 09/28/2015
- **Current Score**:** 100

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Students in Research (ID: 1321)	04/19/15	10/10 (100%)
History and Ethical Principles - SBE (ID: 490)	04/19/15	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	04/19/15	5/5 (100%)
Belmont Report and CITI Course Introduction (ID: 1127)	04/19/15	3/3 (100%)
Informed Consent - SBE (ID: 504)	04/19/15	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	04/19/15	5/5 (100%)

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

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Heather Madsen ID: 4722299

Main Menu › Course RCR FOR ARTS AND HUMANITIES for Students

RCR FOR ARTS AND HUMANITIES for Students - ARTS AND HUMANITIES

Your Current Score 100%

To pass this course you must:

· Complete all 12 required modules

· Complete 2 of 4 elective modules

· Achieve an average score of at least 80% on all quizzes associated with this course's module requirements

You have unfinished required or elective modules remaining

Top of Form

View the Continuing Education Information page before beginning the course

Bottom of Form

Required Modules

	Date Completed	Score	CE Certified
Plagiarism (RCR-Basic) (ID: 15156)	04/19/15	5/5 (100%)	Yes
Responsible Conduct of Research (RCR) Course Introduction (ID: 1522)	04/19/15	No Quiz	
Research Misconduct (RCR-Basic) (ID: 16604)	Incomplete	0/0 (0%)	Yes
Data Management (RCR-Basic) (ID: 16600)	Incomplete	0/0 (0%)	Yes
Authorship (RCR-Basic) (ID: 16597)	Incomplete	0/0 (0%)	Yes
Peer Review (RCR-Basic) (ID: 16603)	Incomplete	0/0 (0%)	Yes
Mentoring (RCR-Basic) (ID: 16602)	Incomplete	0/0 (0%)	Yes
Using Animal Subjects in Research (RCR-Basic) (ID: 13301)	Incomplete	0/0 (0%)	Yes
Conflicts of Interest (RCR-Basic) (ID: 16599)	Incomplete	0/0 (0%)	Yes
Collaborative Research (RCR-Basic) (ID: 16598)	Incomplete	0/0 (0%)	Yes
Research Involving Human Subjects (RCR-Basic) (ID: 13566)	Incomplete	0/0 (0%)	Yes
Responsible Conduct of Research (RCR) Course Conclusion (ID: 1043)	Incomplete	0/0 (0%)	

Appendix C

From: Lefkowitz, Doris C. (AHRQ) (AHRQ) <Doris.Lefkowitz@ahrq.hhs.gov>
To: heatherlm2 <heatherlm2@aol.com>
Cc: Ramage, Kathryn (AHRQ) (AHRQ Contractors) (AHRQ) (AHRQ Contractors) <Kathryn.Ramage@ahrq.hhs.gov>
Subject: MEPS prevention questions
Date: Mon, Aug 24, 2015 10:38 am

Heather –

You do not need permission to use MEPS questionnaire items. On our prevention items, we are currently testing a new set of items that are designed for self administration, and I would be happy to send you those.

Doris Lefkowitz

From: AHRQ MEPS PROJECT DIRECTOR <MEPSPROJECTDIRECTOR@ahrq.hhs.gov>
To: Ramage, Kathryn (AHRQ) (AHRQ Contractors) (AHRQ) (AHRQ Contractors) <Kathryn.Ramage@ahrq.hhs.gov>; heatherlm2 <heatherlm2@aol.com>
Cc: AHRQ MEPS PROJECT DIRECTOR <MEPSPROJECTDIRECTOR@ahrq.hhs.gov>
Subject: RE: permission to use MEPS survey
Date: Fri, Aug 21, 2015 10:21 am

You may use whatever you'd like. Please cite MEPS in any presentations or written work created using our questions.

Customer By Web Form (Heather Madsen) - 08/19/2015 11:29 AM I am writing in regards to utilizing questions from the MEPS survey on our thesis project regarding prevention. We are interested in using several questions regarding preventive services on our thesis survey. Please respond regarding the use and reproduction of questions on the MEPS survey and permission that may be needed. Thank you.

Heather
Madsen

Appendix D

* 1. CONSENT TO ACT AS A SUBJECT IN A RESEARCH STUDY
UNIVERSITY AFFILIATION:
Clarion University of PA Administrative Office
108 Carrier Administration Building, Clarion, PA 16214
814-393-2337

TITLE: Perceived barriers to preventive screenings by individuals 18 years and older with health insurance

CO-INVESTIGATORS:
Michelle Jacobson BS, RN, CCRN
1388 Highland Park Road
Punxsutawney, PA 15767
814-591-2033
M.E.jacobson@eagle.clarion.edu

Heather Madsen BS, RN
605 Showers St.
Harrisburg, PA 17104
717-418-9833
H.L.Madsen@eagle.clarion.edu

DESCRIPTION: I understand that I have been asked to participate in this research project which is a study of barriers to preventive screenings among adults age 18 years and older with health insurance. Involvement in this study will include one online session completing a survey. Anticipated time to complete this survey is approximately 15 minutes. There will be no follow-up interview. Results will be made available to participants.

RISK AND BENEFITS: You may or may not benefit from being in this study. Other people in the future may benefit from what the researchers learn from this study.

The survey will protect anonymity of participants by not asking identifying information of the individual and will be completed at a time and location that is convenient for the participant. There is no anticipated harm to expectant mothers or their fetuses if they choose to participate.

COST AND PAYMENTS: There is no cost associated with completing this survey. You will not be paid for participation in this study.

CONFIDENTIALITY: I understand that any information about me obtained from this research will be kept strictly confidential. Information will only be accessible by the researchers (the principal investigator and research team). It has been explained to me that my identity will not be revealed in any description or publication of this research. I consent to publication for scientific purposes.

DISCLOSURE: I understand that any information about me obtained from this research may be disclosed. Information will be stored. It has been explained to me that my identity will not be revealed in any description or publication of this research. Therefore, I consent to publication for scientific purposes.

RIGHT TO REFUSE OR END PARTICIPATION: I understand that I may refuse to participate in this study or withdraw at any time. I also understand that I may be withdrawn from the study by the investigator(s).

IRB Research Approval # 15-15-16

By proceeding to the survey, you are confirming that you are 18 years of age or older, with health insurance. Completion of this survey implies consent to use the collected data in a research study.

◯ I agree.

* 2. Are you over the age of 18?

- [ ] Yes
- [ ] No

* 3. 1. Do you have health insurance?

- [ ] Yes
- [ ] No

Demographics

4. What is your age in years?

5. Which gender do you identify as?

- ◯ Male
- ◯ Female
- ◯ Other

6. Which of the following best describe your annual household income?

- ◯ < $25,000
- ◯ $25,000-$50,000
- ◯ $50,000-$75,000
- ◯ $75,000-$100,000
- ◯ > $100,000

7. Which of the following best describes the highest level of education completed?

- ◯ Did not graduate
- ◯ High school/GED
- ◯ Associate's or technical degree
- ◯ Bachelor's degree (or equivalent)
- ◯ Master's degree (or equivalent)
- ◯ Doctoral degree (or equivalent)

8. What is your current employment status?

- ◯ Unemployed/Homemaker.
- ◯ Part-time/Temporary
- ◯ Full-time
- ◯ Student
- ◯ Retired
- ◯ Disabled
- ◯ Unable to work
- ◯ Refused

9. Which race/ethnicity best describes you?

- ◯ Caucasian or White
- ◯ Hispanic or Latino
- ◯ American Indian or Alaska Native
- ◯ African American or Black
- ◯ Native Hawaiian or Pacific Islander
- ◯ Asian
- ◯ Other (please specify)

10. Which of the following best describe the geographic region where you currently reside?

- ◯ Urban
- ◯ Suburban
- ◯ Rural

11. What state do you currently reside in?

12. Which of the following best describes your current health insurance coverage?

- ◯ Medicare
- ◯ Medicaid
- ◯ Group/Private coverage
- ◯ Military health care
- ◯ Indian Health Service
- ◯ State-specific plan

13. Which of the following best describes your current marital status?

- ◯ Single
- ◯ Married
- ◯ Divorced
- ◯ Widowed
- ◯ Domestic Partnership

Preventive Service- Blood Pressure

This section will ask questions regarding recommended preventive services.

14. About how long has it been since you had your blood pressure checked by a doctor, nurse, or other health professional?

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within the past five years
- ◯ More than five years
- ◯ Never

15. If it has been greater than two years, please choose the ONE main barrier that prevented you from receiving a blood pressure check:

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider.
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam.
- ◯ Other (please specify)

16. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a blood pressure check.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

Preventive Services- Blood Cholesterol

17. About how long has it been since you had your blood cholesterol checked by a doctor or other health professional?

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within the past five years
- ◯ More than five years
- ◯ Never

18. If it has been greater than 5 years, please pick the main barrier that prevented you from receiving a blood cholesterol check:

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider.
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam.
- ◯ Other (please specify)

19. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a blood cholesterol check.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

Preventive Services- Routine Check-Up

20. About how long has it been since you had a routine check-up by a doctor or other healthcare professional?
(A routine check-up is a visit with a doctor or other health professional for assessing overall health, usually not prompted by a specific illness or complaint. It usually includes a blood pressure check, and may include taking a blood sample for analysis and questions about health behaviors such as smoking.)

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within the past five years
- ◯ More than five years
- ◯ Never

21. If it has been greater than one year since your last routine check- up by a doctor or other healthcare professional, please choose one barrier that you feel was the most influential reason for not obtaining:

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider.
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam.
- ◯ Other (please specify)

22. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a routine check- up.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

Preventive Services-Blood Stool Test

23. A blood stool test is a test that you do at home using a special kit or cards provided by a doctor or other health professional to determine whether the stool contains blood. When did you do your most recent blood stool test using a home kit?

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within past five years
- ◯ Within past ten years
- ◯ More than ten years
- ◯ Never

24. If it has been greater than one year, since your last blood stool test, please choose one barrier that you feel was the most influential reason for not obtaining.

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider.
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam
- ◯ N/A
- ◯ Other (please specify)

25. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a blood stool test.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

23

Preventive Service- Colonoscopy

26. When did you have your most recent colonoscopy?
(A sigmoidoscopy and a colonoscopy are both tests that examine the bowel by inserting a tube in the rectum. The difference is that during a sigmoidoscopy, you are awake and can drive yourself home after the test; however, during a colonoscopy, you may feel sleepy and you need someone to drive you home.)

- ◯ Within past year
- ◯ Within past two years
- ◯ Within past three years
- ◯ Within past five years
- ◯ Within past ten years
- ◯ More than ten years
- ◯ Never

27. If it has been greater than ten years since your last colonoscopy by a doctor or other healthcare professional, please choose one barrier that you feel was the most influential reason for not obtaining.

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam
- ◯ N/A
- ◯ Other (please specify)

28. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a colonoscopy.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

Preventive Service- Pap Smear

29. Please answer the following question only if you are a FEMALE ages 21-65: When did you have your most recent Pap test? (A Pap smear or Pap test is a routine test for women in which the doctor examines the cervix, takes a cell sample from the cervix with a small stick or brush, and sends it to the lab)

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within the past five years
- ◯ More than five years
- ◯ Never
- ◯ N/A

30. If it has been greater than three years since your last Pap Test by a doctor or other healthcare professional, please choose one barrier that you feel was the most influential reason for not obtaining.

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam
- ◯ N/A
- ◯ Other (please specify)

31. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a Pap test.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

Preventive Service- Mammogram

32. Please answer the following question only if you are a FEMALE ages 40-74: When did you have your most recent mammogram? (A mammogram is an x-ray taken only of the breast by a machine that presses against the breast.)

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within the past five years
- ◯ More than five years
- ◯ Never
- ◯ N/A

33. If it has been greater than two years since your last mammogram by a doctor or other healthcare professional, please choose one barrier that you feel was the most influential reason for not obtaining.

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam
- ◯ N/A
- ◯ Other (please specify)

34. If the barrier you stated above was removed, please rate on a scale from 1-5 the likelihood of receiving a mammogram.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
○	○	○	○	○	○

Preventive Service- Low dose CT Scan of the Lungs

35. Please answer the following question only if you are ages 55-80 AND have smoked for 30 pack years (To calculate pack years 1 pack of cigarettes per day for 30 years = 30 pack years, 2 packs of cigarettes per day for 15 years =30 pack years, 3 packs of cigarettes per day for 10 years = 30 pack years): When did you have your most recent low dose CT scan (computed tomography) of your lungs?

- ◯ Within the past year
- ◯ Within the past two years
- ◯ Within the past three years
- ◯ Within the past five years
- ◯ More than five years
- ◯ Never
- ◯ N/A

36. If it has been greater than one year since your last chest CT scan by a doctor or other healthcare professional, please choose one barrier that you feel was the most influential reason for not obtaining.

- ◯ I did not have a primary care physician to recommend or complete this screening
- ◯ I was unable to obtain transportation or have access to transportation to complete this screening
- ◯ The test would be too far from my home
- ◯ I was unable to take time off of work to complete this screening
- ◯ I did not have money to pay for this test
- ◯ I don't understand why I need this test
- ◯ I am afraid of the procedure or embarrassed to have procedure
- ◯ I am afraid of receiving a positive result
- ◯ I was never informed of needing this test/exam by my healthcare provider
- ◯ I have too many other medical conditions to worry about
- ◯ I do not feel that I have enough support from my family
- ◯ I feel that I will have no benefit from receiving this test/exam
- ◯ There was no convenient time for me to complete this test/exam
- ◯ N/A
- ◯ Other (please specify)

Appendix E

CLARION UNIVERSITY OF PENNSYLVANIA

Institutional Review Board

DATE: December 8, 2015
FROM: Rhonda Clark, Chairperson
Institutional Review Board

TO: Michelle Jacobson
Heather Madsen

RE: ARA Approved

Your application for Research Approval, Perceived Barriers to Preventive Screenings by Individuals 18 Years and Older with Health Insurance, Project 15-15-16, has been reviewed and approved as exempt. **Be sure that you include your IRB project number in your project cover letter and in any correspondence with the Administrative Office. Also, please include your approval number from the initial application, if submitting an addendum. Your IRB project number should appear on your informed consent and/or your survey instrument.**

Please review the following IRB policy guidelines, which cover your responsibilities as primary investigator:

You must file written permission, which serves as consent, from the institution or facility with the Administrative Office (included in your IRB application). You must also retain all signed consent forms, if required for participation, for a period of three years after the end of the research approval period.

If your research extends beyond one year, you must submit a request for extension and an annual progress report.

Principal investigators are responsible for reporting the progress of the research to the Administrative Office no less than once per year. Problems involving risks or changes in the research must be reported immediately.

You must promptly report injury and/or unanticipated problems involving risks. Principal investigators are responsible for promptly reporting (in writing) to the Administrative Office, through their department heads, any injuries to human subjects and any unanticipated problems, which involve risks to the human research subjects or others.

You must report changes in the research.

Research investigators are responsible for promptly reporting (in writing) to the Administrative Office, through their department heads, any proposed changes in a research activity.

Changes in research during the period for which IRB approval has already been given **shall not be initiated** by the research investigators **without IRB review and approval**, except where necessary to eliminate apparent immediate hazards to the subject. In such occurrence the IRB is to be notified as soon as possible.

You must report noncompliance with this assurance.

Research investigators and department heads are responsible for reporting promptly to the Administrative Office and the IRB any serious or continuing noncompliance with the requirements of this assurance or the determinations of the IRB.

If your project is under continuing review (Expedited and Full-Board Applications), you may be requested to produce evidence that your research is following the guidelines provided in your application. If your project is chosen for an audit, you will be notified.

You must submit a research conclusion form, available on the IRB site, once your research project is completed. Please submit the research conclusion form to irb@clarion.edu.

Clarion University of Pennsylvania
840 Wood Street, Clarion, PA 16214
814-393-2774 (Phone)
814-393-2825(Fax)