ABSTRACT

Title of Document: FACTORS RELATED TO COUNSELING ASIAN PATIENTS BY PRIMARY CARE PHYSICIANS ON CANCER PREVENTION AND SCREENING RECOMMENDATIONS

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Primary care physicians are a critical source for communicating important cancer screening recommendations and play a significant role in increasing the cancer screening behavior of their patients. Asians, one of the fastest growing minority groups in the United States, experience disproportionate incidence and mortality rates of certain cancers, as compared to those of other racial/ethnic groups. Further, cancer deaths among Asians have increased at a rate faster than that of any other racial/ethnic group, and since 1980, cancer has been the leading cause of death among Asian women. This exploratory study assessed and evaluated the issues and barriers related to appropriate and effective screening recommendations for the early detection of cancer for Asians in the U.S. It also sought to identify the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations and to assess primary care physicians' perceptions of cancer risk in Asians. In addition, this exploratory study examined whether the Elaboration Likelihood Model (ELM) could be applied in a

nontraditional manner to examine ELM components in relation to the occurrence of cancer screening recommendations.

Primary care physicians practicing in New Jersey and New York City were mailed a 30-question (91-item) survey on medical practice characteristics, Asian patient communication, cancer screening guidelines, Asian cancer risk, and demographics. In total, 100 surveys were returned. Results showed that liver cancer and stomach cancer were perceived as higher cancer risks among Asians, as compared to those of the general population, and breast and prostate cancer were perceived as lower cancer risks. Significant relationships ($p < .05$) were found between the individual and aggregate components of the theoretical components and the occurrence of prevention screening recommendations made by physicians to their Asian patients. Physicians are integral public health liaisons who can be both influential and resourceful toward educating Asians about specific cancer awareness and screening information. The findings from this study provide pertinent information toward the development of interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that Asian patients will follow up and be screened.

FACTORS RELATED TO COUNSELING ASIAN PATIENTS BY PRIMARY CARE PHYSICIANS ON CANCER PREVENTION AND SCREENING RECOMMENDATIONS

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DEDICATION

For my wife Janice and daughter Alyssa.

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CHAPTER I

INTRODUCTION

Asians in the U.S. continue to experience a disproportionate burden among all racial and ethnic groups with respect to incidence and mortality rates of certain cancers. Because racial and ethnic disparities are a significant public health concern, Healthy People 2010 has made the elimination of health disparities one of the two overarching goals for improving the health of all Americans (U.S. Department of Health and Human Services, 2000).

This exploratory study assessed and evaluated the issues and barriers related to appropriate and effective screening recommendations for the early detection of cancer for Asians living in the United States. This study explored the factors related to persuasion communication between the physician and patient in the context of the Elaboration Likelihood Model (Petty & Cacioppo, 1986). The results from this exploratory study provide pertinent information to help develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

ASIANS IN THE UNITED STATES

The Asian racial/ethnic group is the Nation's fourth largest and includes individuals who belong to various Asian groups (e.g., Cambodian, Chinese, Filipino, Hmong, Indian, Japanese, Korean, Laotian, Pakistani, Thai, Vietnamese). Asians compose one of the largest and fastest growing minority groups in the United States, with

a population that has increased by 48% between 1990 and 2000 (Barnes & Bennett, 2002). The American Community Survey Reports on Asians in the United States (U.S. Census Bureau, 2007) estimates that 12.1 million people, or 4.2% of the total U.S. population, identify themselves as being Asian only. Estimates indicate that by 2050, this population will grow to over 34 million, or 8% of the U.S. population (U.S. Census, 2004). Further, approximately 70% of the Asian population in the United States is foreign born, and more than 75% of the foreign-born Asian population entered the United States in the past 20 years (Reeves & Bennett, 2004). One unique characteristic of the U.S. Asian population is that this group is not homogenous; its diversity of cultures, languages, and levels of assimilation contributes to the heterogeneity of this population. In 1997, in order to improve the collection and comparability of Federal data, the Office of Management and Budget separated the Asian and Pacific Islander classification into two separate and distinct categories (Centers for Disease Control and Prevention, 2002). With this change, however, Federal agencies were not required to classify Asian and Pacific Islanders until 2003 (Centers for Disease Control and Prevention, 2002). Therefore, much of the limited data that are currently available have information from both groups lumped into one. Another characteristic is that although Asians have income levels and educational attainment that are higher than those of the general U.S. population (Barnes & Bennett, 2002), this group continues to experience health-related disparities in access to health and insurance. Asians are often stereotyped as a "model minority" with few problems or needs, but some subgroups speak little or no English, which restricts their ability to access many services, including health care (Centers for Disease Control and Prevention, 2002). The next three sections will discuss the health

care access issues experienced by Asians, the burden of cancer among Asians, and the impact of primary care physicians in cancer control among Asians.

Accessing Health

According to the Kaiser Commission on Medicaid and Uninsured, Asian Americans are less likely than Whites to have health insurance and access to a regular source of health care (Kaiser Family Foundation, 2000). Further, increases in health insurance cost, employment factors (i.e., being self-employed), and limited access to public programs (e.g., the Welfare Reform Act) contribute to the likelihood of being uninsured among Asian Americans and Pacific Islanders (Families USA, 2002). In the 2001 Commonwealth Fund's Health Care Quality Survey, Asian Americans reported a poorer quality of health care as compared with that of the overall population, despite having a higher socioeconomic status (Hughes, 2002). Asian Americans also reported that they engaged in fewer preventive services, received less chronic disease care, and had communication difficulties with their physician (Hughes, 2002).

Cancer

Cancer deaths among Asian Americans have increased at a rate faster than that of any other racial and ethnic population (Asian and Pacific Islander American Health Forum, 2005). Since 1980, cancer has been the leading cause of death among Asian American women (National Center for Health Statistics, 1998). Further, between 1980 and 1993, the cancer death rate for Asian American and Pacific Islander men increased by 290%, the highest rate of any racial and ethnic group (National Center for Health

Statistics, 1998). According to the National Cancer Institute, Asian Americans and Pacific Islanders experience higher incidence and death rates for certain cancers, as compared with those of other racial and ethnic groups (National Cancer Institute, 2005a). Asian Americans and Pacific Islanders had the third highest incidence rate of cancer during 1992 to 1999 of all racial and ethnic groups (American Cancer Society, 2003).

According to the landmark study, "Unequal Treatment: Confronting Racial/Ethnic Disparities in Health Care" (Smedley, Stith, & Nelson, 2002), racial and ethnic disparities in health care exist and result in poorer health outcomes. Further, racial and ethnic minorities are more likely to receive a lower quality of health care, even when they have access to care (Smedley, Stith, & Nelson, 2002), and, in comparison with the general population, minority groups have disproportionate rates of cancer and other health problems (U.S. Department of Health and Human Services, 2004). Cancer health disparities occur when certain population groups have higher incidence or mortality rates or lower survival rates than other groups (National Cancer Institute, 2005a). Specific and significant cancer disparities exist among Asian Americans. Asian and Pacific Islanders have the highest incidence rates of liver and stomach cancer among all racial groups (National Cancer Institute, 2005b). Liver cancer disproportionately affects Asian Americans, making it the third leading cancer in this group (Parker, Tong, Bolden, & Wingo, 1997; Parkin, Whelan, Ferlay, Raymond, & Young, 1997). According to the National Cancer Institute's Surveillance, Epidemiology, and End Results data for 1988 to 1992, the incidence rates of liver cancer in Chinese, Filipinos, Japanese, Koreans, and Vietnamese are 1.7 to 11.3 times that of Whites (Miller et al., 1996). Further, Asian and Pacific Islander males have the highest death rate for liver cancer (16.1 deaths per

100,000 population) and the second highest death rate for stomach cancer (12.5 deaths per 100,000 population) (National Cancer Institute, 2005b). Stomach cancer is the fourth highest site of cancer among Asian Americans (Parkin et al., 1997), and Korean men have the highest rate of stomach cancer, as compared with all other Asian groups (Miller et al., 1996). Asian and Pacific Islanders, regardless of gender, had the third highest incidence rate of lung and colorectal cancers among all racial groups from 1996 to 2000 (National Cancer Institute, 2005b). Cervical cancer is a significant public health concern among Korean women (Lee, 2000), and Vietnamese women have cervical cancer incidence rates that are five times that of White women (Miller et al., 1996). Among Japanese American women, increasing breast cancer incidence rates are approaching those of White women (Miller et al., 1996).

Language and cultural barriers as well as limited access to health care services are primary reasons for the low rates of screening and treatment among minority groups (Centers for Disease Control and Prevention, 2005). Screening rates of certain cancers are especially low among Asian Americans. Approximately 40% of Korean women receive timely cervical and colorectal cancer screenings (Maxwell, Bastani, & Warda, 2000). According to Healthy People 2010, the baseline of women aged 18 years and older who received a Pap test within the preceding 3 years was 79% in 1998 (U.S. Department of Health and Human Services, 2000). Asian women have lower rates of breast self-examination than other women (Tang, Solomon, Yeh, & Worden, 1999). The 2001 California Health Interview Survey, which over sampled Japanese, Vietnamese, Koreans, and South Asians, included the following results: The cervical cancer screening rates of women in all Asian ethnic subgroups (except for Filipinos) were significantly below the

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overall average cervical cancer screening rate in California; Cambodian and Korean women had low breast cancer screening rates, which were less than the California average; and Asian subgroups (except for Japanese and South Asians) had relatively low (40% to 50%) colorectal cancer screening rates (Ponce, Gatchell, & Brown, 2003).

Primary Care Providers

Primary care providers are a critical source for communication of the importance of cancer prevention services. The National Library of Medicine and National Institutes of Health defines the role of the primary care provider to provide preventive care and teach health lifestyle choices, identify and treat common medical conditions, and to make referrals to medical specialists when necessary (National Library of Medicine, 2004). According to the Advisory Committee on Training in Primary Care Medicine and Dentistry, primary care providers reach two-thirds of the U.S. population (Health Resources and Services Administration, 2003). Health care providers play a critical role in increasing cancer screening (Centers for Disease Control and Prevention, 2005). Effective physician-patient communication has been associated with improved patient satisfaction, adherence to recommendations, and better health outcomes (Stewart et al., 1999). Physician interactions with patients have also led to increases in cancer screenings among minority populations (Katz et al., 2004; Otero-Sabogal et al., 2004; Taylor et al., 2004; Tu et al., 2003). Physicians play a central role in educating and counseling patients on healthier behaviors (Sloand, 1998; Metsch et al., 1998) and act as a top source of cancer information (O'Malley, Renteria-Weitzman, Huerta, Mandelblatt, & Latin American Cancer Research Coalition, 2002). Having physician recommendations for a

cancer screening test positively affects the patient's motivation to obtain that test (Burack & Liang, 1987). In a study of smoking cessation among Chinese Americans in New York City, almost half of the respondents stated that they received most of their health-related information from their physicians (Ferketich et al., 2004).

The effects of physician communication on cancer screenings and their impact on health behavior are positive. However, not addressing the sociocultural differences between the patient and provider may result in poorer health outcomes and patient satisfaction (Betancourt, 2004). Fu, Ma, Tu, Siu, & Metlay (2003) found that Chinese American males with low English proficiency were less likely than those with high English proficiency to receive advice from a physician to quit smoking. In a study on the awareness level of cancer information among Asian Americans living in Pennsylvania and Delaware, less than one third of the current and former smokers who responded to the survey were ever advised by a health care professional to quit smoking (Ma & Fleisher, 2003). Physician beliefs and medical training have been shown to contribute to low rates of cervical cancer screening among Vietnamese women. Vietnamese physicians who believed that Vietnamese women were at the same or higher risk than the general population performed more Pap tests than those who believed that the risk was the same or lower (Hyman, Cameron, Singh, & Stewart, 2003). Three studies indicated that women who had a Vietnamese physician were less likely to have heard of the Pap test (Nguyen, McPhee, Nguyen, Lam, & Mock, 2002; McPhee et al., 1997; Yi, 1994). The lack of training in preventive care may contribute to fewer recommendations for cancer screenings made to Vietnamese women (Yi, 1994).

STATEMENT OF THE PROBLEM

Asians in the U.S. continue to experience a disproportionate burden among all racial and ethnic groups with respect to incidence and mortality rates of certain cancers. Further, with perceptions of low satisfaction and poor quality of care, Asians may elect to participate in far fewer cancer screenings. Physicians are integral public health liaisons that can be an influential factor toward educating Asians about specific cancers and screening information. However, some physicians may not be aware or understand the cancer disparities in this population or may not be culturally prepared to communicate with Asians. Therefore, it is important to focus on the barriers to the physician presenting cogent, supportive, and persuasive arguments in the context of gender, age, race, and culture of patients.

Healthy People 2010, the overall disease prevention and health promotion agenda for the U.S. Department of Health and Human Services, focuses on increasing the quality and years of healthy life and eliminating health disparities through specific and measurable goals and objectives (U.S. Department of Health and Human Services, 2000).

This study addressed the following Healthy People 2010 objectives:

- Objective 1.3:   Counseling about health behaviors
- Objective 3.10:   Provider counseling about cancer prevention
- Objective 11.6:   Satisfaction with health care providers' communication

PURPOSE OF THE STUDY

The purpose of this exploratory study was to assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. The results from this study adds to the growing

research conducted on patient-physician communication, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S. Further, the results from this study provide pertinent information to develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

RESEARCH QUESTIONS

This study addressed the following primary research questions:

1.   What are primary care physicians' perceptions of cancer risk in Asians?

2.   What are the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations?

CHAPTER II

REVIEW OF THE LITERATURE

This study assessed and evaluated the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. The results from this study adds to the growing research conducted on patient-physician communication, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S.

The literature review revealed many studies reflecting the positive impact of physician recommendations and cancer screenings as well as the negative impact of the lack of physician recommendations on screenings. However, few studies were found addressing this impact with Asians and that had examined barriers to physician screening recommendations among Asians.

This chapter provides further background information and examination of previous studies that served as a foundation to the present study. This review included an overview on Asian views of health and illness and health-seeking behavior, distrust and stereotyping, barriers to health care among Asians in the U.S., Asian cancer risk factors, impact of physician counseling of cancer screening recommendations, barriers for physicians recommending cancer screenings, impact of lack of recommendations for screening by physicians, importance of physician-patient relationship, cultural competency, physician training recommendations for educating Asians on cancer screenings, continuing medical education, and the theoretical framework for the study.

ASIAN VALUES AND HEALTH CARE ISSUES

Traditional Asian Values

Traditional Asian values are rooted in and influenced by religion (Luckmann, 2000). When compared with Western culture, Asian cultures tend to value group orientation versus the Western drive for independence, self-reliance, and individualism (Luckmann, 2000). Other examples of traditional Asian values compared to mainstream American values include emphasis on tradition, submission to authority, presence of the extended family, and conformity (Luckmann, 2000). Chang (1981) suggests that when assessing an Asian American patient, one should include acculturation factors and individual idiosyncrasies. There are four major typological characters of Asians in America which include the traditional Asian who adopts traditional Asian values and behaviors; the Asian American who balances traditional and Western values; the alienated Asian who rejects both traditional and Western values; and the Americanized Asian who adopts dominant Western values and behaviors (Chang, 1981). Health-illness beliefs also vary among the typological characters of Asians. For example, health-illness beliefs of traditional Asians include balancing Asian and Western practices whereas health-illness beliefs of Asian Americans are predominantly Western beliefs with some Asian beliefs (Chang, 1981).

Asian View of Health and Illness and Health-Seeking Behavior

Health beliefs are influenced by one's culture, social background, and experience of health, illness, and health promotion (Jin & Blixen, 2004). Much of the traditional health beliefs among Asians stem from the Eastern view of medicine. Eastern medicine

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focuses on the individual and his or her relationship outside the body as it tries to explain why illness occurred (Julia, 1996). The following is an overview of the health and illness beliefs and health-seeking behaviors of the Chinese, Filipino, Japanese, Korean, and Vietnamese groups. These groups were selected because information on their health beliefs are well published compared to many other Asian groups.

Chinese

The Chinese culture conceptualizes the cause of illness and recommended treatments through Chinese medicine that is influenced by Confucianism, Taoism, and Buddhism (Ma, 1999). One of the basic principles in Chinese medicine is the yin and yang, which are a reflection of balance. Yin represents a negative force, water, cold, dark, and downward movement. Yang reflects the opposite: fire, heat, and upward movement (Julia, 1996). As the most fundamental aspect of Chinese medicine, health and wellness are the result of having a balance of yin and yang, whereas an imbalance leads to disease (Ma, 1999). Further, health is defined as a state of both spiritual and bodily accord with nature (Spector, 2004). When it comes to taking care of the body or practicing healing behaviors, traditional healers suggest that Chinese Americans will try a variety of methods, including acupuncture, meditation, and cupping (Lassiter, 1995). With religion being central to health beliefs, Chinese may not actively seek physician care, and if physician care is sought, medication is expected to be dispensed to the patient (Gardenswartz & Rowe, 1998).

Filipino

Traditional Filipino American health beliefs state that illness is an end product of the disturbance of the internal and external elements of the body (Lassiter, 1995). In other words, health is the result of having balance in one's life, as opposed to illness, which reflects imbalance (Pacquiao, 2003). Although Filipinos retain indigenous health beliefs, they tend to value harmony and are very receptive to modern medicine (Gardenswartz & Rowe, 1998).

Japanese

The holistic concept of health is the major health belief of Japanese Americans (Lassiter, 1995), whereby social, psychological, and physiological factors play a role in health and illness. Further, Japanese Americans focus on the future and often engage in primary prevention activities, such as having a good diet and getting vaccinations (Lassiter, 1995). During patient-provider sessions, Japanese patients often provide a comprehensive amount of information regarding a health problem (Gardenswartz & Rowe, 1998).

Korean

Many Korean Americans believe in a holistic concept of health. The holistic concept of health revolves around the view that health and illness are the result of an integration of biological, social, and emotional aspects of the human body (Lassiter, 1995). According to Purnell and Kim (2003), health care practices among Koreans living in the United States are patterned on a curative rather than preventive approach. In other

words, many Korean Americans will see a doctor only if there is a health problem and not for preventive health care, such as screenings. Although most Korean Americans prefer an older, Korean-speaking, and same-gender provider, they will seek health care from anyone (Purnell & Kim, 2003).

Vietnamese

Similar to the Chinese view on health and illness, Vietnamese health beliefs revolve around maintaining balance (Lassiter, 1995). Religion is central to health beliefs, and both good and evil spirits are seen as affecting one's health (Gardenswartz & Rowe, 1998). Further, the family is considered to be the primary provider of health care, and the inclusion of family members in major medical decisions is significant (Nowak, 2003).

Health Care Quality of Asians in the U.S.

Previous studies have shown that race and ethnicity are significant cultural barriers in patient and physician communication (Kleinman, Eisenberg, & Good, 1978; Lurie & Yergen, 1990; Mull, 1993; Quill, 1989). Studies have also shown that racial and ethnic differences between patients and physicians influence the physician's way of communicating (Roter & Hall, 1992; Mathews, 1983).

In a study of how race and ethnicity of patients and physicians are associated with physicians' participatory decision-making (PDM) styles, African Americans significantly rated their physicians as having lower PDM scores, as compared with physician ratings by White patients. Asians, Latinos, and other minorities also indicated their physicians as being less participatory, but this was not found to be statistically significant. Asians and

Latinos, however, were significantly less satisfied than Whites when it came to patient satisfaction (Cooper-Patrick et al., 1999).

Results from the 2001 Health Care Quality Survey, a national survey conducted by the Commonwealth Fund, indicated that Asian Americans were less likely than White patients to report that they were very satisfied with their overall care and had trust in their doctors (Ngo-Metzger et al., 2004). Further, Asian Americans were more likely to report that their doctors did not listen, spend as much time, or involve them in decisions about care as much as they wanted. Further analysis revealed that the quality of patient and physician interactions was generally poorer among Asians and Hispanics and that Asians received fewer services than Whites (Carrasquillo et al., 2003).

In a study of bias and cultural competence in health care, Johnson, Saha, Arbelaez, Beach, and Cooper (2004) found that Asian Americans, along with African Americans and Hispanics, were more likely than Whites to agree that they would receive better health care if they were of a different race and that medical staff judged them unfairly or treated them with disrespect because of their race or their English speaking ability. Further, the authors concluded that racial and ethnic minorities perceived bias and a lack of cultural competence in the health care system (Johnson et al., 2004). Caregivers' judgment of Vietnamese patients as "unmotivated" because of their lack of medication compliance and lack of adherence to diagnostic tests, follow-up care, and appointments acts as a barrier to health care among Vietnamese (Nowak, 2003). The lack of culturally appropriate and competent health services acts as a barrier to health care access among Asian Americans (Ma, 2000).

Distrust and Stereotyping

Racial and ethnic stereotypes can affect the quality or delivery of care. Negative stereotypes may be a contributing factor to a systematic bias in health care (Smedley, Stith, & Nelson, 2002). Physicians may view patients from different cultures as difficult, odd, or resistant to treatment (McAvoy & Donaldson, 1990). In a hospital survey examining the effects of patient race and socio-economic status (SES) and physician perception of patients, van Ryn and Burke (2000) found that physicians viewed African American and lower SES patients as being less likely to adhere to medical advice as compared to White and higher SES patients. Negative stereotypes can make the provider-patient interaction uncomfortable, which in turn, may inhibit a full exchange of information (Bulatao & Anderson, 2004). Further, stereotypic associations with negative attributes, such as irresponsibility and noncompliance, will discourage communicative efforts (Kavanagh & Kennedy, 1992).

Barriers to Health Care Among Asians in the U.S.

Many Asians face barriers similar to those experienced by other racial groups living in the United States when trying to access medical care. In addition to the socioeconomic barriers of lack of health insurance and affordability of services among some Asian groups, other barriers such as language, cultural, and systemic barriers, are also significant challenges to health care among Asians in the U.S. (Ma, 2000). Language is often one of the most significant barriers to health care among Asians in the U.S. (Ma, 2000). When meeting with their health care provider, many Chinese Americans are often frustrated and uncomfortable because they are not able to communicate with them at a

comfortable level of comprehension (Ma, 2000). The lack of understanding of the

Western health care system and policies acts as a systemic barrier to Asian Americans

(Ma, 2000), which may affect health-seeking behavior. Filipinos are wary in participating

in primary prevention programs and will seek care when the illness has highly progressed

(Pacquiao, 2003). Among Korean Americans, lack of insurance and issues related to

language, modesty, and cultural attitudes act as barriers to health care (Purnell & Kim,

2003). For example, in a focus group on cervical cancer screening among Korean

American women, Kim, Lee, Lee, and Kim (2004) found that in addition to system and

logistical barriers, fear of screening results was a barrier. Nowak (2003) provides several

barriers to health care commonly experienced by the Vietnamese including lack of a

primary provider, subjective beliefs and cost of health care, communication difficulties,

failure of provider to communicate, fear of conflicts and criticisms of traditional

practices, providers' judgment of the Vietnamese patient as noncompliant and

unmotivated, and the lack of knowledge of resources.

ASIAN CANCER RISK FACTORS

Various modifiable risk factors, such as diet, alcohol use, and tobacco use, often

contribute to the cancer problem among all populations, including Asians in the U.S.

Adopting Western dietary habits over time and through acculturation has negatively

impacted the health of Asian in the U.S. by increasing fat, meat, and simple carbohydrate

consumptions leading, to various chronic diseases (Kaiser Permanente, 1999). When

compared with native Chinese, low physical activity and a Westernized diet contribute to

the higher incidence of colorectal cancer among Chinese Americans (Kaiser Permanente,

1999). Cigarette smoking has been associated with lung cancer, and high smoking rates exist among Asian Americans (Ma et al., 2005).

Hepatitis B is a major risk factor to developing liver cancer (National Cancer Institute, 2007a) and it causes approximately 80% of the liver cancer cases among Asian Americans (Asian Liver Center, 2005). Hepatitis B is endemic in certain regions of Asia, and preventive methods, such as immediate vaccination of newborns, are not readily promoted. Screening for hepatitis B is important in order to control the rate of infection. Moreover, those found to be infected could be placed on an anti-viral regiment to help treat hepatitis B. Those found not to be infected could be vaccinated against the virus.

Risk factors for certain cancers in Asian populations include the following. According to Kaiser Permanente's National Diversity Council (1999), a risk factor for breast cancer is a lack of screening for Chinese, Filipino, and Japanese women. Westernization of diet is a risk factor for gastric cancer among Chinese, Japanese, and Korean population (Kaiser Permanente, 1999). Cigarette smoking is a risk factor for lung cancer and hepatitis B infection is a risk factor for liver cancer in the Chinese population (Kaiser Permanente, 1999).

Asians are a heterogeneous group of people that experiences similar to, sometimes-greater disparities to cancer control and screening among other racial groups living in the U.S. Many Asian cultures may follow a holistic approach to health and illness beliefs. Asian Americans balance traditional (Eastern) and Western values in terms of communal behavior (Chang, 1981). The barriers to health care experienced by Asians in the U.S. are similar to those faced by other racial groups and constitute a range

of various obstacles in receiving care. Further cancer related disparities exist specifically among Asians in the U.S.

PHYSICIAN IMPACT ON CANCER CONTROL COMMUNICATION

Impact of Physician Counseling of Cancer Screening Recommendations

Physicians play an important role in increasing the cancer screening behavior of their patients. Physicians are generally inclined to screening (Klassen, Hall, Bowie, & Weisman, 2000), following the recommendations set forth by the American Cancer Society and the National Cancer Institute (Czaja, McFall, Warnecke, Ford, & Kaluzny, 1994). The impact of physician recommendations on cancer screenings is well noted. For example, in a telephone survey of African American women to identify factors affecting participation in a mammography screening program (i.e. knowledge of recommendations, physician recommendation or discussion, mammography utilization, and breast self examination), physician discussion ($p < .01$), physician recommendation ($p < .01$), and intention ($p < .05$) were significantly associated with mammography completion (Simon et al., 1998).

Recommendation of cancer screening from clinical staff has also been shown to have an impact on cancer screening (Love et al., 2004). In a study of the delivery of cancer prevention and screening services through an examination of data from patient and physician surveys, medical record audits, and telephone interviews with key staff, Love and colleagues (2004) found that staff recommendations to have screenings for breast, cervical, and colorectal cancers were significantly associated ($p < .01$) with a higher frequency of screenings among patients. Schapira and colleagues (1993) concluded that

cancer screening compliance among patients was high when screening was recommended by their physician and that visits with physicians were a prime opportunity for physicians to recommend cancer screenings to the patient.

The positive impact of physician recommendations on colorectal cancer screenings is well established (Manne et al., 2002; Brenes & Paskett, 2000; Lewis & Jensen, 1996; Zapka, Puleo, Vickers-Lahti, & Luckmann, 2002). In a study of colorectal cancer screening among siblings of individuals with colorectal cancer (CRC), physician and family recommendation were strong correlates of CRC screening (Manne et al., 2002). Based on interviews assessing knowledge, beliefs, and practices of CRC, having a physician to recommend flexible sigmoidoscopy was found to be a significant predictor of CRC screening among low-income African American women (Brenes & Paskett, 2000). In a survey assessing barriers to sigmoidoscopy, Lewis and Jensen (1996) found that clinician advice, perceived benefit of CRC screening, and family member participation in sigmoidoscopy were associated with CRC screening among general patients. In a cross-sectional, telephone survey of Massachusetts residents examining health care system factors on screening, higher rates of CRC screening were found among those having ever received a physician's recommendation for sigmoidoscopy and among those with increased frequency of preventive health visits (Zapka, Puleo, Vickers-Lahti, & Luckmann, 2002). In a survey of African American patients of an inner-city hospital on CRC screening beliefs and practices, Taylor and colleagues (2003) found that patients who have received a doctor's recommendation were significantly more likely to have the fecal occult blood testing (FOBT), sigmoidoscopy, or colonoscopy ($p < .001$) than those who have never completed the screening tests. Brawarsky, Brooks, Mucci, and

Wood (2004) examined physician recommendation, adherence to recommendation, and compliance among Massachusetts residents 50 years and older and found that there was a strong positive association between having a doctor who recommended colorectal cancer screening and completing the screening test. Further, the authors found that adherence to the screening test was strong if the physician recommendation was perceived to be very strong versus not very strong (92% versus 78%). In a study of low-income outpatients from a community health clinic in Houston that examined colorectal cancer history, history of polyps, and perceived risks among other variables, Friedman, Webb, and Everett (2004) found that colorectal cancer risk factors and physician recommendation of colorectal cancer screening were the best predictors of screening among this group. Data from the 2002 Behavioral Risk Factor Surveillance Survey (BRFSS) examining the correlates of adherence to CRC screening indicated that men with a personal physician were twice as likely as men without a personal physician to have colorectal cancer screening (Carlos, Underwood, Fendrick, & Bernstein, 2005).

The positive impact of physician recommendations on breast and cervical cancer screening is well published. With respect to cervical cancer screening, women are more likely to have had a recent Pap test if they saw a physician during the past 12 months or received a physician recommendation (Coughlin, Breslau, Thompson, & Benard, 2005). In examining breast and cervical cancer screening practices of women using data from the 1999 BRFSS, Coughlin, Uhler, Hall, & Briss (2004) found that not seeing a physician during the past year was associated with not having a mammogram or Pap test. Results from the 2000 National Health Interview Survey indicated that 87% of the female respondents reported that their doctor had not recommended a Pap test in the past year

and that this was most significant reason for not having had the Pap test in the past year (Coughlin et al., 2005).

The significance of physician recommendation and impact of mammography screenings is well established (Hawley, Earp, O'Malley, & Ricketts, 2000; Phillips, Kerlijowske, Baker, Chang, & Brown, 1998). Data from the North Carolina Breast Cancer Screening Program indicated that physician recommendation of mammography, younger age of patient, family history of breast cancer, and requesting a mammogram were significant predictors to screening (Hawley, Earp, O'Malley, & Ricketts, 2000). Phillips and colleagues (1998) found that women were more likely to adhere to mammography if they participated in screening decision-making with their physician, had a recent Pap test, reflected certain demographics (e.g., younger, small families, high education, income), and had access to mammography facilities, according to the 1992 National Health Interview Survey and the 1992 National Survey of Mammography Facilities. In a survey of minority women living in public housing projects, Bazargan and colleagues (2003) found that physician recommendation significantly increased performing breast self-examination ($OR = 3.7$, $p < .01$) and obtaining a mammogram ($OR = 4.7$, $p < .003$). In a study of breast and cervical cancer screening prompts among Eastern Canadians, it was found that physician recommendation of the Pap test was the strongest predictor of cervical cancer screening, whereas personal contact with a physician (through clinical breast exam, attendance for Pap test, or direct recommendation) was the significant predictor of mammography (Miedema & Tatemichi, 2003).

One study examined primary care provider attitude of smoking cessation counseling and whether that affected counseling and referral (Meredith, Yano, Hickey, & Sherman, 2005). The key measure was smoking cessation attitude assessed by a 10-item scale on agreements of attitudinal statements. The results showed that primary care providers positive attitudes of smoking cessation counseling was associated with reported counseling ($p < .001$) and referral of patient to a smoking cessation program ($p = .01$) (Meredith, Yano, Hickey, & Sherman, 2005).

Barriers for Physicians Recommending Cancer Screenings

Physician barriers to cancer screening recommendations and counseling exist. Specific physician barriers include lack of time, failure to remember to recommend or conduct screening tests, lack of expertise, attitudes toward screening, conflicting guidelines, poor records, other patient health problems, and cost (Womeodu & Bailey, 1996).

Patients report that the most significant reason why they have not had a cancer screening test was because their physician did not recommend one (Womeodu & Bailey, 1996). Physician attitudes toward screening influence the likelihood that a patient will undergo screening for cancer. In a study of physicians who received training on flexible sigmoidoscopy and the effects of colorectal cancer screening recommendations, colorectal cancer screening and flexible sigmoidoscopy rates were analyzed by physician training. Bivariate analyses revealed that associations between physician training and conducting colorectal screening may differ, depending on whether the physician believes

in the effectiveness of the flexible sigmoidscopic examination and fecal occult blood testing (Lewis et al., 2000).

Among certain Asian subgroups, physician beliefs can play a more significant role in low screening among patients. A telephone survey of Vietnamese women in Northern California on awareness, beliefs, and attitudes of cervical cancer and risk of developing cervical cancer found that Vietnamese physicians may assume that unmarried women are not sexually active and therefore do not offer them a Pap test (Nguyen et al., 2002).

A key factor in promoting or obstructing cancer screenings is the lack of understanding of patient cultural influences, which affect their compliance or noncompliance with screening recommendations (Palos, 1994). Cultural beliefs of the patient can act as a barrier to a physician providing cancer-screening recommendations (Tang, Solomon, & McCracken, 2001; Maxwell, Bastani, and Warda, 1998). In a survey of level of acculturation (Suinn-Lew scale) and barriers to CRC screening among older Chinese American women, cultural factors and low acculturation were found to be barriers to screening, but acculturation and physician recommendation were significant predictors to getting a sigmoidoscopy at least once (Tang, Solomon, & McCracken, 2001). Based on in-person interviews on knowledge, attitudes, and barriers related to mammography screening, Maxwell, Bastani, and Warda (1998) found that embarrassment, discomfort in requesting a mammogram, and structural barriers such as time and transportation were negatively related to mammography screening among low-income Korean American women living in Los Angeles. In a survey of screening practices and views of Maryland primary and specialty care physicians, physicians to

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African American women were less likely to have knowledge, attitudes, and practices to support inpatient screening of cervical cancer (Klassen et al., 2000). Findings from focus group research among primary care physicians who serve rural Appalachia on revealed several perceived barriers to breast, cervical, prostate, and colorectal cancer screening (Shell & Tudiver, 2004). Findings included that, in addition to time constraints, conflicting screening guidelines, a perception that patients to not value prevention, patient factors such as socioeconomic status, Appalachia culture, and fatalistic attitudes act as barriers to cancer screening recommendations (Shell & Tudiver, 2004).

Luckmann (2000) identified eight barriers to transcultural communication between health care providers and patients: lack of knowledge of cultural values and beliefs of the patient, fear and distrust among both the patient and provider, racism, provider bias toward own cultural and ethnocentric values, stereotyping, having a fixed health care screening ritual, language barriers, and misunderstandings due to the provider and patient having different perceptions and expectations.

Impact of Lack of Recommendations for Screening by Physicians

Barriers to physician cancer screening recommendations, in addition to other factors, contribute to low rates of cancer screening behaviors. Studies have shown that the lack of recommendations on breast cancer screening may be attributable to low mammography use among minorities (Fox & Stein, 1991). Racial and ethnic disparities are related to lack of screening recommendations by physicians. One study found that physicians who serve primarily Hispanic and African American populations are less compliant with established prevention guidelines, compared with those who serve

primarily non minority patients (Fox & Stein, 1991). Fox and Stein (1991) found through

telephone interviews with women from various ethnic groups that discussion of a

mammogram by a physician was the most important predictor of a woman having a

mammogram within the past year and that Hispanic women were less likely to have

discussed mammography with their doctors. In a study of predictors of colorectal cancer

screening among low-income outpatients from a community health clinic in Houston,

Texas, Friedman, Webb, and Everett (2004) found that among this primarily African

American sample, physician recommendations of colorectal cancer screening exams

occurred at very low rates (digital rectal exam, 23%; fecal occult blood test, 18%),

despite having regular doctors at the clinic. Women were more likely to undergo cervical

cancer screening if recommended by a physician (Coughlin, Breslau, Thompson, &

Benard, 2005). Klabunde and colleagues (2005) measured the importance of patient-

related barriers (e.g., fear, beliefs, embarrassment) and system-related barriers (cost,

physician recommendation, lack of trained professionals) to colorectal cancer screening

reported by primary care physicians and adults and found that lack of patient awareness

and lack of physician recommendation were key barriers to colorectal cancer screening.

Importance of Physician-Patient Relationship

Establishing a relationship between the patient and provider is integral in

obtaining cancer screening (Womeodu & Bailey, 1996). Further, this relationship is

important because most physicians indicate that prevention is usually addressed during a

periodic health examination (Miedema & Tatemichi, 2003). A positive relationship

between the patient and physician will likely foster trust and increased communication,

which may promote positive screening beliefs (Brawarsky et al., 2004). Carlos, Underwood, Fendrick, and Bernstein (2005) posit the following reasons why an individual may not complete a cancer screening: no doctor's recommendation, inadequate understanding of screening benefits, poor insurance, and a psychological response to the screening procedures. Among Filipinos, not having a trusting relationship with the provider can lead to noncompliance with prescribed actions made by the provider (Pacquiao, 2003).

Primary care physicians play an important role as the source for cancer control and screening information to patients. The impact of physician counseling of cancer screening recommendations is well established and exhibited in this review. Physician barriers are also evident among racial groups but have yet to be further established or explored among Asians in the U.S.

CULTURAL COMPETENCE AND PHYSICIAN TRAINING

Cultural Competency

Cultural competency is a key factor in delivering health information effectively to different racial and ethnic groups. Cultural competence is a combination of congruent behaviors, attitudes, and policies that come together in a system or agency, or among professionals enabling effective work in cross cultural situations (Cross, Bazron, Dennis, & Isaacs, 1989). Betancourt, Green, Carrillo, and Ananeh-Firempong (2003) defines cultural competence from a health perspective as "understanding the importance of social and cultural influences on patients' health beliefs and behaviors, considering how these factors interact at multiple levels of the health care delivery system, and devising

interventions that take these issues into account to assure quality health care delivery to diverse patient populations" (p. 297).

Addressing cultural and linguistic factors as it relates to health and services is important to meet the needs of people from different cultural backgrounds. Culture and language may influence health beliefs systems, illness perceptions, health-seeking behavior, attitudes toward health care providers, and delivery of services (Office of Minority Health, 2007). In 2002, the American Institutes for Research developed a report for the Office of Minority Health on teaching cultural competence in health care. This report synthesized findings on training models and concepts related to cultural competence in health care. The American Institutes for Research report (2002) provided three major themes of culturally and linguistically appropriate services (CLAS) in health care that apply to physicians: culturally competent care, language access services, and organizational supports (American Institutes for Research, 2002). The culturally competent care theme was composed of five subthemes: 1) patient-centered focus, 2) effective physician-patient communication, 3) balance fact-centered and attitude-skill centered approaches to acquiring cultural competence, 4) the acquisition of cultural competence as a developmental process, and 5) understanding alternative sources of care (American Institutes for Research, 2002). Each of these subthemes is equally important towards achieving cultural competence.

There are four guiding values and principles of cultural competence acknowledged by the National Center for Cultural Competence (2007): Organizational—to incorporate cultural knowledge into policymaking, practice, and infrastructure to reflect equal access in services; Practice and Service Design—to assess and understand

needs of people and implement services tailored to those needs (cultural); Community

Engagement—to work with communities in identifying and addressing needs and to

empower them; and Family & Consumers—understand the definition of family and that

they are the ultimate decision makers. Implementing effective techniques and following

principles to achieve cultural competence can have a potential impact in reducing health

disparities. The effect of cultural competence can lead to providing appropriate services

to minorities which will then lead to improved outcomes resulting in a reduction of health

disparities (Brach & Fraser, 2000).

Physician Training Recommendations

There are several recommendations on physician training that may contribute to

better outcomes for the patient. In "Setting the Agenda for Research on Cultural

Competence in Health Care," a report by the U.S. Department of Health and Human

Services, Office of Minority Health, and Agency for Healthcare Research and Quality

(Fortier & Bishop, 2003), several outcome questions were applied to developing a

cultural competence intervention, including the following:

Did the intervention

- Do what it was supposed to do (i.e., provider knowledge/awareness improved

  after training)?

- Affect processes of care (i.e., provider behavior modification)?

- Improve access to services and/or appropriate utilization of services (i.e.,

  preventive services)?

- Affect patient satisfaction and health behaviors (i.e., health-seeking behavior and

lifestyle changes)?

- Affect patient outcomes?

- Affect the efficiency and cost-effectiveness of health care delivery change (i.e., increase preventive care/early intervention that reduced treatment costs)?

Some of the successful practices in delivering culturally competent care include placing emphasis on defining culture broadly, valuing the client's cultural beliefs, and facilitating learning between providers and communities (Health Resources and Services Administration, 2001). Improving cross-cultural understanding and communication was one of four key curriculum objectives to better communicate with and care for African American patients in a Chicago hospital (Jacobs, Kohrman, Lemon, & Vickers, 2003). Including epidemiology of diseases in specific population groups is recommended to be part of a provider curriculum (Lurie & Yergan, 1990).

Several recommendations and initiatives have been presented to reduce and eliminate racial and ethnic health disparities. In response to the findings of racial and ethnic disparities in health care, the Institute of Medicine has recommended the integration of cross-cultural education into the training of all current and future health care professionals (Smedley, Stith, & Nelson, 2002). Some of the specific tasks of this recommendation include raising awareness that health care disparities exist, increasing patient knowledge of the clinical decisionmaking process, and training health professionals, through the mechanism of continuing education, on how to effectively communicate across cultures (Betancourt & King, 2003). One of the major, long term recommendations from the President's Cancer Panel report titled "Voices of a Broken System: Real People, Real Problems" is to minimize disparities in the provision of cancer

care by educating primary care providers about cancer and developing and disseminating

tools to assist providers in convey information about cancer and cancer care options

(President's Cancer Panel, 2001). The Liaison Committee on Medical Education (2004)

requires medical school curriculums to provide specific instruction in communication

skills as they relate to physician responsibilities. In a study on chronic disease

management by chronically ill patients, focus group analyses revealed that poor physician

communication was a barrier to active self-management of chronic conditions (Jerant,

von Freiderichs-Fitzwater, & Moore, 2005). Recommendations from the "Missing

Persons: Minorities in the Health Professions," a report by the Sullivan Commission

(2004), include the following: "key stakeholders in the health system should promote

training in diversity and cultural competence for health professions students, faculty, and

providers (p. 5)" and "health professions schools and health systems should have

strategic plans that outline specific goals, standards, policies, and accountability

mechanisms to ensure institutional diversity and culture competence (p. 10)." Training

primary care physicians and other providers to provide culturally effective health care is

an important strategy to eliminate racial and ethnic health care disparities and improve

the quality of care (Health Resources and Services Administration, 2003). Further,

increasing the knowledge of cross-cultural communication and understanding between

Asian patients and non-Asian providers is important in overcoming cultural barriers to

health (Ma, 1999).

Communication between providers and non-English-speaking patients is one of

several challenges when attending to a different culture. Gardenswartz and Rowe (1998)

recommend that provider training modules addressing communication issues between

providers and non-English-speaking patients and patients with differing health beliefs include effective use of translators, use belief patterns and family support systems for preventive behaviors, and gather background information specific to conditions commonly found in the patient's culture.

With many of the Asian cultures having health beliefs that focus on the concept of balance or holistic health, health professionals are encouraged to consider the implications of the mental, social, and physical symptoms on the patient's condition (Lassiter, 1995). Among Filipinos, having a family member or a close friend during a patient-provider session is critical and important (Gardenswartz & Rowe, 1998). Julia (1996) suggests that ethnic Chinese and Vietnamese are more ready than other Southeast Asian groups to engage in Western medical practices such as check ups and preventive health. Further, a holistic approach to health should take into account cultural, religious, and health beliefs to improve the health of Southeast Asians (Julia, 1996).

It is acknowledged, however, that it is nearly unattainable for physicians to understand the health beliefs of every Asian group. According to the Clinical Preventive Medicine text by the American Medical Association, one suggestion to overcoming cross-cultural barriers is to ask patients for their perception of the illness (Jin & Blixen, 2004). By doing so, this approach focuses on the differences between a patient's culturally rooted health beliefs and medical explanation rather than taking into account assumptions of the patient's ethnic heritage and level of acculturation (Kleinman & Eisenberg, 1978; Jin & Blixen, 2004). Jenkins and Kagawa-Singer (1994) argue that Asian beliefs about what causes cancer must be known in order to develop interventions related to cancer screenings.

Educating and counseling Asian patients on cancer screenings during physician visits are critical, given the fact that Asians generally do not visit their physician as often recommended. A study examining the effect of immigrant status on the health of Asians and Pacific Islanders living in the United States using data from the National Health Interview Survey (1992-1995), found immigrants to be significantly less likely to have made three or more visits to a physician in the past year and to be more likely to report poor or fair health status (Frisbie, Cho, & Hummer, 2002). Vietnamese were 50% more likely than all other Asian and Pacific Islander groups to visit a physician three or more times in one year, whereas Koreans were less likely (*OR* = 0.69, 95% *CI* 0.50, 0.95) (Frisbie, Cho, & Hummer, 2002).

Wang (2003) suggests that when counseling Chinese American patients, health providers need to acknowledge both the functions of life and the interrelated relationships of these functions, rather than focusing on the structure as these are important to Chinese Americans. Among Japanese clients, health care providers need to provide ample opportunity for dialogue and explanation of their recommendations, as Japanese patients are inclined to ask questions or make suggestions about their care (Sharts-Hopko, 2003).

The following recommendations were made by the Provider's Handbook on Culturally Competent Care of Asian and Pacific Islander American Populations by the Kaiser Permanente National Diversity Council (Kaiser Permanente, 1999):

- Providers need to be aware of increased prevalence of colorectal cancer among Asians and Pacific Islanders.
- Providers need to assess familiarity of diseases such as cancer and knowledge of preventable risk factors contributing to the disease.

- Providers need to be aware of the high prevalence of hepatitis B among Asian Americans and specifically be attentive to those who have a high risk of developing liver cancer.

- Cultural beliefs around female modesty should be respected during breast and cervical screenings.

CONTINUING MEDICAL EDUCATION

Continuing medical education (CME) is an integral mode for increasing physician knowledge and skills to improve health outcomes for their patients. CME is defined as a "distinct and definable activity that supports the professional development of physicians and leads to improved patient outcomes" (Bennett et al., 2000, p. 1169). Bennett and colleagues (2000) firmly suggest that CME must facilitate the development of physician knowledge, skills, and attitudes so they can adapt to changing health care surroundings. Interactive educational interventions provide attractive and convenient features that may yield improvements in physician screening behavior and patient outcomes (Zeiger, 2004).

The impact of CME includes improving physician performance and patient health outcomes (Davis, Thomson, Oxman, & Haynes, 1992; Oxman, Thomson, Davis, & Haynes, 1995). In a study of primary care physicians in Canada, continuing education was a significant predictor for breast cancer detection, colorectal cancer detection, and counseling on smoking (Battista, Williams, & MacFarlane, 1986). Further, knowledge and levels of continuing education affected Pap testing recommendations and counseling on smoking by the physicians (Battista, Williams, & MacFarlane, 1986). Lane, Messina, and Grimson (2001) found that a 1- to 2- hour in-office physician training program

increased the physician's knowledge and skills in breast cancer screening, increased the number of referrals for mammography screening, and improved clinical breast examination skills. In an assessment of past cancer-related CME and current cancer education topics among primary care physicians practicing in North Carolina, over one third of the respondents never attended a CME session on cancer, and almost 58% were very interested in general cancer screening as a CME topic (Anderson et al., 2004). The utilization of the CME opportunity can be an integral mode for increasing physician knowledge and skills to improve health outcomes of their patients.

THEORETICAL FRAMEWORK

The purpose of this exploratory study was to evaluate the issues and barriers to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. It was distinguished here between simply asking what are the barriers to making recommendations, but added the concern that recommendations must be made in such a manner that they are given, they are effective, and that they are age, gender, race, and culturally appropriate. The current study operationalized effectiveness in terms of its persuasiveness to the individual patient and focused on the barriers to the physician presenting cogent, supportive, and persuasive arguments in the context of gender, age, race, and culture of patients. The theoretical model used to assess these factors in a clinical encounter was the Elaboration Likelihood Model (Petty & Cacioppo, 1986).

The Elaboration Likelihood Model (ELM) is a framework for understanding the processes underlying attitude and perception change through processes of persuasion (Petty & Cacioppo, 1986). ELM theorizes the likelihood that issue-relevant information

will be carefully and critically processed (i.e., elaborated) which may lead to attitude

change and subsequent behavior change. In the context of this study, issue-relevant

information was cancer screening recommendations that was age, gender, race, and

culturally specific. Further, the utility of the ELM on patient-provider communication

was examined, as this has not been studied previously.

There are two distinct information-processing routes to attitude change: the

central route and the peripheral route. The central route involves critical thinking and

evaluation of the issue-relevant arguments. Arguments are defined as "bits of information

contained in a communication that are relevant to a person's subjective determination of

the true merits of an advocated position" (Petty & Cacioppo, 1986, p. 16). A key

construct of the central route is argument quality. Argument qualities are the attributes

(e.g., initial attitude, perceptions, etc.) that make an argument persuasive (Petty &

Cacioppo, 1986). In other words, it is the perception of the merits of the argument that is

presented (e.g., strong, cogent, favorable, etc.). It is at this point in the central route

where the merit of the argument is evaluated and processing (i.e., elaborated on) toward

attitude change begins.

In the peripheral route, attitude change is the result of positive or negative

peripheral cues (Petty, Cacioppo, & Goldman, 1981). Peripheral cues are stimuli that can

affect attitudes without critical processing of information and reflects the key construct of

the peripheral route. According to Petty, Cacioppo, and Goldman (1981), "these cues

may shape attitudes or allow a person to decide what attitudinal position to adopt without

the need for engaging in any extensive issue-relevant thinking" (p. 847). Source

credibility is a key peripheral cue that can influence individuals and affects the likelihood

of elaboration through the peripheral route (Sussman & Siegal, 2003). Source credibility

can be viewed as the perception of the credibility of the message source (e.g., physician)

(Chaiken, 1980). In summary, argument quality and peripheral cues are the two key

constructs of the central and peripheral routes, respectively, toward attitude change. This

is depicted in Figure 1.

Central Route   **Peripheral Route**

Argument Quality   **Elaboration Likelihood**   Peripheral Cues

Attitude Change
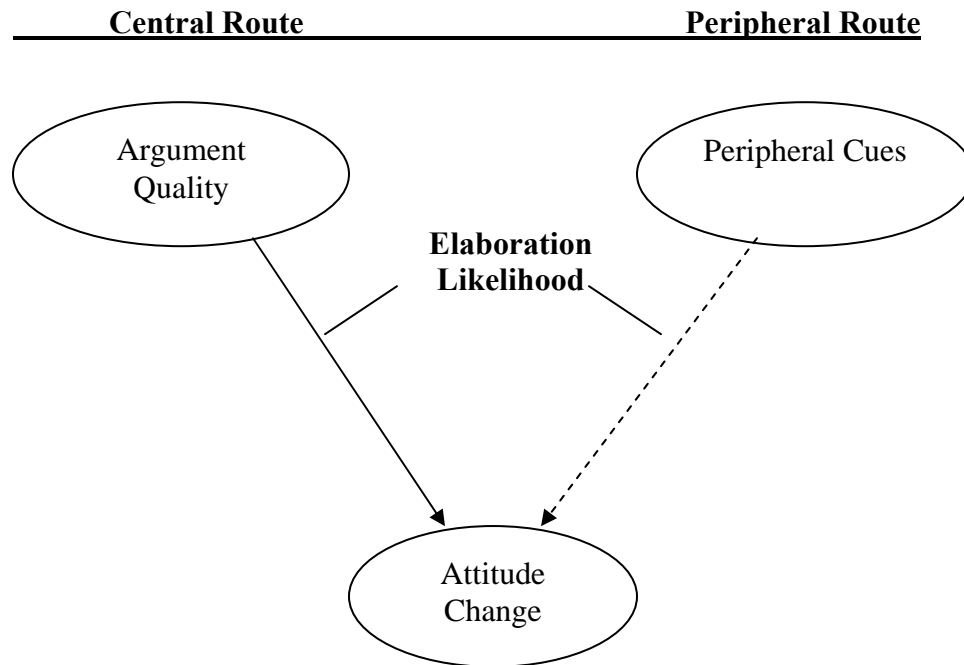
Figure 1.   **Elaboration likelihood model (adapted from Petty & Cacioppo, 1986).**

Information processing efforts and behavior predictions differ by which

processing route is taken. The central route requires greater cognitive exertion to process

information to understand and evaluate the arguments. The peripheral route requires

much less of a cognitive burden and entails associations to positive or negative cues. Due

to the extent of critical cognitive processing of arguments, attitude changes resulting from

the central route are long-term and predictive of behavior (Petty, Cacioppo, & Goldman,

1981). In contrast, attitude changes resulting from the peripheral route are temporary and less predictive of behavior (Petty, Cacioppo, & Goldman, 1981). Therefore, the peripheral route is a weaker route towards stable behavior change.

Elaboration is defined as "the extent to which a person carefully thinks about issue-relevant information" (Petty & Cacioppo, 1986, p.7). In the central route, motivation and ability to process issue relevant information affects the likelihood that elaboration will take place (Figure 2). When motivation and ability to process an issue-relevant argument is possessed, the elaboration likelihood is high. The consequences of which lead to further comprehension and evaluation of the argument, drawing conclusions from further analysis, and deriving a decision or attitude toward the recommendation (Petty & Cacioppo, 1986). When one is not motivated or unable to process the information relevant argument, peripheral cues can affect attitude change (Sussman & Siegal, 2003). In other words, the peripheral route to processing is taken and elaboration likelihood is low.
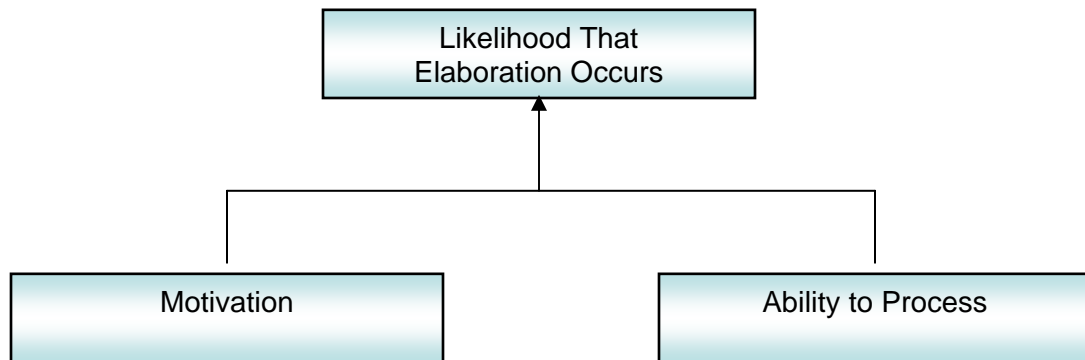
Figure 2. **Key factors affecting the likelihood of elaboration (adapted from Petty & Cacioppo, 1986).**

Motivation and ability to process information are the two key factors that lead to elaboration likelihood of information processing via the central route. Motivation is defined as "the factor that propels and guides people's information processing and gives it its purposive character" (Petty & Cacioppo, 1986, p. 218). Some of the factors that influence motivation include personal relevance and personal responsibility. Personal relevance is considered the most important variable affecting motivation and is defined as providing an intrinsic importance and personal meaning to an issue (Petty & Cacioppo, 1986). Personal responsibility reflects ones responsibility to evaluate the issue or information. The more personal relevance to an issue and the higher the responsibility to evaluate an issue, the more motivation to process information.

Ability to process the information is the other critical factor necessary for elaboration likelihood. Ability is referred to as the ability to process or "elaborate issue-relevant arguments (information) in an objective manner" (Petty & Cacioppo, 1986, p. 79). One element that affects information processing ability is distraction. Distraction is referred to as something "affecting information processing in a relatively objective manner" (Petty & Cacioppo, 1986, p. 62). In the context of this study, distraction was viewed as barriers to making cancer screening recommendations such as lack of knowledge of guideline, lack of time, language difficulty, and so forth.

Previous studies have applied the ELM to examine health communication. One study examined intentions to seek additional mammography information among low-income African American women after being exposed to public service announcements about mammography (Kirby, Ureda, Rose, & Hussey, 1998). Women with high levels of involvement (i.e. issues that are perceived to have personal meaning) had stronger

intentions than low involvement women to seek additional mammography information (Kirby, Ureda, Rose, & Hussey, 1998). Further, peripheral cues (e.g., color images and musical background in the announcements) were favorable to low involvement women and were the main factor for low involvement women to seek additional mammography information (Kirby, Ureda, Rose, & Hussey, 1998).

In their web-based intervention for changing attitudes of obesity, subjects were randomly assigned to experimental groups to evaluate the effect of an education obesity module, the credibility of the presenter, attitudes of obesity, and processes of attitude change (Hague & White, 2005). Treatment groups exposed subjects to either a "nonfat" (average weight) presenter, a "fat" presenter, or a "no image" presenter, all who were credible in obesity knowledge, via web learning modules in order to examine attitude change about obesity (Hague & White, 2005). It was found that motivation and ability to process obesity messages did not predict attitude change among the subjects, however, exposure to the "fat" presenter positively influenced attitude change on obesity because of the presenter credibility and size appearance (Hague & White, 2005). The authors concluded that the perceived expertise and trustworthiness of the presenter influenced attitudes (Hague & White, 2005).

These studies applied the ELM to message effects as it relates to persuasion communication. As the source of medical information during a clinical encounter, physicians play a critical role in communicating and recommending screening information. Such communication of recommending screenings involve elements of persuasion as the physician is providing a recommendation with the intention for the

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patient to comply and follow up. The ELM was utilized and adapted as the theoretical

foundation of this study because of its focus as a persuasion communication model.

In the current study context, such arguments may relate to the potential benefits of

adopting the recommendation for screening (e.g., expected health benefits, improved

well-being, or better quality lifestyle), making decisions (e.g., not to be screened), system

issues (e.g., availability of screening services), and so forth. The peripheral route involves

less cognitive effort on the part of the individual, where patients rely on cues regarding

the target behavior (e.g., doctor is trustworthy so should follow the doctor's advice,

whether the screening is supported by my doctor, etc.).

This dissertation study's interest was in assessing the factors that underlie the

likelihood that the physician would present recommendations in a manner that was likely

to produce "central processing" or "peripheral processing" on the part of the patient.

More specifically, to examine the factors affecting the motivation and ability, and

peripheral cues that may affect the route towards attitude change from the physician

perspective and physician perspective of the patient. It was expected that the more

important strategy would be for the physician to recommend cancer screening in a way

that maximizes the likelihood that a patient will follow-up and be screened. In sum, a

physician who gives a sound argument-based recommendation to a patient is more likely

to get the intended patient behavior than one who simply "suggests" screening.

The exploration of the ELM as a model for examining the occurrence of cancer

screening recommendations by physicians has not been explored previously. The

exploratory aspect of this study incorporated the application and adaptation of the

components of a communication and persuasion theory to a public health problem in a

nontraditional matter. Although ELM can be used to analyze patient responses to a message provided by physicians, this study used ELM components in a nontraditional manner to examine ELM components in relation to the occurrence of cancer screening recommendations. Factors related to a central processing route (motivation and ability to process) and a peripheral processing route (peripheral cues) were assessed from the physician perspective and physician perspective of the patient as they related to screening recommendation occurrence.

SUMMARY

Previous research has shown that many different barriers to health care exist among various racial and ethnic groups, and external issues, such as physician bias and lack of cultural competence, contribute to this problem. Further, many Asians in the U.S. perceive a low quality of health care and hold different views on health and illness. In addition to specific barriers to health care, including language and culture, many Asians exhibit additional cancer risk factors, such as Westernization of culture and diet that is historically different from that of their original cultural upbringing. There is ample evidence that physician recommendation for cancer screenings impact whether patients will undergo a cancer screening procedure. Further, research has demonstrated the importance of a patient-physician relationship and the effects of a physician not recommending cancer screening. Many physician barriers can be reduced, and various physician education models on cultural competence have been presented. There are several unknown factors concerning cancer control and prevention as they relate to the Asian population. The use of the physician as a source of communication to Asians for

recommending cancer screenings and counseling cancer-preventive behavior needs to be further explored.

The purpose of this study was to assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. This study explored the factors related to persuasion communication between the physician and patient in the context of the Elaboration Likelihood Model. The results from this exploratory study adds to the growing research conducted on patient-physician communication, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S. Further, the results from this exploratory study provide pertinent information to develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

CHAPTER III

METHODOLOGY

This study assessed and evaluated the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. The Center for Asian Health at Temple University provided mentorship and resource support in conducting this study. The Center for Asian Health at Temple University was established in 2000 to reduce cancer health disparities among Asian Americans. The Center's mission is to reduce cancer and health disparities among Asian Americans through research, training, education, community health programs, and policy analysis and recommendations. As a National Cancer Institute funded Special Population Network and Community Network Program grantee, the Center has established an infrastructure of staff and resources needed to carry out this study. The established Asian Community Cancer Coalition, scientific research committee, clinical advisory committee, and geographic focused areas of Delaware, New Jersey, New York, and Pennsylvania provided a supportive resource in conducting this study. Further, the Center's Asian Junior Investigator Training and Mentorship Program provides training and mentorship for junior researchers in cancer health disparities research.

This chapter describes the research questions and hypotheses, research design, survey instrument, sampling design, procedures, and statistical analyses implemented in this study.

RESEARCH QUESTIONS AND HYPOTHESES

Research Question 1

What are primary care physicians' perceptions of cancer risk in Asians?

Cancer risk perceptions were operationalized as an assessment of cancer risks by cancer type for Asians compared to the general population. The cancer types assessed were breast, cervical, colorectal, liver, lung, prostate, stomach, and all cancers (in general). It was imperative to assess Asian cancer risk perceptions among physicians because physicians are a primary source of providing cancer screening recommendations. The results provided an indication of whether physicians report having a low perception of Asian cancer risk regarding a specific type of cancer that is known to disproportionately affect Asians.

Research Question 2

What are the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations?

It was hypothesized that there was a significant relationship between individual components of the theoretical constructs of the Elaboration Likelihood Model (i.e., motivation, ability to process information, and peripheral cues) and the occurrence of screening recommendations to Asian patients. It was also hypothesized that there was a significant aggregate relationship between motivation, ability to process information, and peripheral cues and the occurrence of physician cancer screening recommendations to Asian patients. The null hypotheses were:

H$_o$:   There is no significant relationship between individual components of the

theoretical constructs and the occurrence of physician recommendations to Asian

patients.

H$_o$:   There is no significant aggregate relationship between the theoretical constructs

and the occurrence of physician recommendations to Asian patients.

Making appropriate and persuasive cancer screening recommendations was

operationalized as the occurrence of physician recommendations to Asian patients.

Appropriateness and persuasiveness were inherently assessed by examining the

relationships between the individual components of the theory and occurrence of

physician recommendations to Asian patients. Results helped identify the issues and

factors affecting physician likelihood of making appropriate and persuasive cancer

screening recommendations to their Asian patients. In addition to the items addressing

the research questions, the survey included questions related to the primary care

physician's general practice and demographics.

RESEARCH DESIGN

A 30-question (91-item), cross-sectional, mail survey (Appendix A) was sent to

select primary care physicians in New Jersey and New York City. This self-report survey

was administered to randomly selected primary care physicians who satisfied the

inclusion criteria as described in the "sample" section below. Figure 3 displays the

research design.
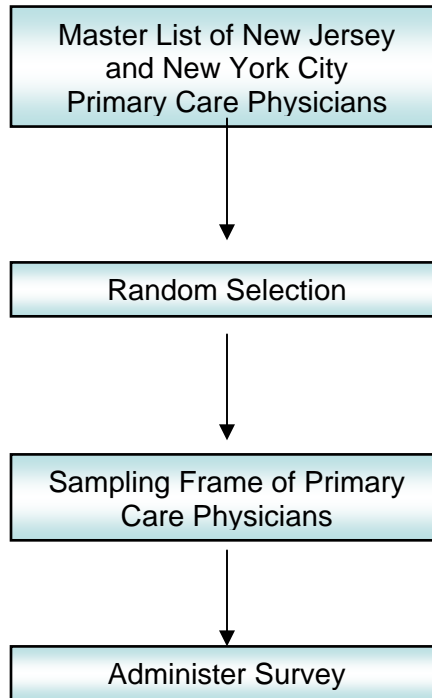
Figure 3. **Physician general survey research design.**

There are several advantages of using a self-report, mailed survey. According to

Aday (1996), self-report surveys may be perceived as fostering anonymity, which may

yield greater and truer responses. Further, self-report surveys cost less than other data

collection methods and may reduce the magnitude of design effects (Aday, 1996). Mail

surveys have the ability to reach a large number of people (Trochim, 2001).

Self-report, mailed surveys also have several disadvantages. First, response rates

are often low (Trochim, 2001), which may affect the integrity of the planned statistical

tests. Respondents may not answer some or all of the questions, and they may not "tell

the truth," which leads to biased answers (Fink, 1993). Nonresponse bias, the survey's

ability to include complex or open-ended questions, and the limited length of the survey

are other disadvantages of self-report, mailed surveys (Aday, 1996). One major weakness

of cross-sectional surveys is that causality cannot be established.

Exploratory studies often use qualitative methods such as focus groups and in

depth interviews to collect data. For the purpose of this study, a quantitative method (i.e.

survey) was selected because of the unique characteristics of the study participants that

may affect data collection. Physicians are busy and are less willing to participate in long

telephone interviews (Thran & Hixson, 2000). Further, physicians are often subjected to

large caseloads, implementing various treatment modalities, and conducting other

management activities (Olmsted, Murphy, McFarlane, & Hill, 2005) that may limit the

participation in a focus group or interview setting. Mail surveys are an effective and

inexpensive method of gathering data from physicians (VanGeest, Wynia, Cummins, &

Wilson, 2001). The flexibility in terms of time and cost of administering a survey were

factors in selecting this method of data collection.

SURVEY INSTRUMENT FOCUS AREAS

The 30-question (91-item) survey instrument (Appendix A) adapted questions

from a previous survey version developed by Dr. Grace Ma and the Center for Asian

Health at Temple University (Chakrabarti, 2005). The Chakrabarti study sought to

identify physicians' perceived barriers to cancer screening among their Asian American

patients among a sample of physicians in Philadelphia. This dissertation study adapted

and modified several survey items including utilizing questions on general practice

information (how many patients seen each week, total percent of Asian patients seen per

week, referrals, where patients are seen, how many minutes spent on patient education,

routine charting of smoking status), common barriers faced by Asian patients, physician perception of cancer risk, and demographics. The remaining survey items used in this dissertation study were developed in order to examine the research questions and to incorporate components and constructs of the theoretical model.

The survey instrument contained four main focus areas. The first focus area was on the physician's general practice information. The survey included questions on the following topics: an assessment of the physician's Asian patient load; services provided; location of services; an assessment of interpreter and bilingual staff access, and time spent with each patient. In addition, questions on charting smoking status, cancer screening reminders, and occurrence of cancer prevention screening recommendations were asked.

The second focus area was on Asian patient communication. The survey included questions on the following topics: barriers to communicating with Asian patients; physician perceptions of screening barriers experienced by Asian patients; and a self-assessment of the physician's cultural competency. Cultural competency was assessed using a 10-item scale modified from Assemi, Cullander, and Hudmon's (2004) 12-item cultural competency scale developed to assess cultural competency of pharmacy students. Acknowledging that pharmacists will be interacting and providing care for patients with different cultural and ethnic backgrounds, Assemi, Cullander, and Hudmon (2004) implemented and assessed the impact of a cultural competency course for pharmacy school students. The course was an 8-hour elective and implemented the basic cultural competency training curriculum and materials developed by the University of California, San Francisco's Center for the Health Professions (Assemi, Cullander, & Hudmon,

2004). To evaluate changes in pharmacy students' cultural competency levels, a cultural competence scale was developed and administered at baseline and post training. Assemi, Cullander, and Hudmon's cultural competence scale assessed pharmacy students' perceived awareness, knowledge, and communication skills in the areas of cultural competence and cross-cultural communication. Cronbach's alpha was assessed at 0.87 indicating sufficient internal consistency. The impact evaluation revealed that students who completed the course had raised their awareness of diversity and cultural competence skills based on their significantly higher post training cultural competence scale scores when compared to their baseline scores. Additional assessments included physician thoughts regarding prevention and patient adherence to medical advice.

The third focus area was on screening guidelines and Asian cancer risk. The survey included questions on the following topics: which organizational cancer screenings were followed and how often they were used; and physician perception of cancer risk among Asians compared to the general population. The fourth focus area was on demographics including age, gender, race/ethnicity, language, medical specialization, length of clinical practice, and medical education information.

Application of Theoretical Model in Survey Items

Factors related to central route processing (motivation and ability to process) and peripheral route processing (peripheral cues) were assessed from the physician perspective and from the physician perspective of the patient. The theoretical model was applied to several survey items in order to assess factors related to primary care physicians' perceptions of personal relevance and responsibility (motivation) to

50

providing screening recommendations and the distractions (ability to process) to

providing screening recommendations. In addition, survey items assessed, from the

physician perspective, patients' personal relevance, personal responsibility (motivation),

distractions to getting screening recommendations (ability to process), and patients'

perception of physician credibility (peripheral cue). Analogous to the attitude change

component of the ELM, the outcome of a physician encounter in which specific follow-

up recommendations were made is initial attitude change and affects the occurrence of

physician recommendations. In the context of persuasion, this change may result from

either central or peripheral routes according to the ELM, with the greater likelihood of

substantive change resulting from central route processing. In the context of this study,

the components of motivation, ability to process, and peripheral cues were examined in

their relation to the occurrence of physician recommendations. The occurrence of

physician recommendations can be the result of motivation, ability to process, or

peripheral cues as depicted in Figure 4.
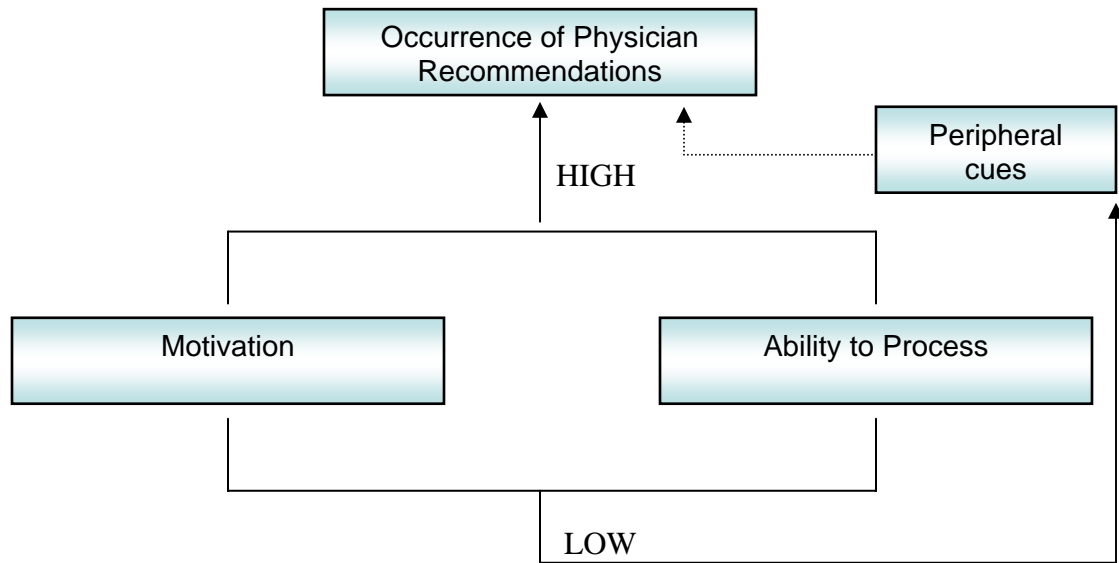
Figure 4. **General logic model of theoretical constructs and occurrence of physician recommendations.**

Physician perception of personal relevance (motivation) was operationally defined as agreeing that it is personally significant to educate patients on the importance of cancer screening and smoking cessation which was assessed by two statement items in a scale. In addition, physician perception of personal relevance was operationalized as physician perception of Asian cancer risks and frequency of following organizational screening recommendation guidelines. These items were assessed by a 5-item Likert scale. Physician perception of personal responsibility (motivation) was operationally defined as agreement to making cancer-screening recommendation a responsibility as a physician. An additional motivation factor was physician perceived capacity to deliver effective recommendations to Asian patients. This addressed the cultural component of making screening recommendations. Physician perceived capacity to deliver effective recommendations was operationally defined as confidence in the physician's ability to conduct culturally competent related tasks (see survey question B8) as measured on a 10-

item Likert scale. Physician distractions to providing recommendations was operationally defined as the physician perceived communication barriers with Asian patients, significance of the barriers in communication, and perceived ability to deal with barriers (in terms of difficulty).

On the patient side from the physician perspective, personal relevance of the patient was reflected by the physician's perception of screening recommendation relevance to the patient. This was operationally defined as the physician providing screening recommendations in context of the patient, emphasizing the importance of the recommendation, and providing a rationale for the screening recommendation. Personal responsibility of the patient from the physician perspective was operationally defined as the physician emphasizing patient responsibility to get screened (i.e., it is the responsibility of the patient to get screened). Physician perception of patient distractions was operationally defined as barriers of Asian patients to getting screened, perception of patient self-efficacy, and physician suggestions to help patients with getting screened.

The peripheral cue of source credibility was examined by assessing the reasons why Asian patients may act on the physician's recommendations. Physician perception of patient's view of source credibility of the physician was operationally defined as the perception of physician trustworthiness, credibility, knowledge, and expertise. Source credibility, a key peripheral cue, was assessed using a 4-item scale adapted from Bhattacherjee and Sanford (2004). Bhattacherjee and Sanford assessed source credibility, argument quality, and other related constructs to examine persuasion factors related in motivating the usage of information technology among government employees in Ukraine. The scale composite reliability was assessed at 0.91 and confirmatory factor

analysis loadings for source credibility was 0.81 to establish convergent validity. Table 1

summarizes the theoretical application information in the survey items.

Table 1
Summary of the theoretical components, definitions, and scale items

Theoretical Construct	Conceptual Component	Subcomponents	Operational Definition	Items/Scale	Interpretation
Motivation	Physician perception of personal relevance	Personal Significance	Agreement of personal significance to education	B5b, B5c; 2-item-scaled 1 (strongly disagree) to 5 (strongly agree)	Higher scores indicate stronger agreement
		Perceived Risk	Perception of Asian cancer risk	C3; 8-item-scaled 1 (no risk) to 5 (high risk)	Higher scores indicate greater perceived risk
		Follow Guide-lines	Frequency of following organizational screening recommenda-tion guide-lines	C2; 5-item-scaled 1 (never) to 5 (always)	Higher scores indicate higher use
	Physician per-ception of per-sonal responsi-bility	Physician Re-sponsibility	Agreement of making screening recommenda-tions a re-sponsibility of the physician	B5a; 1-item-scaled 1 (strongly dis-agree) to 5 (strongly agree)	Higher score indicates stronger agree-ment
	Physician's per-ception of screening rec-ommendation relevance to pa-tient	Patient Context	Provide rec-ommendation in context of patient	B6c; 1-item-scaled 1 (never) to 5 (always)	Higher score indicates higher frequency
		Recommenda-tion Importance	Emphasis on importance of recommenda-tion	B6d; 1-item-scaled 1 (never) to 5 (always)	Higher score indicates higher frequency
		Recommenda-tion Rationale	Provide ra-tionale for recommenda-tion	B6e; 1-item-scaled 1 (never) to 5 (always)	Higher score indicates higher frequency
		Patient Respon-sibility	Emphasis on patient re-sponsibility to get screened	B6f; 1-item-scaled 1 (never) to 5 (always)	Higher score indicates higher frequency
	Physician per-ceived capacity to deliver effec-tive recommen-dations to Asian patients	Cultural Com-petence	Physician perception of cultural com-petence	B8; 10-item cultural com-petence scale (adapted from Assemi et al.) scaled 1 (not confident) to 5 (very confident)	Higher score indicates greater cultural com-petence

Table 1
Summary of the theoretical components, definitions, and scale items continued

Theoretical Construct	Conceptual Component	Subcomponents	Operational Definition	Items/Scale	Interpretation
Ability to process	Physician distractions to providing recommendations	Barriers Frequency	Physician perceived communication barriers with Asian patients	B1; 9-items scaled 1 (never) to 5 (always)	Higher score indicates greater frequency of barriers
		Barriers Significance	Significance of barriers in communication	B2; 9-items scaled 1 (not significant) to 5 (very significant)	Higher score indicates greater significance of barriers
		Barriers Difficulty	Perceived ability to deal with barriers	B3; 9-items scaled 1 (very difficult) to 5 (not difficult at all)	Higher score indicates greater ability to over come barriers in communicating with Asian patients
	Physician perception of patient distractions	Patient Barriers	Barriers of Asian patients to getting screened	B4; 10 standard barriers based on literature	Higher the number, the greater number of barriers Asian patients face to get screened
		Patient Self-Efficacy	Perception of patient self-efficacy	B6a; 1 item scaled 1 (never) to 5 (always)	Higher the score indicates greater frequency of assessing patient self-efficacy
		Physician Suggestions	Physician suggestions to help patient get screened	B6b; 1 item scaled 1 (never) to 5 (always)	Higher the score indicates greater frequency of providing suggestions to help patient get screening
Peripheral cues	Physician perception of patient's view of source credibility of the physician	Physician Perception	Perception of physician trustworthiness, credibility, knowledge, and expertise	B7; 4-item scale (Bhattachejee & Sanford) scaled 1 (strongly disagree) to 5 (strongly agree)	Higher score indicates stronger agreement

Figure 5 provides a diagram of the theoretical constructs and components as it relates to

the occurrence of physician cancer screening recommendations to Asian patients.
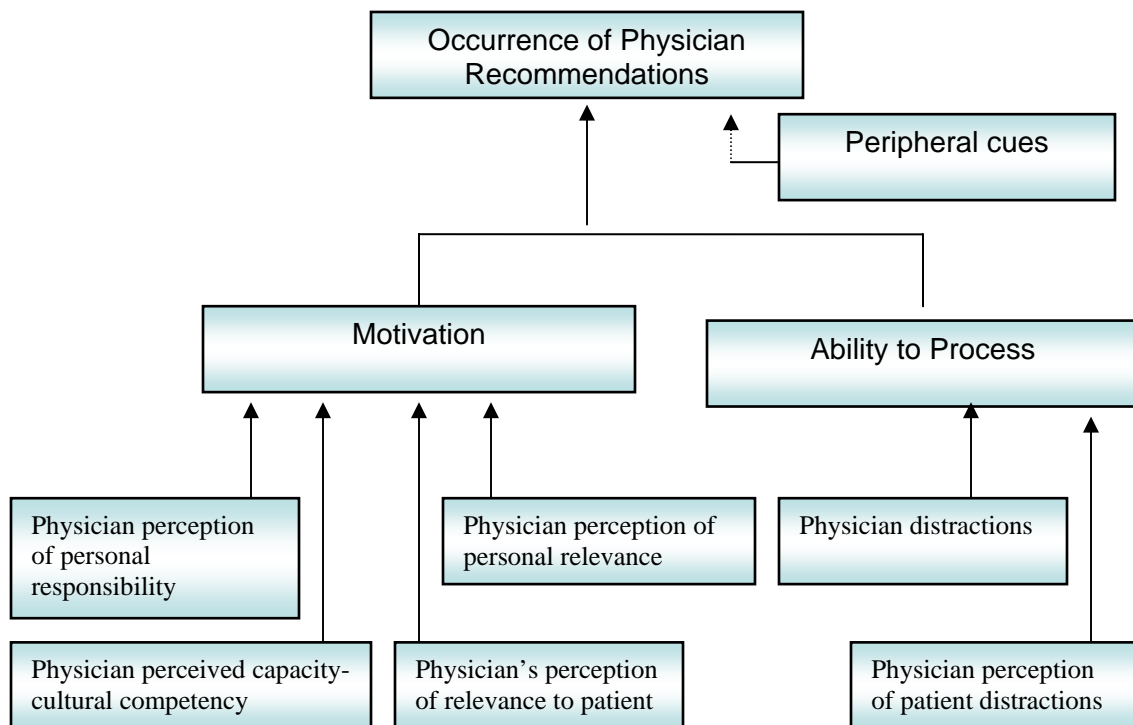
Figure 5. **Diagram of theoretical constructs and components in relation to physician recommendation occurrence.**

RELIABILITY

Reliability refers to the degree to which a measure is consistent. Trochim (2001) considers a measure to be reliable if the same result develops after the measure is administered more than once over time. Internal consistency reliability was assessed to examine the reliability of the scales used in the survey. Fink (1993, p. 113) describes internal consistency reliability as the "extent to which all the items or questions assess the same skill, characteristic, or quality." Internal consistency of the instrument was assessed by Cronbach's alpha. Cronbach's alpha (i.e., coefficient alpha) is a method of estimating the internal consistency reliability of a measure and can be viewed as an average of all split-half reliability estimates (Trochim, 2001). Alpha reliability coefficients were

computed using the scale reliability assessment procedures in SPSS and are reported in

Table 2. An acceptable level of internal consistency reliability is a Cronbach's alpha

coefficient of 0.70 (Aday, 1996). All except two of the scales/subscales (occurrence of

prevention screening and frequency of following guidelines) achieved an alpha reliability

of 0.70 or higher. However, the alpha coefficients were close to the preferred 0.70

coefficient and the scales/subscales were deemed acceptable to use in this study.

Table 2
Scale and Subscale Reliability Alpha Coefficients (N=100)

Scale or Subscale	Survey Question	Items	Alpha
Occurrence of Prevention Screening	A-12	7	.66
Physician Perceived Communication Barriers	B-1	9	.75
Significance of Barriers in Communication	B-2	9	.82
Perceived Ability to Deal with Barriers	B-3	9	.82
Agreement of Personal Significance to Education	B-5	4	.88
Cancer Screening Recommendations Activity	B-6	6	.78
Perception of Physician	B-7	4	.86
Cultural Competency	B-8	10	.87
Frequency of Following Guidelines	C-2	5	.68
Asian Cancer Risk	C-3	8	.70

VALIDITY

The validity of scales used in the survey instrument is critical to collecting

information on the variables that it was designed to collect. A panel of experts assessed

face validity. Face validity based on expert judgment refers to how well the instrument or

measurement makes sense in terms of what it is trying to measure (Hulley & Cummings,

1988). Trochim (2001) describes the face validity approach as a method of confirming

that the measures reflect the constructs of interest. A convenience sample of survey

methodology experts reviewed and conceptually assessed the face validity of the survey

relative to the purpose of the study. More specifically, the experts assessed whether the

survey questions were appropriate to the purpose of the study. Reviewers received a validity check questionnaire and cover letter (Appendix B). The validity examination occurred prior to the pilot test of the survey instrument. Reviewer A, a behavioral researcher and professor affiliated with the Center for Asian Health, indicated that the questions were "very relevant" with respect to the overall research questions and that the survey questions were "very appropriate" with respect to the respondent. Reviewer B, a survey methods expert and statistician affiliated with an international research consulting firm, indicated that survey questions in section C and D were both very relevant and very appropriate. For section A and B, Reviewer B scored almost very relevant and almost very appropriate and offered suggestions on question wording to make the questions more relevant and more appropriate. Significant changes included the following:

- A-6: changed to percentage response
- B-5-a: changed statement to read: "I consider it my responsibility as a physician to make cancer screening recommendations to my patients"
- B-6-a: provided brief definition of "self-efficacy"
- B-6-c: provided brief definition of "context of patient"

Reviewer B also suggested in lieu of having numbers in the scale, to label the scale numbers as never, rarely, sometimes, usually, and always. However, Reviewer B suggested as a caution that by changing the labels, scale score means could not be computed. Minor text changes that did not impact the face of the survey were implemented based on the suggestions from the reviewers.

PILOT TESTING

The survey instrument was pilot-tested to assess the functionality of the survey, the level of difficulty and length of time needed to complete the survey, and to assess if the cover letter and consent forms were easy to understand. A convenience sample of five physicians from the mid-Atlantic region served as pilot-test subjects to examine the survey components (process and clarity). Pilot testers received a questionnaire (Appendix C). The demographic characteristics of the pilot testers included the following: two females, mean age of 34 years (with a range of 28 years to 43 years, 1 not reported), all Asian (3-Korean, 1-Chinese, 1-Vietnamese, and 1-not specified), variety of specializations (2-family practice, 1-pulmonary critical care, 2-other), all with 10 years or less in clinical practice in the U.S. (2-five years or less), and three received their medical training in the U.S. (1-Asia, 1-Other Country).

The pilot testers reported an average of 15 minutes to complete the survey (with a range of 7 minutes to 30 minutes) and an average difficulty scale score of 2.2 (on a 1 very easy, 5 very difficult scale) to complete the survey. Four out of the five pilot testers indicated that the instructions for the survey and the language used in the survey questions were clear. One pilot tester offered some survey edits. Significant changes included the following:

- A-12-g: rephrased to "smoking cessation counseling among smokers"
- B-1,2,3-I: added "in your ability" to further clarify the question
- B-3: switched the positions for "very difficult" and "not difficult at all" to correspond with the positions with the other questions
- C-3: changed the scale to lower risk-same risk-higher risk scale

All of the pilot testers reported that they understood the purpose of the study as outlined in the cover letter and the contents of the consent form. In addition, all of the pilot testers easily understood the information and instructions in the cover letter. Based on the results from the pilot test, reasonable functional improvements to the survey were made prior to commencing the study.

SAMPLE SELECTION

This study was conducted among primary care physicians practicing in New Jersey and in New York City. According to the 2000 census, 480,276 residents of New Jersey—approximately 5.7% of the state's population—identified themselves as Asian (U.S. Census Bureau, 2005a). The large Asian population is complemented by the large metropolitan area of Philadelphia to the south and New York City to the north. In New York City, 787,047 residents—approximately 9.8% of the city's population—identified themselves as Asian (U.S. Census Bureau, 2005a). Large proportions of Asian residents by ZIP Code were identified using the American Fact Finder tool of the U.S. Census. For the purpose of this study, a "large proportion" was operationally defined as a proportion of Asians composing more than 25% of the population residing within a specified ZIP Code.

Table 3 provides a description of the Asian population residing in New Jersey and New York City according to information provided by the U.S. Census (2005a). The five largest Asian groups in New Jersey were: Asian Indian (169,180), Chinese (100,355), Filipino (85,245), Korean (65,349), and Japanese (14,672). The five largest Asian groups in New York City were: Chinese (357,243), Asian Indian (170,899), Korean (86,473),

Filipino (54,993), and Pakistani (24,099). Nationally, according to the most recent American Community Survey Reports (U.S. Census Bureau, 2007) the five largest Asian groups were: Chinese (2,829,627), Asian Indian (2,245,239), Korean (1,251,092), Filipino (2,148,227), and Vietnamese (1,267,510).

Table 3
Demographic Characteristics of Asian Population in Study Areas

Demographic characteristic	New Jersey[a]	New York City[a]	United States[b]
Asian population	480,276	787,047	12,471,815
Percent Asian in state/city	5.7	9.8	4.3
Asian households	143,362	246,680	4,066,682
Age (median)	32.7	33.5	35.1
Income (median)	$72,224	$44,209	$60,367
Percent below poverty level	6.9	19.6	11.5
Education[c]			
Less than high school	11.5	30.5	14.4
High school graduate	11.6	18.6	16.8
Some college	14.8	14.7	19.7
College graduate	62.1	36.2	49.1
Percent uninsured	9[d]	29[e]	16.6[f]
Largest Asian subgroups (Top 5)[g]	Asian Indian	Asian Indian	Asian Indian
	Chinese	Chinese	Chinese
	Filipino	Filipino	Filipino
	Japanese	Korean	Korean
	Korean	Pakistani	Vietnamese

[a] 1999 U.S. Census Bureau Data (U.S. Census Bureau, 2005a).
[b] 2005 American Community Survey (U.S. Census Bureau, 2005b).
[c] Asians age 25 years or older
[d] New Jersey Department of Health and Senior Services (2005a)
[e] Commonwealth Fund Survey of Healthcare in New York City (Sandman, Schoen, Des Roches, & Makonnen, 1998)
[f] U.S. Census Bureau, Annual Demographic Survey (U.S. Census, 2005c)
[g] From American Community Survey Reports (U.S. Census, 2007)

According to the New Jersey Department of Health and Senior Services (2005a), 16.1% of Asians and Pacific Islanders under 65 years old were uninsured in New Jersey in 2003. However, Asians and Pacific Islanders had the third highest percent uninsured under the age of 65 between 2001 and 2003 at 16% behind Hispanics (32.9%) and non-Hispanic blacks (21.8%). According to the Commonwealth Fund Survey of Health Care

in New York City (Sandman, Schoen, Des Roches, & Makonnen, 1998), 29% of Asians were uninsured, second only to Hispanics at 36%. Nationally, 16.6% of Asians in the U.S. were uninsured in 2004 (U.S. Census Bureau, 2005c).

Inclusion Criteria

This study used the following inclusion criteria for participation: any physician who was a doctor of osteopathic medicine (D.O.) or doctor of medicine (M.D.) currently practicing in internal medicine, family practice, or a specialty (e.g., OB/GYN, oncology) and who practiced within a specified Asian–concentrated ZIP Code in New Jersey or New York City was eligible for participation. This study used various physician locator tools including the American Medical Association physician search tool and information from the New Jersey Department of Health and Senior Services HMO Performance Report, the New York State Department of Insurance Consumer Guide to HMOs, the Center for Asian Health's physician listings, and other sources, to identify contact information on physicians who served in the specified ZIP Codes. The key assumption was that Asians residing within highly concentrated ZIP Codes will see primary care physicians within their ZIP Code (Chakrabarti, 2005).

Sampling Frame

Physicians were randomly selected (using the uniform random numbers selection procedure in SPSS) from a provider directory of a major health care organization serving Asian concentrated areas (ZIP Codes with Asian population >25%) in the New York City and New Jersey areas. Each mailing consisted of a sample of 250 physicians that were

randomly selected from a New Jersey and New York City physician directory list of 969 physicians that met the inclusion criteria. Physicians were selected to the relative proportion of that physician category to include representation from each of the physician categories. For example, in the physician directory for New York City, there were 506 internal medicine physicians, 93 family practice physicians, and 209 OB/GYN physicians which consist of 52.2%, 9.6%, and 21.6%, respectively, of the 969 total physicians in the combined directory. In New Jersey, the proportions of internal medicine, family practice, and OB/GYN physicians were 10.3%, 2.7%, and 3.6%, respectively. Each of the percentages was multiplied by the number of physicians in that category to compute the number of physicians for each mailing. Therefore, in New York City, surveys were administered to 131 internal medicine, 24 family practice, 54 OB/GYN physicians, and in New Jersey, surveys were administered to 26 internal medicine, 7 family practice, and 9 OB/GYN physicians per mailing. A total of 3 mailings were conducted accounting for 750 physicians receiving a survey. An additional 102 surveys were administered to replace the undeliverable and unable to contact physicians resulting from the first two mailings. Therefore, a total of 852 surveys were mailed to physicians for this study. Figure 6 presents the sampling design for this study.

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┌─────────────────────────┐
│    Asian–Concentrated    │
│   ZIP Codes Identified    │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│   Listing of Primary Care │
│   Physicians by ZIP Code  │
└─────────────────────────┘
             │
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┌─────────────────────────┐
│    Random Selection of    │
│  Primary Care Physicians  │
└─────────────────────────┘
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│  Sampling Frame of Primary│
│      Care Physicians      │
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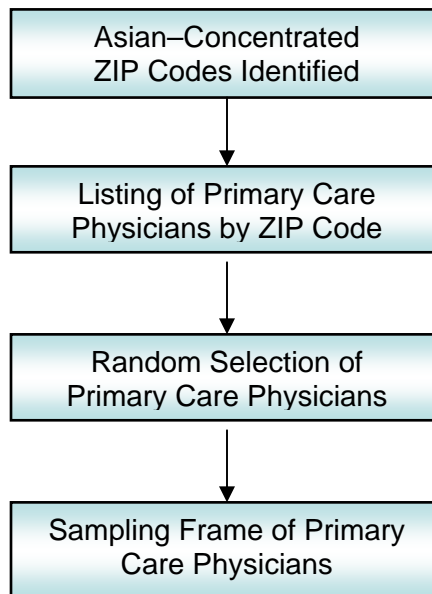
Figure 6.   **Sampling design for study.**

SAMPLE SIZE

A statistical power analysis determined the sample size needed for this study.

Power analysis consists of four interdependent factors: significance criterion (α), sample

size (n), effect size (ES), and power (Cohen, 1988). Sample size can be computed for a

specific power level by stipulating an effect size and alpha level (Cohen, 1988). The

alpha (α), or significance criterion, reflects the probability of rejecting a true null

hypothesis, or committing a Type I error. The effect size reflects the degree to which the

null hypothesis is false and is commonly categorized as the following: small (0.20),

medium (0.50), and large (0.80) (Cohen, 1988).

An a priori power analysis determined sample size by identifying values from a graphical power chart created by Lipsey (1990). The estimated statistical power (with alpha = .05) based on sample size and effect size is presented in Table 4.

Table 4
Statistical Power in Relation to Effect and Sample Size

	Effect Size		
	.30	.40	.50
Sample size			
40	**.28**	**.42**	**.60**
60	**.38**	**.59**	**.78**
80	**.48**	**.70**	**.88**
100	**.55**	**.80**	**.94**

Source: Adapted from figure 4.4 (Lipsey, 1990).

According to Table 4, the statistical power for a medium effect size and a sample size of 65 is 0.80. In other words, a sample size of 65 will have an 80% chance to detect a significant difference for the effect size of 0.50. Therefore, a reference sample of at least 65 physicians was sufficient for this study. Sample sizes of 80-100 physicians are comparable to similar studies surveying providers on cancer screening knowledge and recommendations (Gennarelli et al., 2005; Bodle et al., 2005).

Response rates of physician surveys vary. In a study of articles involving physician surveys published from 1985 to 1995, the average response rate for the mailed

surveys was 61% (Cummings, Savitz, & Konrad, 2001). In Canada's 2004 National

Physician survey, the overall response rate was approximately 36% (Canadian Institute

for Health Information, 2005). In comparing two different methods of data collection,

Leece and colleagues (2004) found that the response rate of a web based survey (45%)

administered to surgeons had a lower response rate than a mailed survey version (58%).

Efforts were made to achieve the sample size requirements including making follow up

calls and initiating additional survey mailings to additional physicians. Strategies to

increase response rate such as offering an incentive and key reminder phone calls were

implemented.

PROCEDURES AND SURVEY DEVELOPMENT

In accordance with human subjects protection, appropriate applications

(Appendix D) were filed with the institutional review boards (IRBs) at the University of

Maryland, College Park and at Temple University. Both institutions granted approval of

the study (Appendix E). As described previously (in Sample Selection), a random sample

of primary care physicians practicing in specified ZIP Code regions were contacted to

participate in this survey. A 30-question (91-item) survey was developed specifically to

contain closed-ended questions, with some questions providing a space to specify "other"

answers. Participation in the survey was completely voluntary, and respondents were able

to opt out at any time.

Each subject received an introductory letter (Appendix F) describing the purpose

of the study, a consent form (Appendix G), the survey instrument, and a postage paid

return envelope. Phone call reminders to complete and return the survey commenced

after 1 week from the initial mailing and a decision was made to continue reminder calls, resend the initial survey, or suspend any further contacts. Each reminder call reemphasized the importance of the survey, the short time component to complete the survey, and the incentive for returning the survey. Upon return of the completed survey, subjects were mailed a thank-you letter (Appendix H) and incentive ($25 gift card to Barnes and Noble Bookstore) for their participation.

In an analysis of studies published from 1967 through 1999 that involved physician surveys, providing monetary incentives, using postal stamps on envelopes, and administering shorter surveys increased response rates among physicians receiving mailed surveys (Kellerman & Herold, 2001). Olmsted, Murphy, McFarlane, and Hill (2005) found that after comparing reminder contact methods of postcards and first class letters for physicians, there was no significant difference in response rate after these reminders, however, first class letters (average of 25 cents) were more cost effective compared to the post cards (average of 51 cents). Examining the effects of incentives on the response rate of physician mailed surveys, VanGeest, Wynia, Cummins, and Wilson (2001) found that higher incentives did not necessarily transpire to higher response rates. This contradicts the findings from Asch, Christakis, and Ubel (1997), which randomly assigned mailed surveys to a national sample of primary care physicians with either a $5 or $2 incentive. In their study, the response rate of those receiving the $5 incentive was 61% compared to the 46% response rate of those receiving the $2 incentive. All letters were printed on Temple University letterhead and mailed in Temple University envelopes. A physical first class postage stamp was affixed on all of the envelopes used in the mailings.

Every effort was made to facilitate a high response rate. The following contingency plans were implemented. If the obstacle to response lied in the gatekeeper, the investigator asked the gatekeeper what options were available for the primary care physician to complete and return the survey. Additional return options for the survey were expanded such as faxing or emailing the survey and consent forms. Acceptable methods for return of the survey were postal mail and fax. These hard copy methods were proposed in order to receive a signed copy of the consent form for the record. If further obstacles prevented a submission of a hard copy consent form, a verbal consent form over the telephone would be accepted and the survey would be administered over the telephone but this option was never exercised. The consent form would be specially marked to note verbal consent was given over the telephone. If the minimal sample size needed for this study was not achieved, the analysis would have continued forward and a post hoc power analysis would have been computed. However, these concerns were not an issue.

Data Collection and Quality Assurance

Each survey contained a numerical identification code to match the addressee from the master mailing list. Survey packets included a paid, stamped, return envelope. All survey envelopes were addressed to a postal mailbox at the Center for Asian Health in Philadelphia. Completed surveys were then transferred to the student principal investigator, where each survey was visually inspected to confirm completion and coded to ensure accurate data entry. Coded data were entered into a statistical database and analysis software package (i.e., Statistical Package for the Social Sciences [SPSS]).

Missing values were assigned a common missing value code of "99" to ensure that missing data were accounted for in analyses.

After entering the data, data cleaning procedures commenced. The data cleaning procedure included examining every fifth record to see if the data that were entered matched the data that were coded on the hard-copy survey. If large frequencies of data entry errors existed (exceeding 10%), a complete match analysis confirmation of the data would have been conducted.

In accordance with all IRB regulations, only the principal investigator, co-investigators, and research staff had access to the data. All hard-copy data forms were located in a secure place and in locked cabinets to secure access.

SURVEY RESPONSES

Surveys were distributed to 852 internal medicine, family practice, and OB/GYN physicians in New Jersey and New York City over the course of three mailings during the summer of 2006. Physicians responded to and returned 103 surveys, of which 100 were deemed complete and entered into a database. A total of 89 surveys were marked "undeliverable" and returned by the U.S. Postal Service. Further, after conducting follow-up phone calls, it was learned that 43 physicians were no longer at the practice or had retired (not available). An additional 154 physicians could not be contacted during the follow-up phone calls (unable to contact). Fifteen physicians refused to participate, citing that they were not interested, had no time, or did not have enough Asian patients. With 103 surveys returned, divided by the total number of surveys sent out (less the undeliverable surveys, not available, and physicians who could not be contacted—unable

to contact), the response rate was 18.2%. Despite this low response rate, physicians have the lowest response rates as compared to other types of health care providers (Asch et al. 1997).

STATISTICAL ANALYSES

Nonparametric and inferential statistical analyses were computed and served a particular purpose in summarizing the data through numerical means. Data recoding and transformation was conducted to meet the data variable requirements of specific statistics. Missing values were coded appropriately when data were entered into the system. Patterns of missing data were examined to determine whether the patterns are random or systematic. Remedies to account for missing data during analysis included case wise deletion if it was necessary, or to use scale score averages as a substitute for missing data. All data were entered in SPSS, version 13.0, and this program was used to compute statistics.

Table 5 summarizes the measurement levels of each dependent and independent variable, respectively, that were analyzed in this study. Although these scales may be ordinal in nature, the distances between each measurement point were conceptually perceived to be equal. By classifying these scales as interval, mean scores could be computed and evaluated.

Table 5
Measurement Levels of the Dependent and Independent Variables

Research Question	Dependent or Main Variable(s)	Measurement Level
1	• Asian cancer risk perceptions	• Interval
2	• Occurrence of physician recommendations	• Interval
Research Question	**Independent Variables**	**Measurement Level**
1	• N/A	• N/A
2	• Physician perception of personal relevance	• Interval
	• Physician perception of personal responsibility	• Interval
	• Physician's perception of screening recommendation relevance to patient	• Interval
	• Physician perceived capacity to deliver effective recommendations to Asian patients	• Interval
	• Physician distractions to providing recommendations	• Nominal
	• Physician perception of patient distractions	• Interval
	• Physician perception of patient's view of source credibility of the physician	• Interval

Operational Definitions of Key Variables

The following is a description of the conceptual and operational definitions of the key variables analyzed in this study. Asian cancer risk perceptions reflect the risk perception by physicians of cancer in Asians when compared to their risk perception of cancer in the general population. Asian cancer risk perceptions were operationally defined as the perception of cancer risk in Asians compared to the general population by cancer type as measured on a 5-point Likert scale ranging from no risk to high risk. This was reflected in survey question C3.

Occurrence of physician recommendations examines the frequency of providing cancer screening recommendations by physicians to Asian patients during a check up. Prevention screening recommendations was operationally defined as how often from 1 (never) to 5 (always) were prevention screening tests (i.e. breast cancer, cervical cancer, etc.) recommended to physicians' Asian patients during a check up. This was reflected in survey question A12.

Physician perception of personal relevance was operationally defined as agreement of personal significance to education (survey item B5b), perception of Asian cancer risk (C3), and frequency of following organizational screening recommendation guidelines (C2). Physician perception of personal responsibility was operationally defined as agreement of making screening recommendations a responsibility of the physician (B5a). Physician's perception of screening recommendation relevance to patient was operationally defined as providing recommendation in context of the patient (B6c), emphasizing the importance of recommendation (B6d), providing a rationale for recommendation (B6e), and emphasizing patient responsibility to get screened (B6f). Physician perceived capacity to deliver effective recommendations to Asian patients was operationally defined as physician perception of cultural competence (B8). Physician distractions to providing recommendations was operationally defined as the physician perceived communication barriers with Asian patients (B1), significance of barriers in communication (B2), and perceived ability to deal with barriers (B3). Physician perception of patient distractions was operationally defined as barriers to Asian patients to getting screened (B4), perception of patient self-efficacy (B6a), and physician suggestions to help patient get screened (B6b). Physician perception of the patient's view of source credibility of the physician was operationally defined as the perception of the physicians' trustworthiness, credibility, knowledge, and expertise (B7).

The following are descriptions of specific independent variables. Physician experienced communication barriers reflected the barriers that are commonly experienced by the physician when communicating with their Asian patient. The variable of physician experienced communication barriers was operationally defined as how often are the

following barriers (language difficulty, lack of time, lack of knowledge if guideline, insufficient compensation, no reminder system, patient refusal, intervention against patient's cultural beliefs, patient seen for different reason, and lack of confidence in communicating cancer screening information) encountered in communicating with their Asian patients regarding cancer screening, rated from 1 (never) to 5 (always). This was reflected in survey question B1.

Significance of barriers in communication reflected the physician's perception of how important or significant these barriers were in communicating with their Asian patients regarding cancer screening. The variable of significance of barriers in communication was operationally defined as how significant are the barriers that the physician has encountered in communicating with their Asian patient, rated from 1 (not significant) to 5 (very significant). This was reflected in survey question B2.

Perceived ability to deal with barriers reflected the physician's perception of how difficult it was to deal with the barriers that they have encountered in communicating with their Asian patient regarding cancer screening. The variable of perceived ability to deal with barriers was operationally defined as how difficult is it in dealing with the barriers encountered in communicating with the Asian patient regarding cancer screening, rated as 1 (very difficult) to 5 (not difficult at all).

Physician perceived patient barriers reflected the barriers perceived by the physician that Asian patients have experienced in trying to get cancer screening. Physician perceived patient barriers was operationally defined as what barriers does the physician believe that Asian patients have encountered to get cancer screening. A list of barriers were provided and included language problem (Ma, 2000; Nowak, 2003), fear of

positive result (Kim, Lee, Lee, & Kim, 2004), no regular place for health care (Kaiser Family Foundation, 1999), trust (Ngo-Metzger, Legedza, & Phillips, 2004), no regular doctor (Nowak, 2003), no transportation (Ma, 2000), do not know where to get screened (Ma, 2000), lack of knowledge (Nowak, 2003), no insurance to cover the cost (Purnell & Kim, 2003), screening is against cultural beliefs (Pacquiao, 2003; Purnell & Kim, 2003), and other. This was reflected in survey question B4.

Cultural competency reflected a set of congruent behaviors, attitudes, and policies that come together in a system or agency, or among professionals, enabling effective work in cross-cultural situations (Cross et al., 1989). Cultural competency was operationally defined as confidence measured by 1 (not confident at all) to 5 (extremely confident) in the physician's ability to conduct culturally competent related tasks as measured on a 10-item Likert scale. This was reflected in question B8.

Specific Analysis by Research Question

Research Question 1

What are primary care physicians' perceptions of cancer risk in Asians?

This question was examined using the scale score means of physician perception of cancer risk by each cancer type and comparing the responses to site-specific cancer incidence statistics. More specifically, physician perceptions of Asian cancer risks were listed in rank order according to the mean scale score and compared to site-specific cancer incidence statistics from the National Cancer Institute.

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Research Question 2

What are the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations?

There were two null hypotheses associated with this research question:

H_o: There is no significant relationship between individual components of the theoretical constructs and the occurrence of physician recommendations to Asian patients.

H_o: There is no significant relationship between the theoretical constructs and the occurrence of physician recommendations to Asian patients.

Scale score means and standard deviations of the assessment of the motivation, ability to process, and peripheral cues were computed as a descriptive of these data. A bivariate correlation matrix of the scale scores from each of the components was constructed to examine if there was a linear relationship between the variables. However, prior to constructing the correlation matrix, a scatterplot of the data was examined to identify any trends (patterns) of the data. Correlations were calculated and the squared correlation coefficients were assessed to examine the variability that was explained by the other variable.

A linear regression analysis utilizes a predictive model to predict the values of the outcome variable from one or multiple predictor variables (Field, 2000). The predictors included the scale score averages of the variables that comprise the motivation and ability to process constructs, and peripheral cues; and the individual conceptual components that were affiliated with the theoretical constructs. Scale score averages were used because aggregate scale scores do not account for missing values and data would become biased.

The main outcome variable was the occurrence of physician recommendations (Question A12) (quantified by its scale score averages) by type of screening.

To test the first hypothesis, scale score averages from each component of the theoretical constructs were examined as predictors to occurrence of physician recommendations. The components examined included (referring to Table 1): physician perception of personal relevance (M1), physician perception of personal responsibility (M2), physician's perception of screening recommendation relevance to patient (M3), physician perceived capacity to deliver effective recommendations to Asian patients (M4), physician distractions to providing recommendations (A1), physician perception of patient distractions (A2), and physician perception of patient's view of source credibility of the physician (P1). The main outcome variable was the occurrence of physician recommendations (Question A12). The equation to test this hypothesis was the following:

$$Occurrence = Intercept + M1 + M2 + M3 + M4 + A1 + A2 + P1 + Error$$

To test the second hypothesis, scale scores from each theoretical construct were examined as predictors to occurrence of physician recommendations. These components included (referring to Table 1): motivation (M1), ability to process (A1), and peripheral cues (P1). The main outcome variable was the occurrence of physician recommendations (Question A12). The equation to test this hypothesis was the following:

$$Occurrence = Intercept + M1 + A1 + P1 + Error$$

The Enter regression method was selected to enter all of the predictor variables into the model due to the exploratory nature of this study and sample size considerations. Univariate analyses were conducted to screen out insignificant predictor variables prior to conducting the multiple regression analyses. Multicollinearity was assessed to see if any of the predictor variables are highly correlated. The adjusted R^2 adjusts for the degrees of freedom and number of predictors which biases R^2 to account for a larger proportion of variance in the outcome variable. The standardized Beta estimate indicates the strength of the predictor variables have on the outcome variable and were reported in this study. Homoscedasticity is the assumption that at all levels of the predictor variables, the variance of errors is the same (Pedhazur, 1997). A probability-plot (pp-plot) was examined to assess meeting the homoscedasticity assumption.

In addition to these parametric and nonparametric statistical calculations, complete descriptions of the survey results for each variable was provided. Further, data were summarized in tables and graphs to display alternate views of the survey results. Table 6 summarizes the statistical analyses according to each research question.

Table 6

Statistical Analyses by Research Question

Research Question	Dependent or Main Variable(s)	Independent Variable(s)	Specific Tests or Computations
1	• Asian cancer risk perceptions	• N/A	• Frequency distribution
2	• Occurrence of physician recommendations	• Physician perception of personal relevance • Physician perception of personal responsibility • Physician's perception of screening recommendation relevance to patient • Physician perceived capacity to deliver effective recommendations to Asian patients • Physician distractions to providing recommendations • Physician perception of patient distractions • Physician perception of patient's view of source credibility of the physician	• Frequency distribution • Correlations • Univariate regression • Multiple regression
	• Occurrence of physician recommendations	• Motivation (aggregate scale scores) • Ability to process (aggregate scale scores) • Peripheral cue (aggregate scale score)	• Frequency distribution • Correlations • Univariate regression • Multiple regression

CHAPTER IV

RESULTS

This exploratory study assessed and evaluated the issues and barriers related to appropriate and effective screening recommendations for the early detection of cancer for Asians in the U.S. It also sought to identify the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations and to assess primary care physicians' perceptions of cancer risk in Asians.

This chapter presents the findings of the study and includes an overview of the survey responses, a description of the demographic characteristics of the respondents, a description of the general characteristics of the respondents' medical practices, results related to the research questions, and a summary of the major findings.

DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

This study was conducted in New Jersey and New York City because of the large Asian populations residing in these regions, and it included a total of 100 primary care physicians with complete survey responses. Table 7 displays the demographic characteristics of the sample. The respondents' ages ranged from 31 to 77 years old, with a mean age of 47.0 years ($SD = 10.40$). The sample was mostly male and Asian, practiced internal medicine, and primarily spoke English. Almost half (47.0%) had 10 or less years of clinical experience, and over half (53.0%) received their medical education in the United States.

Table 7

Demographic Characteristics of Respondents

Demographic characteristic	Frequency	%
Gender[a]		
Male	61	61.6
Female	38	38.4
Age[a]		
30–39	22	23.2
40–49	38	40.0
50–59	21	22.1
60–69	12	12.6
70 or older	2	2.1
Race/ethnicity[a]		
African American	3	3.0
Asian	63	63.6
Hispanic/Latino	4	4.0
White	29	29.3
Primary language		
English	61	61.0
Other	24	24.0
Both	15	15.0
Specialization		
OB/GYN	27	27.0
Family practice	21	21.0
Internal medicine	42	42.0
Other	2	2.0
OB/GYN and family practice	1	1.0
OB/GYN and other	1	1.0
Internal medicine and other	6	6.0
Years of practice in United States		
5 or less	20	20.0
6–10	27	27.0
11–20	27	27.0
21–30	21	21.0
31 or more	5	5.0
Medical education origin		
United States	53	53.0
Asia	32	32.0
Other country	9	9.0
Multiple countries	6	6.0

[a]$N < 100$ because of missing values.

Several physicians reported additional medical specializations under "other" which included cardiology, gastroenterology, medical oncology, nephrology, palliative care, reproductive health, and rheumatology. Some of the physicians received their

medical education abroad, including China, Colombia, Dominica, France, Hong Kong, India, Iran, Israel, Korea, Mexico, Philippines, Poland, the former Soviet Union, Taiwan, United Kingdom, and Vietnam.

When asked to specify ethnicity or primary language spoken other than English, a total of 60 physicians specified an ethnic background, and 37 physicians specified a primary language that was other than English (Table 8).

Table 8
Summary of Ethnic Backgrounds and Primary (Non-English) Languages Reported by the Physicians

Ethnic backgrounds	Languages other than English
Chinese (35)	Chinese (24)
Filipino (4)	Farsi (1)
Indian (13)	Gujarati (1)
Korean (2)	Hindi (1)
Nicaraguan (1)	Korean (2)
Pakistani (1)	Malayalam (1)
Southeast Asian (2)	Russian (1)
Taiwanese (1)	Spanish (2)
Vietnamese (1)	Tagalog (1)
	Telugu (2)
	Thai (1)

Note. Numbers in parentheses indicate the numbers of respondents reporting the background and language.

GENERAL CHARACTERISTICS OF THE RESPONDENTS' MEDICAL PRACTICES

The physicians reported that they saw an average of 99.3 patients ($SD = 51.45$) per week and that 49.3% ($SD = 35.08$) of their patients were Asian. Physicians indicated that they spent an average of 12.3 minutes ($SD = 8.27$) on patient education for their Asian patients during a regular checkup. Most of the respondents (69 physicians) reported that 69.4% of their Asian patients were self-referrals. Table 9 shows additional medical practice characteristics that were reported. A large proportion (59.0%) of the physicians reported that 76–100% of their Asian patients had health insurance.

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Table 9

Summary of Additional Medical Practice Characteristics

Characteristic	Frequency	%
Asian patient with health insurance		
Less than 10% of patients	1	1.0
10–25% of patients	4	4.0
26–50% of patients	6	6.0
51–75% of patients	28	28.0
76–100% of patients	59	59.0
Don't know	2	2.0
Free preventive services[a]		
Smoking cessation counseling	52	—
Mammograms	29	—
Pap tests	27	—
Colon cancer screenings	23	—
Hepatitis B screening or vaccination	31	—
Prostate cancer screening	23	—
Other preventive services	11	—
Practice settings		
Hospital	10	10.0
Community or local health clinic	17	17.0
Private practice	56	56.0
Health maintenance organization	3	3.0
Other	3	3.0
More than one	11	11.0
Chart Asian patient smoking status		
Yes	96	96.0
No	4	4.0
Cancer screening reminder method		
No reminder	30	30.0
Mail	20	20.0
Phone	11	11.0
Email	0	0.0
Other	27	27.0
More Than One	12	12.0
Need interpreter to speak with Asian patient		
Less than 10% of patients	64	65.3
10–25% of patients	9	9.2
26–50% of patients	8	8.2
51–75% of patients	8	8.2
76–100% of patients	9	9.2
Who provides translation or interpretation services[a]		
Yourself	42	—
Another health care provider	35	—
Administrative staff	37	—
Volunteer	11	—
Family member	56	—
Not needed	5	—

[a]Totals exceed sample size because of multiple selections.

Over half (56.0%) of the physicians were in private practice, followed by community or local health clinic (17.0%), a combination of practice settings (11.0%), and hospital (10.0%). Almost all physicians (96.0%) charted their Asian patients' smoking status. Almost a third of the physicians (30.0%) did not provide a reminder for cancer screening. Further, none of the physicians provided e-mail reminders, and most reported using "other" reminder methods (e.g., reminding patients during a patient visit or annual physical, providing a verbal reminder).

Physicians were asked what, if any, preventive services they provided free of charge. Over half (52) of the physicians selected smoking cessation counseling, making it the most common free preventive service offered (Figure 7). Approximately one third (34) of the physicians did not offer any free preventive services.
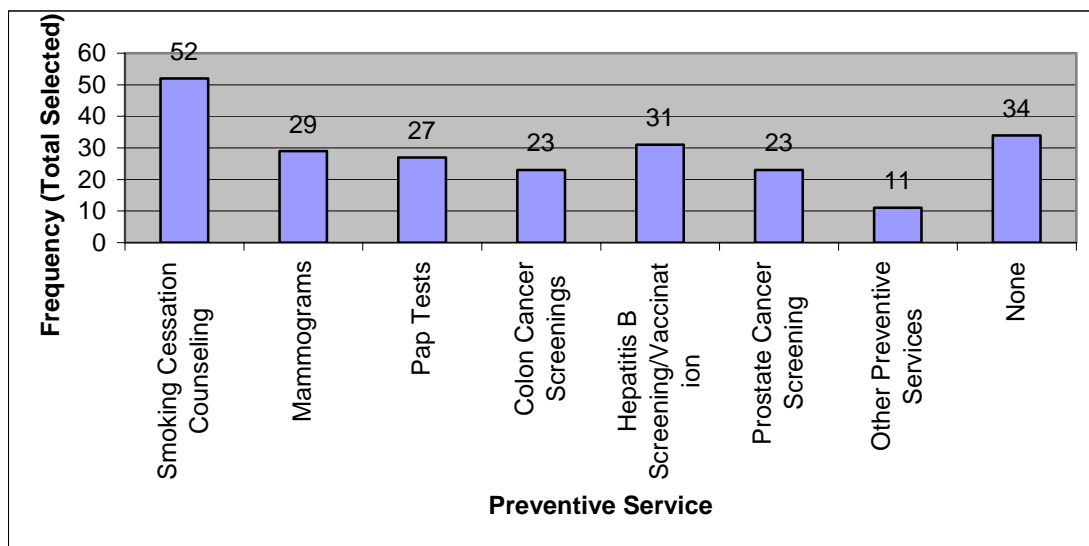
Figure 7. **Frequency (Total Selected) of free preventive services provided by physicians.**

A large proportion of the physicians (65.3%) indicated that less than 10% of their Asian patients needed an interpreter to help speak with the physician. As shown in Figure

8, for those patients needing translation or interpretation services, physicians most frequently selected the family member or friend of the patient ($N = 56$) as the one who provides translation or interpretation services at their practice, followed by the physician themselves ($N = 42$), administrative staff ($N = 37$), another health care provider ($N = 35$), or a volunteer ($N = 11$).
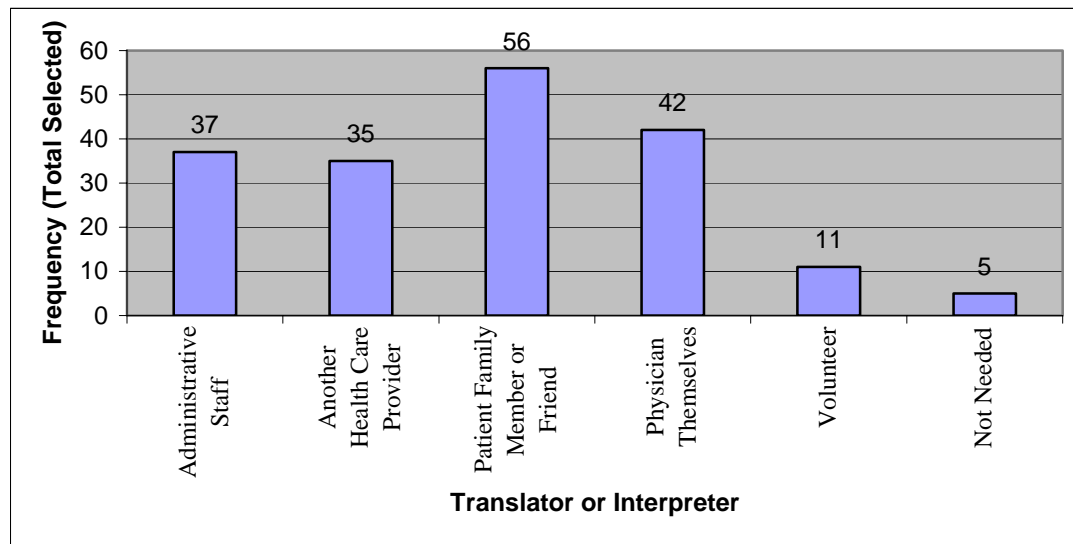
Figure 8. **Frequency (Total Selected) of provider of translation or interpretation services for Asian patients.**

ORGANIZATIONAL CANCER SCREENING GUIDELINES

Physicians were provided with a list of several organizations and were asked to select which organizational cancer screening guidelines they followed. As shown in Figure 9, 38 physicians selected the National Cancer Institute; 68 selected the American Cancer Society; 49 selected the American Medical Association; 48 selected a specific academy, college, or society; 48 selected the Guide to Clinical Preventive Services; and

11 selected other (e.g., the American College of Obstetrics and Gynecology, American College of Physicians, their own recommendations).
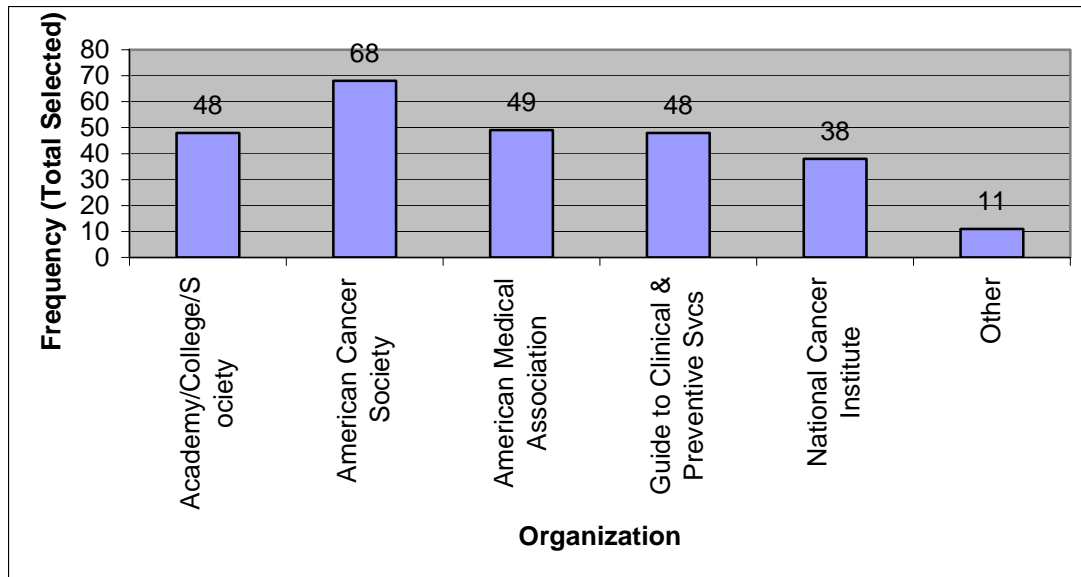
Figure 9. **Frequency (Total Selected) of cancer screening guidelines followed by organization.**

FREQUENCY OF CANCER SCREENING RECOMMENDATIONS

Physicians were asked how often—on a scale from 1 to 5, with 1 being never and 5 being always—they recommended prevention screenings to their Asian patients during a checkup. As shown in Table 10, frequency of cervical cancer screening and breast cancer screening had the largest mean score (4.9) and the lowest variability, with standard deviations of .43 and .31, respectively. Frequency of stomach cancer screening received the lowest mean score (2.7); however, it had the largest variability, as exhibited in the standard deviation (1.46). A total of 14 physicians selected "not applicable" for prostate cancer, which may indicate possible responses from OB/GYN physicians, and 9 physicians selected more than one "not applicable" answer choice for this question.

Figure 10 displays the percent of physicians selecting a survey value, reflecting the range

of responses of the survey item scale.

Table 10

Summary of Frequency of Prevention Screening Recommendations Made to Asian Patients

Prevention screening	N	Range[a]	Mean	SD
Breast cancer	97	3–5	4.9	0.31
Cervical cancer	95	2–5	4.9	0.43
Colorectal cancer	97	1–5	4.5	0.88
Hepatitis B	96	1–5	4.1	1.07
Prostate cancer[b]	77	1–5	4.1	1.35
Smoking cessation	98	1–5	4.6	0.80
Stomach cancer	87	1–5	2.7	1.46

[a]The scale ranged from 1 (never) to 5 (always). [b]Fourteen physicians selected "not applicable."
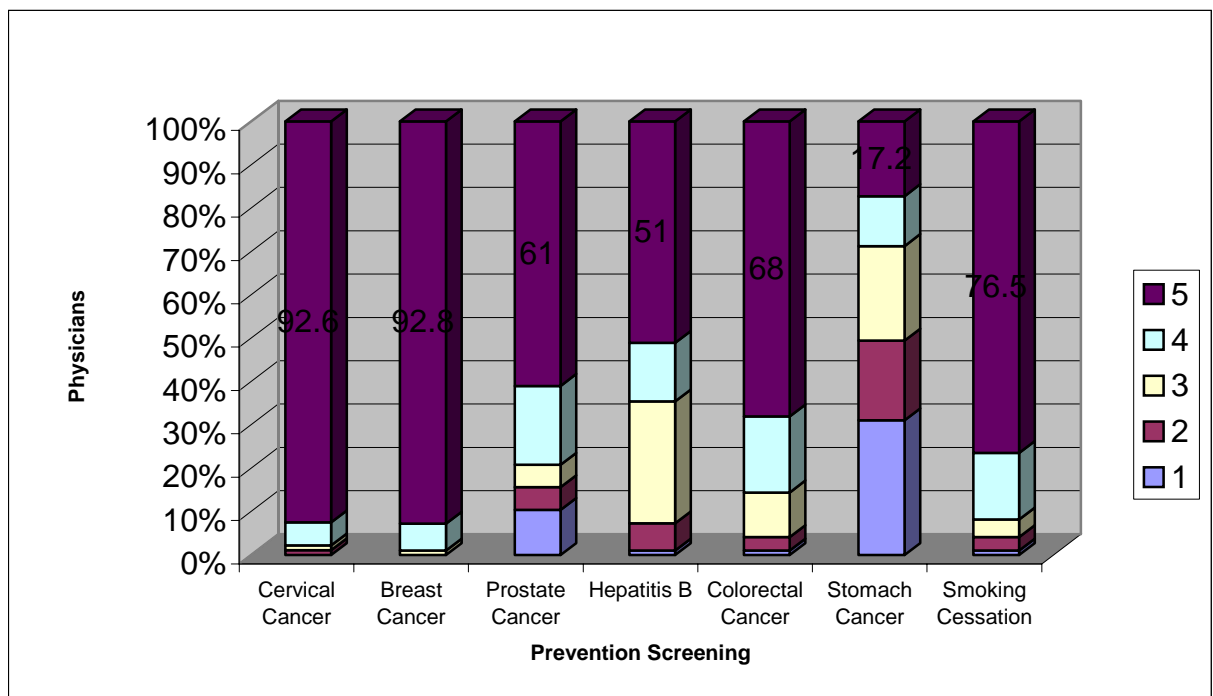
Figure 10. **Frequency (Percent) of physician survey responses (1, Never; 5, Always) by prevention screening type.**

Asian physician responses to frequency of prevention screening recommendations made to Asian patients were compared to non-Asian physicians to examine any physician differences. As shown in Table 11, the mean scale scores of prevention screening recommendation frequency were similar between Asian and non-Asian physicians. However, noticeable differences in means scores were observed between Asian and non-Asian physicians regarding hepatitis B screening (0.59 mean difference) and stomach cancer screening (0.46 mean difference).

Table 11

Summary of Frequency of Prevention Screening Recommendations Made to Asian Patients by Asian and Non-Asian Physicians

Prevention screening	Asian		Non-Asian[b]	
	N	**Mean[a] (*SD*)**	*N*	**Mean[a] (*SD*)**
Breast cancer	61	4.92 (*0.33*)	35	4.91 (*0.28*)
Cervical cancer	59	4.90 (*0.44*)	35	4.89 (*0.40*)
Colorectal cancer	61	4.39 (*0.95*)	35	4.63 (*0.73*)
Hepatitis B screening	60	4.28 (*0.96*)	35	3.69 (*1.16*)
Prostate cancer	48	4.10 (*1.39*)	28	4.18 (*1.31*)
Smoking cessation counseling	61	4.61 (*0.76*)	36	4.67 (*0.86*)
Stomach cancer	54	2.80 (*1.50*)	32	2.34 (*1.34*)

[a]The scale ranged from 1 (never) to 5 (always).
[b]Non-Asian included White, African American, and Latino physicians.

RESEARCH QUESTION 1: PERCEIVED ASIAN CANCER RISKS

The first research question asked, "What are primary care physicians' perceptions of cancer risk in Asians?" Physicians were asked to rate their beliefs of relative cancer risks for Asians in comparison to risks for the general population. As shown in Table 12, perceived cancer risk in Asians for all cancer had a mean score of 3.2. Liver cancer (4.4) and stomach cancer (4.3) had the highest perceived cancer risk among Asians by physicians, and breast cancer (2.8) and prostate cancer (2.9) were reported as having the lowest perceived Asian cancer risk. Cervical cancer had the largest degree of variability

($SD = 0.95$), and the category of all cancer had the smallest variability ($SD = 0.65$).

Figure 11 displays the range of responses by percent of physician perceptions of Asian

cancer risk as compared to the risk of the general population.

Table 12
Summary of Physician Perceptions of Asian Cancer Risk as Compared to the General Population

Cancer type	N	Range[a]	Mean	SD
All cancer	92	1–5	3.2	0.65
Breast cancer	98	1–5	2.8	0.89
Cervical cancer	98	1–5	3.2	0.95
Colorectal cancer	98	1–5	3.3	0.90
Liver cancer	99	1–5	4.4	0.82
Lung cancer	97	1–5	3.6	0.92
Prostate cancer	96	1–5	2.9	0.75
Stomach cancer	98	1–5	4.3	0.81

[a]The scale ranged from 1 to 5, where 1 is lower risk, 3 is same risk, and 5 is higher risk.
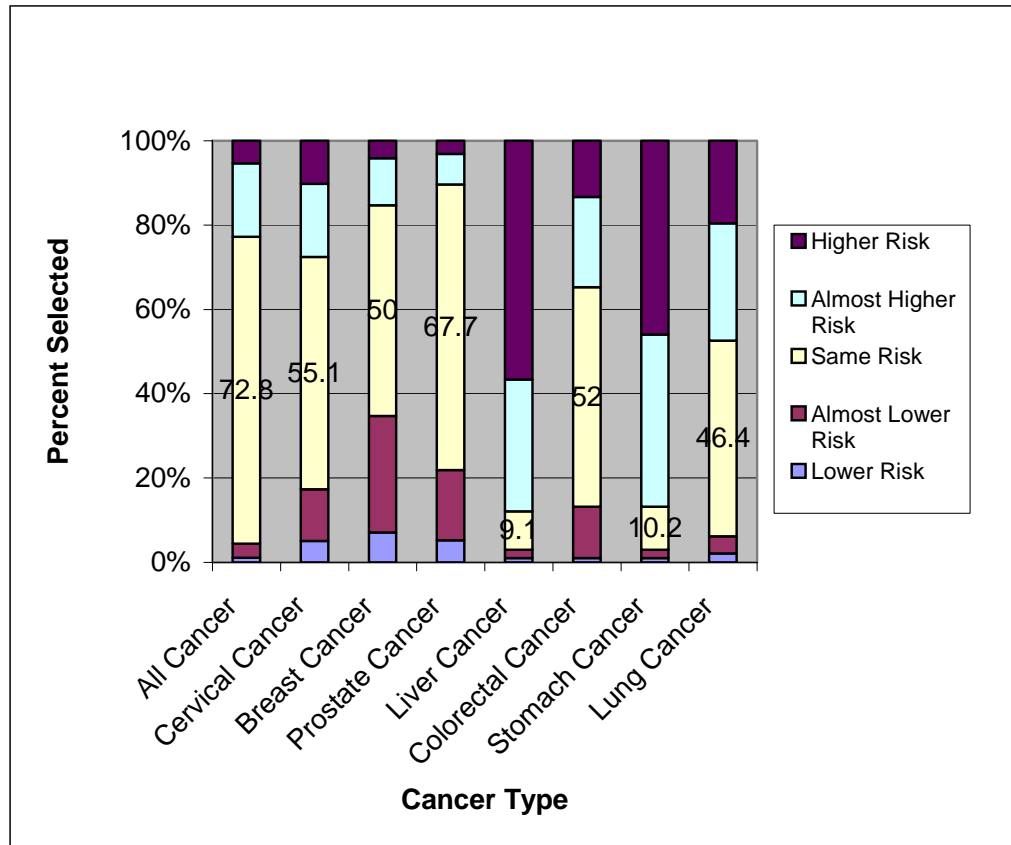
Figure 11. **Frequency (Percent) of physician perceptions of Asian cancer risk compared to the general population, by cancer type.**

Physician perceptions of Asian cancer risks according to the mean scale score were compared to site-specific cancer incidence statistics from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Cancer Statistics Review (1975–2003) (National Cancer Institute, 2006). Odds ratios, operationally defined as the ratio of cancer incidence rate in Asians to the cancer incidence rate in all races, were computed by dividing the cancer incidence rate in Asians by the total population incidence rate for that cancer type. As shown in Table 13, liver and stomach cancers were ranked first and second, respectively. However, the physician perceived risk of lung, cervical, and breast cancer among Asians was different from the odds ratio.

Breast and cervical cancer were perceived a lower risk than the actual risk, and lung

cancer was perceived a higher risk than the actual risk.

Table 13
Odds Ratios of Select Cancers in Asian Populations by
Cancer Type

Cancer type	Incidence[a]		Odds ratio[b]
	All races	Asian[c]	
Liver cancer	6.0	13.8	2.30
Stomach cancer	8.1	14.4	1.80
Cervical cancer	8.8	8.2	0.93
Colorectal cancer	52.4	42.4	0.81
Breast cancer	129.1	88.6	0.69
Lung cancer	64.8	39.6	0.61
Prostate cancer	170.3	96.8	0.57

[a]Age-adjusted incidence rate of site-specific cancer during 2000–2003 and presented as rate per 100,000 persons (source: National Cancer Institute, SEER data). [b]Odds ratio was computed as the Asian incidence rate divided by the incidence rate for all races, multiplied by 100. [c]Includes Pacific Islanders.

Asian physician perceptions of Asian cancer risk as compared to the general

population were compared to non-Asian physicians to examine any physician differences.

As shown in Table 14, the mean scale scores of physician perception of Asian cancer risk

were similar between Asian and non-Asian physicians. Asian physicians viewed breast

cancer slightly higher risk than non-Asian physicians, however both mean scores

indicated a perception of a slightly lower risk among Asians compared to the general

population. Another noticeable difference in means scores was observed between Asian

and non-Asian physicians as non-Asian physicians viewed stomach cancer as a higher

risk (0.39 mean difference) and liver cancer as a higher risk (0.19 mean difference) as

compared to perceptions by Asian physicians.

Table 14

Summary of Physician Perceptions of Asian Cancer Risk as Compared to the General Population by Asian and Non-Asian Physicians

Cancer type	Asian		Non-Asian[b]	
	N	Mean[a] (SD)	N	Mean[a] (SD)
All cancer	57	3.21 (0.56)	35	3.26 (0.78)
Breast cancer	61	2.93 (0.91)	36	2.53 (0.81)
Cervical cancer	61	3.16 (1.02)	36	3.14 (0.83)
Colorectal cancer	62	3.37 (0.93)	35	3.29 (0.86)
Liver cancer	62	4.29 (0.80)	36	4.58 (0.84)
Lung cancer	60	3.55 (0.89)	36	3.61 (0.96)
Prostate cancer	60	2.87 (0.85)	35	2.86 (0.55)
Stomach cancer	61	4.15 (0.75)	36	4.56 (0.84)

[a]The scale ranged from 1 to 5, where 1 is lower risk, 3 is same risk, and 5 is higher risk.
[b]Non-Asian included White, African American, and Latino physicians.

RESEARCH QUESTION 2: FACTORS ASSOCIATED WITH CANCER SCREENING RECOMMENDATIONS

The second research question of this study asked, "What factors are associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations?" This study hypothesized that there was a significant relationship between individual components of the theoretical constructs and the occurrence of physician recommendations to Asian patients. It also was hypothesized that there was a significant aggregate relationship between motivation, ability to process information, and peripheral cues (theoretical constructs of the Elaboration Likelihood Model) and the occurrence of physician cancer screening recommendations to Asian patients. The survey assessed items related to each of the individual components of the theoretical model: motivation, ability to process, and peripheral cues.

MOTIVATION COMPONENTS

As discussed earlier in chapter 3, motivation in this exploratory study consisted of four conceptual components: physician perception of personal relevance, physician perception of personal responsibility, physician perception of screening recommendation relevance to patient, and physician perception of capacity to deliver effective recommendations to Asian patients. The four conceptual components were divided into subcomponents and were assessed through scales and questions in the survey.

Physician Perception of Personal Relevance

This conceptual component was measured by three subcomponents: perceived risk, personal significance, and follow guidelines. The following sections present the findings for each of these subcomponents.

Perceived Risk. Physicians were asked to rate their beliefs of relative cancer risks for Asians as compared to the general population, on the basis of a 5-point scale (1, lower; 3, same; 5, higher). As shown previously in Table 12, perceived cancer risk among Asians for all cancer had a mean score of 3.2. Liver cancer (4.4) and stomach cancer (4.3) had the highest perceived cancer risk among Asians by the physicians. Breast cancer (2.8) and prostate cancer (2.9) were reported as having the lowest perceived Asian cancer risk. Cervical cancer had the largest degree of variability ($SD = 0.95$), and the category of all cancer had the smallest variability ($SD = 0.65$).

Personal Significance. Physicians were asked to rate their level of agreement to statements assessing personal significance. Two items displayed in Table 15 assessed

personal significance: "I find it personally significant to educate my patients on the importance of cancer screening," and "I find it personally significant to educate my patients on the importance of smoking cessation." The mean scale scores were 4.6 and 4.7, respectively, with the same variability ($SD = 0.77$), which indicates that the physicians were in strong agreement with these statements.

Although the statement assessing physicians' intentions to make persuasive arguments for their Asian patients to get recommended cancer screenings was not related to a theoretical component, it was assessed for practical inquiry. Intentions to make persuasive arguments for Asian patients to get recommended cancer screenings had the lowest mean score (4.4) and the highest degree of variability ($SD = 0.99$).

Table 15
Agreement of Physician Views on Personal Significance and Responsibility to Cancer Control

Statement	N	Range[a]	Mean	SD
I consider it my responsibility as a physician to make cancer screening recommendations to my patients.	99	1–5	4.7	0.70
I find it personally significant to educate my patients on the importance of cancer screening.	99	1–5	4.6	0.77
I find it personally significant to educate my patients on the importance of smoking cessation.	99	1–5	4.7	0.77
I intend to make persuasive arguments for my Asian patients to get recommended cancer screenings.	99	1–5	4.4	0.99

[a]The scale ranged from 1 (strongly disagree) to 5 (strongly agree).

Follow Guidelines. Physicians were asked to rate how often they followed organizational cancer screening guidelines. As shown in Table 16, cancer screening guidelines presented by the American Cancer Society had the highest mean score (4.0); followed closely by the specific academy, college, or society the physician was affiliated with (3.9). The National Cancer Institute received the lowest mean score (3.4). The variability of scores was high among all of the scores, with a range of standard deviations from 1.14 to 1.32.

Table 16

Summary of Frequency of Following Organizational Cancer Screening Guidelines

Organization	*N*	Range[a]	Mean	*SD*
National Cancer Institute	86	1–5	3.4	1.32
American Cancer Society	94	1–5	4.0	1.14
American Medical Association	87	1–5	3.5	1.27
Academy/College/Society	87	1–5	3.9	1.27
Guide to Clinical Preventive Services	88	1–5	3.6	1.25

[a]The scale ranged from 1 (never) to 5 (always).

Physician Perception of Personal Responsibility

This conceptual component was measured by a single subcomponent: physician responsibility. The following section presents the findings for this subcomponent.

Physician Responsibility. Physicians were asked to rate their level of agreement to the following statement: "I consider it my responsibility as a physician to make cancer screening recommendations to my patients." The scale score mean of 4.7, displayed previously in Table 15, demonstrates that the physicians were in strong agreement with the statement.

Physician Perception of Screening Recommendation Relevance to the Patient

This conceptual component was measured by four subcomponents: patient context, recommendation importance, recommendation rationale, and patient responsibility. The following sections present the findings for each of these subcomponents.

Patient Context. The survey asked physicians to rate how often they provided screening recommendations in the context of the patient (e.g., medical history, patient background). The scale score mean of 4.5 (Table 17) indicates that the physicians almost always provided screening recommendations in the context of the patient.

Recommendation Importance. Physicians were asked to rate how often they emphasized the importance of the screening recommendation. The scale score mean of 4.7 (Table 17) indicates that the physicians almost always emphasized the importance of the screening recommendation. The variability ($SD = 0.53$) of the scale score mean was the lowest among the four subcomponents.

Recommendation Rationale. Physicians were asked to rate how often they provided a rationale for the screening recommendation. The scale score mean of 4.5 (Table 17) indicates that the physicians provided a rationale for the screening recommendation almost all of the time. Further, this subcomponent had a greater degree of variability, with the standard deviation being 0.74.

Patient Responsibility. Physicians were asked to rate how often they explained that getting screenings is a responsibility of the patient. The scale score mean was 4.0 (Table 17), indicating that this statement was communicated most of the time; however, of the four subcomponents, this had the lowest mean score. Further, this subcomponent exhibited the greatest variability, with a standard deviation of 1.14.

Table 17

Agreement of Screening Recommendation Communication Process

Statement	N	Range[a]	Mean	SD
Provide screening recommendations in context of the patient (e.g., medical history, background)	100	3–5	4.5	0.66
Emphasize the importance of the screening recommendation	100	3–5	4.7	0.53
Provide rationale for the screening recommendation	100	1–5	4.5	0.74
Explain that getting screening is a responsibility of the patient	100	1–5	4.0	1.14

[a]The scale ranged from 1 (never) to 5 (always).

Physician Perceived Capacity to Deliver Effective Recommendations to Asian Patients

This conceptual component was measured by a single subcomponent: cultural competency. The following section presents the findings for this subcomponent.

Cultural Competency. Physicians were asked to rate their level of confidence to a set of statements that assessed cultural competency. As shown in Table 18, feeling comfortable interacting with people of diverse backgrounds had the highest mean score (4.4), and effectively use an unskilled interpreter to interview or counsel a patient had the lowest mean score (3.3), as well as the largest variability in scores ($SD = 1.14$). Overall, the sample of physicians reported being confident in areas pertaining to cultural competency.

Table 18

Summary of Cultural Competency Findings

Statement	*N*	Range[a]	Mean	*SD*
Accurately define and describe the difference between culture, ethnicity, and race	99	1–5	3.8	0.99
Feel comfortable interacting with people of diverse backgrounds	100	2–5	4.4	0.72
Accurately explain the difference between a stereotype and an assumption	99	2–5	4.0	0.79
Recognize assumptions you have or make about different groups of people	99	2–5	3.9	0.81
Identify the influence of stereotypes on your thoughts, feelings, and behaviors toward different groups of people while providing patient education	99	2–5	3.9	0.77
Accurately list and describe elements of culturally competent health care	99	1–5	3.6	0.90
Elicit a patient's perspective of illness during a patient encounter	99	2–5	3.8	0.74
Effectively counsel a patient from a background different from your own	100	2–5	3.9	0.81
Effectively use an unskilled interpreter to interview or counsel a patient	100	1–5	3.3	1.14
Effectively use a skilled interpreter to interview or counsel a patient	100	2–5	4.3	0.72

[a]The scale ranged from 1 (not at all confident) to 5 (extremely confident).

ABILITY TO PROCESS COMPONENTS

As discussed in chapter 3, ability to process components in this exploratory study consisted of two conceptual components: physician distractions to providing recommendations and physician perception of patient distractions. These two conceptual components were divided into subcomponents and assessed through scales and questions in the survey.

Physician Distractions to Providing Recommendations

This conceptual component was measured by three subcomponents: barriers frequency, barriers significance, and barriers difficulty. The following sections present the findings for each of these subcomponents.

Barriers Frequency. The survey asked physicians to rate the frequency of encountering barriers in communicating with their Asian patients regarding cancer screenings. As shown in Table 19, patient seen for different reason was the most frequently encountered barrier by physicians when communicating with their Asian patients regarding cancer screening, with a mean score of 2.8. Lack of confidence in ability to communicate cancer screening information was the least frequent barrier encountered, with a scale score mean of 1.5. Insufficient compensation was reported to have the most variability ($SD = 1.34$) among all barriers assessed in barrier frequency, and lack of confidence had the least variability ($SD = 0.66$) of all barriers examined.

Barriers Significance. Physicians were asked to rate the significance of barriers that they encountered in communicating with their Asian patients regarding cancer screenings. As shown in Table 19, lack of time, patient refusal, and patient seen for different reason were reported to have the highest mean score (2.6) for significance of barriers. Lack of confidence in ability to communicate cancer screening information was the least significant of all barriers (mean score of 1.5). Lack of time was reported to have the most variability ($SD = 1.42$) among all barriers assessed, and lack of confidence had the least variability ($SD = 0.84$) of all of barriers.

Barriers Difficulty. Physicians were asked to rate how easy or difficult it was to deal with the barriers they encountered in communicating with their Asian patients regarding cancer screenings. As shown in Table 19, patient refusal was the most difficult (mean score of 2.7) of all barriers to counter when communicating with their Asian patients regarding cancer screening. Lack of confidence in ability to communicate cancer screening information was the least difficult barrier, with a scale score mean of 1.4.

Patient refusal was reported to have the most variability ($SD = 1.33$) among all barriers

assessed in regard to barrier difficulty. Lack of confidence had the least variability ($SD = $

0.75) of all barriers.

Table 19
Summary of Barrier Frequency, Significance, and Difficulty in Communicating with
Asian Patients about Cancer Screening

Barrier	Type	*N*	Range	Mean	*SD*
Language difficulty	Frequency[a]	97	1–5	2.3	1.15
	Significance[b]	98	1–5	2.2	1.39
	Difficulty[c]	98	1–5	2.0	1.10
Lack of time	Frequency[a]	99	1–5	2.6	1.23
	Significance[b]	98	1–5	2.6	1.42
	Difficulty[c]	97	1–5	2.4	1.30
Lack of knowledge of guideline	Frequency[a]	99	1–5	1.6	0.87
	Significance[b]	98	1–5	1.7	1.06
	Difficulty[c]	98	1–5	1.7	0.93
Insufficient compensation	Frequency[a]	97	1–5	2.1	1.34
	Significance[b]	97	1–5	2.0	1.29
	Difficulty[c]	97	1–5	2.0	1.18
No reminder system	Frequency[a]	95	1–5	2.5	1.18
	Significance[b]	98	1–5	2.3	1.18
	Difficulty[c]	96	1–5	2.1	1.11
Patient refusal	Frequency[a]	99	1–5	2.7	0.98
	Significance[b]	98	1–5	2.6	1.24
	Difficulty[c]	98	1–5	2.7	1.33
Intervention against patient's cultural beliefs	Frequency[a]	98	1–5	2.2	1.01
	Significance[b]	97	1–5	2.3	1.09
	Difficulty[c]	98	1–5	2.2	1.11
Patient seen for different reason	Frequency[a]	95	1–5	2.8	0.90
	Significance[b]	92	1–5	2.6	1.04
	Difficulty[c]	95	1–5	2.5	1.17
Lack of confidence in your ability to communicate cancer screening information	Frequency[a]	99	1–3	1.5	0.66
	Significance[b]	98	1–5	1.5	0.84
	Difficulty[c]	98	1–4	1.4	0.75

[a]The scale ranged from 1 (never) to 5 (always). [b]The scale ranged from 1 (not significant) to 5 (very significant). [c]The scale ranged from 1 (not difficult at all) to 5 (very difficult).

Physician Perception of Patient Distractions

This conceptual component was measured by three subcomponents: patient barriers, patient self-efficacy, and physician suggestions. The following sections present the findings for each of these subcomponents.

Patient Barriers. Physicians reported on what barriers they believed that Asian patients have encountered to get cancer screening. As shown in Figure 12, lack of knowledge was the most cited ($N = 82$) patient barrier to cancer screening perceived by physicians, followed by not having health insurance ($N = 74$) and language problem ($N = 67$). Not having transportation ($N = 17$) and screening against cultural beliefs ($N = 15$) were the least selected patient barriers to cancer screening as perceived by physicians.
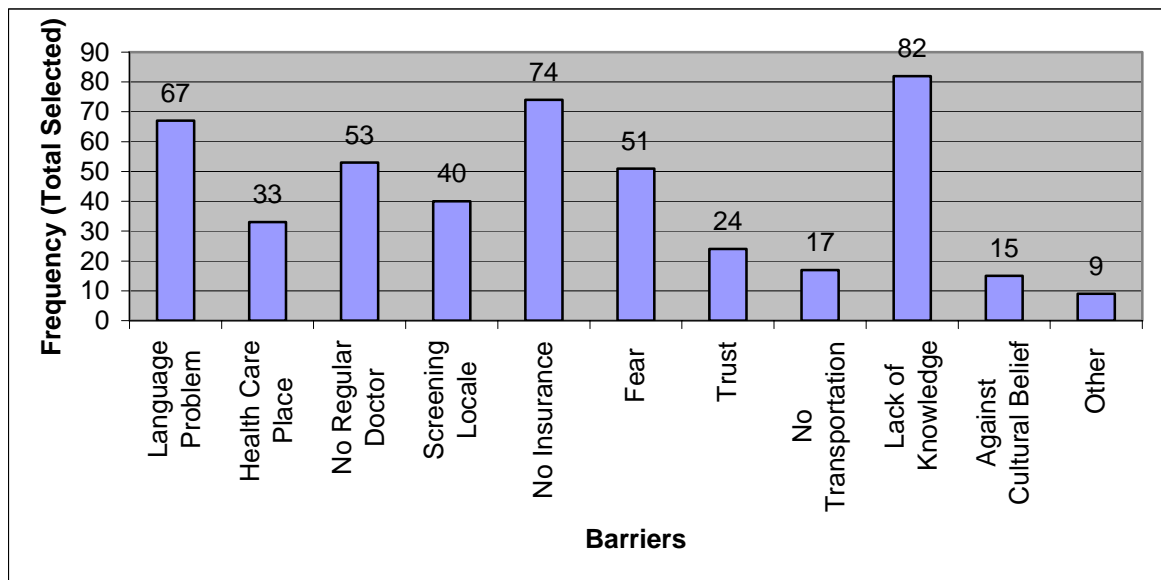
Figure 12. **Frequency (Total Selected) of Asian patient barriers encountered to get cancer screening, as perceived by physicians.**

Patient Self-Efficacy. Physicians were asked to rate how often they assess their patient's self-efficacy for getting screening. As shown in Table 20, assessing the patient's self-efficacy for getting screening had a lower mean score (3.7) than the compared subcomponent of physician suggestions. Assessing the patient's self-efficacy for getting screening and explaining that getting screening is a responsibility of the patient exhibited great variability, with a standard deviation of 1.16.

Physician Suggestions. Physicians were asked to rate how often they suggested ways to help their patient with getting screening. As shown in Table 20, on the basis of the average scale score, physicians almost always (scale score mean of 4.2) suggested ways to help their patients get screening.

Table 20
Agreement of Patient Self-Efficacy Assessment and Physician Suggestions

Statement	N	Range[a]	Mean	SD
Assess the patient self-efficacy (patient's confidence in ability) for getting screening	100	1–5	3.7	1.16
Suggest ways to help patient with getting screening	100	1–5	4.2	0.84

[a]The scale ranged from 1 (never) to 5 (always).

PERIPHERAL CUES COMPONENT

As discussed in chapter 3, the peripheral cues component in this exploratory study consisted of one conceptual component: physician perception of patient views of source credibility of the physician.

Physician Perception of Patient Views of Source Credibility of the Physician

This conceptual component was measured by one subcomponent: physician perception. The following section presents the findings for this subcomponent.

Physician Perception. Physicians were asked to rate their level of agreement to statements that reflected their perception of patient perceptions of the physician as motivators to act on their medical advice. As shown in Table 21, the perception of the physician as credible and trustworthy had the highest mean score of all statements (4.5), and the perception of the physician as an expert on cancer control and prevention had the lowest mean score (3.8). The variability in scores was highest among perception of the physician as an expert on cancer control and prevention ($SD = 1.03$).

Table 21
Agreement of Statements on Patient Perception of Physician

Statement	N	Range[a]	Mean	SD
Perceive you as knowledgeable on cancer control and prevention issues	100	2–5	4.3	0.74
Perceive you as trustworthy	100	2–5	4.5	0.69
Perceive you as credible	100	2–5	4.5	0.67
Perceive you as an expert on cancer control and prevention	100	1–5	3.8	1.03

[a]The scale ranged from 1 (strongly disagree) to 5 (strongly agree).

CORRELATIONS

Scale score averages from each component of the theoretical constructs were examined as predictors of the outcome of physician recommendations. Table 22 shows a bivariate correlation matrix of the independent variables (see Table 1). The correlation between personal significance and physician responsibility was the strongest, with a significant correlation of 0.896 ($p < .001$). The correlation between barriers significance and barriers difficulty had the second strongest correlation ($r = .752$, $p < .001$), followed by the correlation between barriers frequency and barriers difficulty ($r = .747$, $p < .001$). The correlation between barriers difficulty and physician perception had the strongest negative correlation ($r = -.388$, $p < .001$). All of these correlations were statistically

significant. Cultural competence was significantly correlated with the most independent variables (12), followed by patient context (9) and physician perception (9). Barriers difficulty had the most negative correlations (11, with 4 of them being significant), followed by barriers significance (9) and barriers frequency (8).

Table 22

Correlation Matrix of Individual Theoretical Construct Components

	PS	PR	FG	PhR	PC	RI	RR	PtR	CC	BF	BS	BD	PtB	PSE	PhS	PP
PS	1	.049	.120	.896***	.032	.070	.006	.015	.203*	.045	.001	-.063	.194	.017	-.007	.103
PR		1	.083	-.013	.198	.191	.198	.097	.225*	.158	.062	.106	.124	.169	.190	.091
FG			1	.078	.291**	.127	.098	.185	.295**	-.105	-.055	-.026	.059	.311**	.310**	.167
PhR				1	.092	.115	.064	-.005	.124	.048	.019	-.031	.256*	.033	-.015	.056
PC					1	.614***	.436***	.275**	.327**	-.133	-.132	-.223*	-.005	.410***	.490***	.298**
RI						1	.513***	.252*	.327**	-.017	-.079	-.172	.045	.353***	.527***	.354***
RR							1	.378***	.307**	.046	-.046	-.129	.047	.491***	.514***	.325**
PtR								1	.341**	-.138	-.196	-.286**	.028	.263**	.322**	.144
CC									1	-.196	-.254*	-.238*	.061	.251*	.291**	.430***
BF										1	.720***	.747***	.239*	-.138	-.093	-.275**
BS											1	.752***	.302**	-.185	-.118	-.284**
BD												1	.380***	-.190	-.130	-.388***
PtB													1	.082	.038	-.066
PSE														1	.655***	.340**
PhS															1	.359***
PP																1

Note. PS = personal significance; PR = perceived risk; FG = follow guidelines; PhR = physician responsibility; PC = patient context; RI = recommendation importance; RR = recommendation rationale; PtR = patient responsibility; CC = cultural competence; BF = barriers frequency; BS = barriers significance; BD = barriers difficulty; PtB = patient barriers; PSE = patient self-efficacy; PhS = physician suggestion; PP = physician perception.

*p < .05. **p < .01. ***p < .001.

UNIVARIATE AND MULTIVARIATE ANALYSES

Univariate models were analyzed to examine relationships between each individual predictor variable (see Table 1) and each dependent variable. The dependent variables were the occurrence of cancer screening recommendation by the different cancer types (e.g., cervical cancer, breast cancer). The occurrence of risk factor screenings (e.g., hepatitis B, smoking cessation counseling) for two types of cancers—liver cancer and lung cancer—also were assessed. These risk factor screenings were examined specifically because of their possible immediate disease interventions available (e.g., hepatitis B vaccination, smoking cessation) to prevent further development of organ-specific cancers. Cigarette smoking has been associated with lung cancer and high smoking rates exist among Asian Americans (Ma et al., 2005). Hepatitis B is a major risk factor to developing liver cancer (National Cancer Institute, 2007a) and it causes approximately 80% of the liver cancer cases among Asian Americans (Asian Liver Center, 2005). Multiple linear regressions were computed to identify the most significant predictors associated with the occurrence of cancer screening recommendations. Significant predictor variables identified in the univariate analysis were initially entered into the analytical model. To control for multicollinearity, SAS was used to assess the R^2 values of the independent variables that were highly correlated, and the adjusted R^2 selection method and the best independent variables identified from the analysis were used in the multivariate analysis. The adjusted R^2 selection method analysis with SAS software identifies the best independent variables to enter into the multivariate analysis. The R^2 selection method analyzes the impact of all independent variables in the analytical model and prioritizes variable model selections according to their adjusted R^2 values.

Normality probability plots and histograms were assessed to ensure the normality of residual error and to ensure that homoscedasticity assumptions were met. The following sections provide univariate and multivariate results by specific preventive screenings.

Breast Cancer Screening

The univariate analyses resulted in no significant independent variables. As shown in Table 23, the variables of barriers frequency, barriers significance, and barriers difficulty all had a negative impact toward the occurrence of breast cancer screening recommendations, but these findings were not significant. A multivariate analysis was not computed because the univariate analysis did not identify any significant independent variables.

Table 23
Correlates of Occurrence of Breast Cancer Screening Recommendations:
Univariate Results

Independent variable	Coefficient	SE	β	p
Personal significance	.054	.045	.123	.230
Perceived risk	.079	.065	.125	.226
Follow guidelines	.052	.037	.142	.165
Physician responsibility	.061	.046	.135	.189
Patient context	.076	.048	.162	.114
Recommendation importance	.095	.060	.160	.118
Recommendation rationale	.083	.042	.199	.051
Patient responsibility	.049	.027	.180	.078
Cultural competency	.069	.057	.124	.225
Barriers frequency	-.044	.051	-.088	.389
Barriers significance	-.028	.043	-.068	.513
Barriers difficulty	-.059	.046	-.131	.202
Patient barriers	.001	.013	.010	.926
Patient self-efficacy	.039	.027	.147	.152
Physician suggestions	.067	.038	.180	.078
Physician perception	.086	.047	.186	.068

Cervical Cancer Screening

Univariate results indicated three significant ($p < .05$) independent variables for the occurrence of cervical cancer screening. As shown in Table 24, results from the regression coefficients indicated that, independently, the variable of follow guidelines, recommendation rationale, and physician suggestions were positive and significant in relation to cervical cancer screening recommendation occurrence.

Table 24
Correlates of Occurrence of Cervical Cancer Screening Recommendations: Univariate and Multivariate Results

Independent variable	Coefficient	SE	β	p
Univariate results				
Personal significance	.082	.061	.138	.183
Perceived risk	.051	.089	.059	.572
Follow guidelines[a]	.116	.050	.235	.022
Physician responsibility	.073	.063	.118	.253
Patient context	.057	.066	.089	.390
Recommendation importance	.036	.083	.045	.665
Recommendation rationale[a]	.118	.057	.210	.041
Patient responsibility	.018	.038	.048	.643
Cultural competency	.033	.078	.044	.671
Barriers frequency	.033	.071	.048	.646
Barriers significance	.039	.058	.069	.510
Barriers difficulty	.027	.064	.043	.678
Patient barriers	.023	.018	.133	.199
Patient self-efficacy	.057	.037	.158	.126
Physician suggestions[a]	.134	.050	.265	.010
Physician perception	.117	.064	.186	.071
Multivariate results[b]				
Follow guidelines	.086	.051	.176	.092
Physician suggestions[a]	.110	.052	.218	.038
Constant	4.110	.252	—	.000

[a]These variables are significant ($p < .05$). [b]Model fit using Enter method regression, $R^2 = 0.10$, adj. $R^2 = 0.08$, $F(2, 91) = 5.01$, $p < .05$.

Two of the significant independent variables identified from the univariate analysis were highly correlated. The selected independent variables were entered simultaneously into the model using the Enter method. Controlling for all other factors,

results from the partial regression coefficients indicated that the variable of physician suggestions was positive and significant in relation to cervical cancer screening recommendation occurrence. This result indicated that the ability to process factor of suggesting ways to help patients with getting screening (physician suggestions) contributed to the occurrence of cervical cancer screening recommendations made by the physicians to their Asian female patients. This overall model accounted for 8% of the variance in cervical cancer screening occurrence.

Colorectal Cancer Screening

Univariate results indicated five significant ($p < .05$) independent variables for the occurrence of colorectal cancer screening recommendations. As shown in Table 25, results from the regression coefficients indicated that, independently, the variables of personal significance, follow guidelines, and physician perception were positive and significant in relation to colorectal cancer screening recommendation occurrence. The following variables contributed to a decrease in occurrence of colorectal cancer screening recommendations: barriers frequency and barriers difficulty.

Table 25

Correlates of Occurrence of Colorectal Cancer Screening Recommendations: Univariate and Multivariate Results

Independent variable	Coefficient	*SE*	β	*p*
Univariate results				
Personal significance[a]	.268	.124	.216	.033
Perceived risk	.125	.184	.070	.500
Follow guidelines[a]	.270	.102	.262	.010
Physician responsibility	.112	.131	.087	.394
Patient context	.220	.134	.166	.104
Recommendation importance	.020	.171	.012	.907
Recommendation rationale	.124	.120	.105	.305
Patient responsibility	.072	.078	.093	.363
Cultural competency	.211	.159	.135	.188
Barriers frequency[a]	-.293	.142	-.207	.042
Barriers significance	-.225	.118	-.193	.060
Barriers difficulty[a]	-.393	.124	-.311	.002
Patient barriers	-.026	.037	-.071	.489
Patient self-efficacy	.091	.077	.122	.236
Physician suggestions	.094	.108	.089	.385
Physician perception[a]	.283	.131	.217	.033
Multivariate results[b]				
Personal significance	.214	.118	.172	.075
Barriers difficulty[a]	-.372	.119	-.294	.002
Follow guidelines[a]	.216	.099	.210	.031
Constant	3.450	.672	—	.000

[a]These variables are significant ($p < .05$). [b]Model fit using Enter method regression, $R^2 = 0.183$, adj. $R^2 = 0.156$, $F(3, 92) = 6.85$, $p < .001$.

Several significant independent variables identified from the univariate analysis were highly correlated. The SAS R^2 selection method identified three variables to be entered into the multivariate model. Controlling for all other factors, results from the partial regression coefficients indicated that the follow guidelines variable was positive and significant in relation to colorectal cancer screening recommendation occurrence. The variable of barriers difficulty was negative and significant in relation to colorectal cancer screening recommendation occurrence. This result indicated that the motivation factor of following organizational screening guidelines (follow guidelines) contributed to the occurrence of colorectal cancer screening recommendations made by the physicians to their Asian patients. However, the ability to process factor of physician perceived

ability to deal with barriers (barriers difficulty) negatively affected the occurrence of

colorectal cancer screening recommendations. Generally, the more difficult it is for the

physician to deal with barriers, the less likely the colorectal cancer screening

recommendation will occur. This overall model accounted for 15.6% of the variance in

colorectal cancer screening recommendation occurrence.

Hepatitis B Screening

Univariate results indicated four significant ($p < .05$) independent variables for the

occurrence of hepatitis B screening recommendation. As shown in Table 26, results from

the regression coefficients indicated that, independently, the variables of follow

guidelines, recommendation rationale, patient self-efficacy, and physician suggestions

were positive and significant in relation to hepatitis B screening recommendation

occurrence.

Table 26

Correlates of Occurrence of Hepatitis B Screening Recommendations: Univariate and Multivariate Results

Independent variable	Coefficient	SE	β	p
Univariate results				
Personal significance	-.223	.149	-.152	.138
Perceived risk	.102	.226	.047	.653
Follow guidelines[a]	.338	.122	.275	.007
Physician responsibility	-.143	.154	-.095	.356
Patient context	.175	.165	.109	.290
Recommendation importance	.270	.206	.134	.194
Recommendation rationale[a]	.318	.143	.223	.029
Patient responsibility	.071	.096	.077	.458
Cultural competency	-.225	.191	-.121	.241
Barriers frequency	.132	.176	.077	.456
Barriers significance	.083	.144	.059	.567
Barriers difficulty	.211	.154	.140	.175
Patient barriers	.004	.046	.009	.931
Patient self-efficacy[a]	.308	.089	.336	.001
Physician suggestions[a]	.446	.123	.349	.000
Physician perception	.033	.165	.021	.841
Multivariate results[b]				
Follow guidelines	.207	.124	.168	.098
Patient self-efficacy	.162	.119	.176	.176
Physician suggestions	.242	.162	.190	.139
Constant	1.680	.608	—	.007

[a]These variables are significant ($p < .05$). [b]Model fit using Enter method regression, $R^2 = 0.176$, adj. $R^2 = 0.148$, $F(3, 91) = 6.46$, $p < .01$.

Several significant independent variables identified from the univariate analysis were highly correlated. The SAS R^2 selection method identified three variables to be entered into the multivariate model. Controlling for all other factors, results from the partial regression coefficients indicated that none of the three variables that were entered in the model (follow guidelines, patient self-efficacy, and physician suggestions) were positive and significant in relation to hepatitis B screening recommendation occurrence. However, on the basis of the univariate findings, the motivation factors of following organizational screening guidelines (follow guidelines) and providing a rationale for screening recommendations (recommendation rationale), as well as ability to process factors of assessing a patient's self-efficacy for getting screening (patient self-efficacy)

and suggesting ways to help patient with getting screening (physician suggestions), contributed to the occurrence of hepatitis B screening recommendations made by the physicians to their Asian patients. This overall model accounted for 14.8% of the variance in hepatitis B screening recommendation occurrence.

Prostate Cancer Screening

Univariate results indicated six significant ($p < .05$) independent variables for the occurrence of prostate cancer screening recommendations. As shown in Table 27, results from the regression coefficients indicated that, independently, the variables of follow guidelines, patient context, recommendation rationale, patient self-efficacy, and physician perception were positive and significant in relation to prostate cancer screening recommendation occurrence. The regression coefficients indicated that the variable of barriers difficulty was negative and significant in relation to prostate cancer screening recommendation occurrence.

Table 27

Correlates of Occurrence of Prostate Cancer Screening Recommendations: Univariate and Multivariate Results

Independent variable	Coefficient	*SE*	β	*p*
Univariate results				
Personal significance	.304	.230	.151	.190
Perceived risk	.011	.338	.004	.975
Follow guidelines[a]	.405	.169	.266	.019
Physician responsibility	.044	.237	.021	.854
Patient context[a]	.588	.218	.298	.009
Recommendation importance	.378	.274	.157	.172
Recommendation rationale[a]	.517	.186	.306	.007
Patient responsibility	.177	.129	.156	.174
Cultural competence	.137	.276	.057	.621
Barriers frequency	-.487	.247	-.222	.052
Barriers significance	-.192	.201	-.111	.342
Barriers difficulty[a]	-.458	.216	-.239	.037
Patient barriers	-.046	.064	-.083	.475
Patient self-efficacy[a]	.278	.127	.245	.032
Physician suggestions	.295	.176	.190	.098
Physician perception[a]	.642	.231	.305	.007
Multivariate results[b]				
Follow guidelines[a]	.339	.164	.223	.042
Barriers difficulty	-.385	.207	-.201	.067
Recommendation rationale[a]	.435	.183	.257	.020
Constant	1.780	1.120	—	.116

[a]These variables are significant ($p < .05$). [b]Model fit using Enter method regression, $R^2 = 0.184$, adj. $R^2 = 0.150$, $F(3, 71) = 5.34$, $p < .01$.

Several significant independent variables identified from the univariate analysis were highly correlated. The SAS R^2 selection method identified three variables to be entered into the multivariate model. Controlling for all other factors, results from the partial regression coefficients indicated that the variables of follow guidelines and recommendation rationale were positive and significant in relation to prostate cancer screening recommendation occurrence. This indicated that the motivation factors of following organizational screening guidelines (follow guidelines) and providing a rationale for screening recommendations (recommendation rationale) contributed to the occurrence of prostate cancer screening recommendations made by the physicians to their

Asian patients. This overall model accounted for 15.0% of the variance in prostate cancer screening recommendation occurrence.

Smoking Cessation Counseling

Univariate results indicated only one significant ($p < .05$) independent variable for the occurrence of smoking cessation counseling recommendations. As shown in Table 28, results from the regression coefficients indicated that, independently, the variable of recommendation rationale was positive and significant in relation to the occurrence of smoking cessation counseling recommendation. A multivariate analysis was not computed because the univariate analysis identified only one significant independent variable.

Table 28
Correlates of Occurrence of Smoking Cessation Counseling Recommendations: Univariate Results

Independent variable	Coefficient	SE	β	p
Personal significance	.106	.111	.097	.341
Perceived risk	.133	.165	.083	.421
Follow guidelines	.143	.090	.160	.117
Physician responsibility	.048	.114	.043	.672
Patient context	.129	.122	.108	.291
Recommendation importance	.170	.152	.113	.266
Recommendation rationale[a]	.347	.102	.328	.001
Patient responsibility	.097	.070	.141	.167
Cultural competence	.148	.140	.108	.292
Barriers frequency	.158	.129	.125	.222
Barriers significance	.071	.106	.069	.505
Barriers difficulty	-.048	.115	-.043	.676
Patient barriers	-.014	.034	-.042	.679
Patient self-efficacy	.062	.069	.091	.371
Physician suggestions	.125	.095	.133	.191
Physician perception	.068	.120	.058	.574

[a]These variables are significant ($p < .01$).

Stomach Cancer Screening

Univariate results indicated twelve significant ($p < .05$) independent variables for the occurrence of stomach cancer screening recommendations. As shown in Table 29, results from the regression coefficients indicated that, independently, the variables of follow guidelines, patient context, recommendation importance, recommendation rationale, patient responsibility, cultural competence, patient self-efficacy, physician suggestions, and physician perception were positive and significant in relation to stomach cancer screening recommendation occurrence. The following variables negatively affected the occurrence of stomach cancer screening recommendations: barriers frequency, barriers significance, and barriers difficulty. Generally, the more barriers encountered (frequency), the more significant the barriers (significance), and the more difficult it is for the physician to deal with barriers (difficulty), then the less likely the stomach screening recommendation will occur.

Table 29

Correlates of Occurrence of Stomach Cancer Screening Recommendations: Univariate and Multivariate Results

Independent variable	Coefficient	SE	β	p
Univariate results				
Personal significance	-.092	.217	-.046	.672
Perceived risk	.639	.339	.202	.063
Follow guidelines[a]	.490	.173	.294	.006
Physician responsibility	-.278	.225	-.133	.221
Patient context[a]	.625	.223	.291	.006
Recommendation importance[a]	.694	.284	.256	.017
Recommendation rationale[a]	.748	.189	.394	.000
Patient responsibility[a]	.378	.128	.304	.004
Cultural competence[a]	.697	.274	.266	.013
Barriers frequency[a]	-.796	.233	-.347	.001
Barriers significance[a]	-.583	.199	-.304	.004
Barriers difficulty[a]	-.821	.202	-.405	.000
Patient barriers	-.025	.067	-.041	.708
Patient self-efficacy[a]	.507	.124	.405	.000
Physician suggestions[a]	.597	.176	.346	.001
Physician perception[a]	.961	.215	.437	.000
Multivariate results[b]				
Follow guidelines	.236	.154	.146	.128
Barriers difficulty[a]	-.454	.201	-.227	.027
Recommendation rationale	.218	.200	.117	.280
Physician perception	.427	.218	.199	.054
Patient responsibility	.193	.126	.154	.128
Patient self-efficacy	.238	.130	.195	.070
Constant	-1.710	1.350	—	.207

[a]These variables are significant ($p < .05$). [b]Model fit using Enter method regression, $R^2 = 0.414$, adj. $R^2 = 0.369$, $F(6, 78) = 9.19$, $p < .001$.

Several significant independent variables identified from the univariate analysis were highly correlated. The SAS R^2 selection method identified three variables to be entered into the multivariate model. Controlling for all other factors, results from the partial regression coefficients indicated that the variable of barriers difficulty was negative and significant in relation to stomach cancer screening recommendation occurrence. This indicated that the ability to process factor of physician perceived ability to deal with barriers (barriers difficulty) negatively affected the occurrence of stomach cancer screening recommendations. This overall model accounted for 36.9% of the variance in stomach cancer screening recommendation occurrence.

RELATIONSHIP BETWEEN AGGREGATE THEORETICAL CONSTRUCTS AND SCREENING RECOMMENDATION OCCURRENCE

The aggregate relationship of the theoretical constructs of motivation, ability to process, and peripheral cues and the occurrence of physician cancer screening recommendations to Asian patients was examined. This study hypothesized that there was a significant aggregate relationship between motivation, ability to process information, and peripheral cues (theoretical constructs of the Elaboration Likelihood Model) and the occurrence of physician cancer screening recommendations to Asian patients. A bivariate correlation matrix of the aggregate constructs was computed (Table 30). Significant correlations were found between peripheral cues and both aggregate constructs of motivation and ability to process.

Table 30
Correlation Matrix of Aggregate Theoretical Construct Components

Aggregate construct	Motivation	Ability to process	Peripheral cues
Motivation	1	-.048	.402**
Ability to process	—	1	-.230*
Peripheral cues	—	—	1

*$p < .05$. **$p < .001$.

The univariate and multivariate models were analyzed to examine the relationships between the aggregate mean scale scores of each of the three theoretical constructs and each prevention screening type. As shown in Table 31, results from the regression coefficients indicated that, independently, the aggregate mean scores of motivation were positive and significant ($p < .05$) in relation to breast cancer, colorectal cancer, prostate cancer, and stomach cancer screening recommendation occurrence. Regression coefficients also indicated that, independently, the aggregate mean scores of ability to process were negative and significant ($p < .05$) in relation to colorectal cancer

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and stomach cancer screening recommendation occurrence. Regression coefficients also indicated that, independently, the aggregate mean scores of peripheral cues were positive and significant ($p < .05$) in relation to colorectal cancer, prostate cancer, and stomach cancer screening recommendation occurrence.

Table 31
Univariate Results of Aggregate Theoretical Constructs and Occurrence of Prevention Screening Recommendations, by Screening Type

Prevention screening	Coefficient	SE	β	p
Motivation				
Breast cancer[a]	.193	.081	.237	.019
Cervical cancer	.199	.112	.181	.080
Colorectal cancer[a]	.582	.227	.254	.012
Hepatitis B	.158	.287	.057	.583
Prostate cancer[a]	.853	.412	.232	.042
Smoking cessation	.408	.206	.198	.050
Stomach cancer[a]	1.541	.391	.393	.000
Ability to process				
Breast cancer	-.043	.054	-.081	.432
Cervical cancer	.071	.074	.099	.342
Colorectal cancer[a]	-.358	.149	-.240	.018
Hepatitis B	.258	.183	.144	.162
Prostate cancer	-.403	.257	-.178	.121
Smoking cessation	.085	.136	.063	.535
Stomach cancer[a]	-.787	.250	-.323	.002
Peripheral cues				
Breast cancer	.086	.047	.186	.068
Cervical cancer	.117	.064	.186	.071
Colorectal cancer[a]	.283	.131	.217	.033
Hepatitis B	.033	.165	.021	.841
Prostate cancer[a]	.642	.231	.305	.007
Smoking cessation	.068	.120	.058	.574
Stomach cancer[a]	.961	.215	.437	.000

[a]These variables are significant ($p < .05$).

Figure 13 presents a diagram of the significant univariate associations. Colorectal cancer screening and stomach cancer screening recommendation occurrence were significantly related to all three of the constructs at the aggregate level.
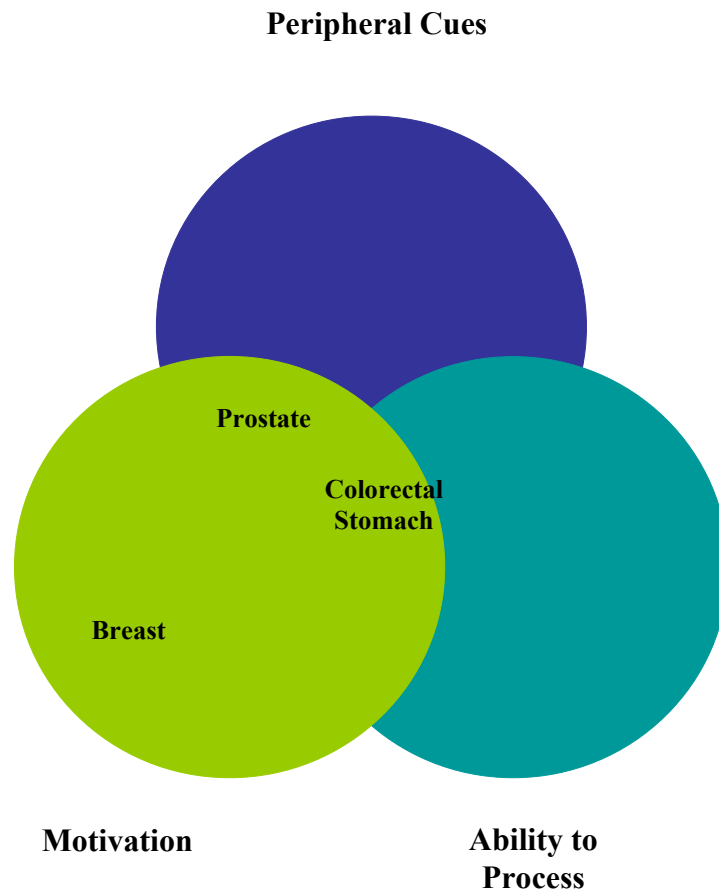
Peripheral Cues

Prostate

Colorectal
Stomach

Breast

Motivation   Ability to
                              Process

Figure 13.   **Diagram of univariate associations of the aggregate theoretical constructs and occurrence of preventions screening recommendations.**

Multiple linear regressions were computed to identify the most significant predictors associated with the occurrence of preventive screening recommendations. Each of the three aggregate theoretical constructs was entered simultaneously into the model using the Enter method. As shown in Table 32, with all other factors controlled for, results from the partial regression coefficients for the occurrence of colorectal cancer screening recommendations showed that motivation was positive and significant ($p < .05$) and ability to process was negative and significant ($p < .05$) in relation to colorectal

cancer screening recommendation occurrence. These results demonstrated that the theoretical construct of motivation contributed to colorectal cancer screening recommendation occurrence; however, the construct of ability to process decreased colorectal cancer screening recommendation occurrence.

In addition, with all other factors controlled for, results from the partial regression coefficients for the occurrence of stomach cancer screening recommendations showed that motivation and peripheral cues were positive and significant ($p < .05$) and ability to process was negative and significant ($p < .05$). For stomach cancer screening recommendation occurrence, motivation and peripheral cues were viewed as contributors to recommendation occurrence as opposed to ability to process, which was viewed as a negative impact to recommendation occurrence.

The overall models accounted for 9.5% of the variance in colorectal cancer screening recommendation occurrence and 28.8% of the variance in stomach cancer screening recommendation occurrence. There were no other significant aggregate construct regression coefficients for the other prevention screening occurrence types.

Table 32

Multivariate Results of Aggregate Theoretical Constructs and Occurrence of Prevention Screening Recommendations, by Cancer Type

Construct	Coefficient	*SE*	β	*p*
Breast cancer[a]				
Motivation	.163	.089	.200	.071
Ability to process	-.021	.056	-.040	.704
Peripheral cues	.045	.053	.096	.402
Constant	4.141	.377	—	.000
Cervical cancer[b]				
Motivation	.131	.122	.119	.285
Ability to process	.117	.077	.162	.134
Peripheral cues	.119	.073	.189	.105
Constant	3.600	.514	—	.000
Colorectal cancer[c]				
Motivation[d]	.501	.244	.218	.042
Ability to process[d]	-.313	.153	-.210	.044
Peripheral cues	.009	.145	.069	.533
Constant	2.876	1.030	—	.006
Hepatitis B[e]				
Motivation	.164	.312	.059	.600
Ability to process	.286	.195	.160	.146
Peripheral cues	.079	.187	.049	.674
Constant	2.416	1.338	—	.074
Prostate cancer[f]				
Motivation	.502	.445	.137	.263
Ability to process	-.140	.279	-.062	.618
Peripheral cues	.469	.278	.223	.097
Constant	.555	1.981	—	.780
Smoking cessation[g]				
Motivation	.433	.238	.210	.061
Ability to process	.102	.142	.077	.474
Peripheral cues	.003	.137	-.002	.984
Constant	2.716	.963	—	.006
Stomach cancer[h]				
Motivation[d]	1.149	.375	.297	.003
Ability to process[d]	-.489	.236	-.203	.041
Peripheral cues[d]	.589	.223	.272	.010
Constant	-3.152	1.693	—	.066

[a]Model fit using Enter method regression, $R^2 = 0.069$, adj. $R^2 = 0.039$, $F(3, 92) = 2.29$, $p > .05$. [b]Model fit using Enter method regression, $R^2 = 0.073$, adj. $R^2 = 0.042$, $F(3, 90) = 2.35$, $p > .05$. [c]Model fit using Enter method regression, $R^2 = 0.123$, adj. $R^2 = 0.095$, $F(3, 92) = 4.31$, $p < .05$. [d]These variables were significant ($p < .05$). [e]Model fit using Enter method regression, $R^2 = 0.027$, adj. $R^2 = -0.005$, $F(3, 91) = 0.84$, $p > .05$. [f]Model fit using Enter method regression, $R^2 = 0.112$, adj. $R^2 = 0.075$, $F(3, 72) = 3.04$, $p < .05$. [g]Model fit using Enter method regression, $R^2 = 0.047$, adj. $R^2 = 0.016$, $F(3, 93) = 1.53$, $p > .05$. [h]Model fit using Enter method regression, $R^2 = 0.313$, adj. $R^2 = 0.288$, $F(3, 82) = 12.44$, $p < .001$.

Figure 14 presents a diagram of the significant multivariate associations. Stomach cancer screening recommendation occurrence was significantly related to all three of the constructs at the aggregate level.
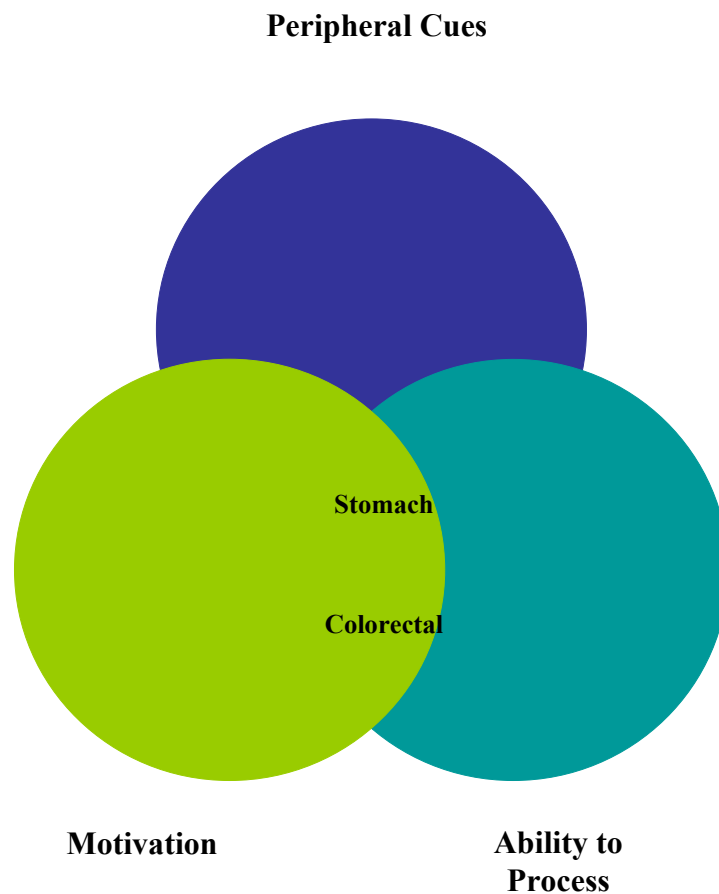
Peripheral Cues

Stomach

Colorectal

Motivation   **Ability to Process**

Figure 14. **Diagram of multivariate associations of the aggregate theoretical constructs and occurrence of preventions screening recommendations.**

SUMMARY

The sample was mostly male and Asian, practiced internal medicine, and primarily spoke English. Almost half (47%) had 10 or fewer years of clinical experience. In addition, over half of the physicians in the sample were in private practice, almost two-thirds of the physicians reported less than 10% of their Asian patients needed an interpreter to speak with them, and had a relatively large proportion of Asian patients with health insurance.

Table 33 presents a summary of the major findings pertaining to the research questions guiding this study. The first research question asked, "What are primary care physicians' perceptions of cancer risk in Asians?" Physicians indicated that their perceptions of cancer risk among Asians for "all cancers" were slightly above "same risk" as compared to the general population. The second research question of this study asked, "What factors are associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations?" This study hypothesized that there was a significant relationship between individual components of the theoretical constructs and the occurrence of physician recommendations to Asian patients.

Table 33

Summary of Findings on Physicians' Perceived Asian Cancer Risk: Significant Individual and Aggregate Theoretical Constructs Contributing to Screening Recommendation Occurrence

Cancer type	Perceived risk	Individual components[a]	R^2	Aggregate constructs	R^2
Breast cancer	7	None	N/A	None	N/A
Cervical cancer	5	Physician suggestions	.08	None	N/A
Colorectal cancer	4	Barriers difficulty[b]; follow guidelines	.16	Motivation; ability to process[b]	.10
Liver cancer	1	None[c, d]	N/A	None[c]	N/A
Lung cancer	3	None[e]	N/A	None[e]	N/A
Prostate cancer	6	Follow guidelines; recommendation rationale	.15	None	N/A[d]
Stomach cancer	2	Barriers difficulty[b]	.37	Motivation; ability to process[b]; peripheral cues	.29

Note. R^2 values are reported as adj. R^2. N/A = not applicable.
[a]Results reported from multivariate analysis. [b]Reported as a negative coefficient. [c]Examined as hepatitis B screening. [d]Model was significant ($p < .01$); however, there were no significant variables. [e]Examined as smoking cessation counseling.

Overall, on the basis of the results from this study, a significant relationship was found between the individual components of the theoretical constructs and the occurrence of prevention screening recommendations made by physicians to their Asian patients. Further, a significant relationship was found between the aggregate theoretical constructs and the occurrence of prevention screening recommendations made by physicians to their Asian patients. Physician Asian cancer risk perceptions revealed that liver cancer and stomach cancer were perceived as higher cancer risks among Asians compared to the general population while breast and prostate cancer were perceived as lower cancer risks indicating that the perceptions of Asian cancer risk as compared to that of the general population may be under- or overestimated from the physicians in this study.

CHAPTER V

DISCUSSION

This exploratory study assessed and evaluated the issues and barriers related to appropriate and effective screening recommendations for the early detection of cancer for Asians in the U.S. It also sought to identify the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations and to assess primary care physicians' perceptions of cancer risk in Asians. In addition, this exploratory study examined whether the Elaboration Likelihood Model (ELM) could be applied in a nontraditional manner to examine ELM components in relation to the occurrence of cancer screening recommendations.

The results from this study add to the growing research conducted on patient-physician communication and on cancer control and prevention among Asians in the U.S. Further, the study results provide pertinent information toward the development of interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened. This chapter discusses the significance of the findings, study limitations, implications of the findings for practice, and recommendations for future research.

A cross-sectional survey was developed and mailed to primary care physicians practicing in high density Asian-populated ZIP Codes in New Jersey and New York City. The survey included questions assessing physicians' general medical practice, Asian patient communication, perception of Asian cancer risks, Asian cancer screening recommendations, and cancer screening guidelines. The survey was pilot-tested with physicians and examined for face validity prior to administration.

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SAMPLE

The sample included 100 primary care physicians from highly concentrated, Asian-populated ZIP Codes in New Jersey and New York City. The sample size met the requirements for statistical power analysis. Generalizations made from this study should be tending towards primary care physicians practicing in dense areas of Asian populations in New Jersey and New York City. In addition, because the sample was composed primarily of male respondents (61.6%), generalizations made from this study should also be weighted toward male physicians. As expected, the study's sample was diverse with the largest proportion of physicians being Asian (63.6%), followed by White (29.3%), Latino (4.0%), and African American (3.0%). Most of the Asian physicians identified themselves as Chinese or Indian, accounting for 48 of the 60 physicians who specified an ethnic background. Only 61% of all of the physicians selected English as their primary language, but over half of the sample received their medical education in the United States (53.0%). Therefore, generalizations from the study should be weighted toward physicians with similar characteristics. Two physician characteristics—years practiced in the United States and age—were distributed relatively evenly indicating diverse levels of medical practice experience among this sample.

SIGNIFICANT FINDINGS

Perceived Asian Cancer Risks

The first research question was, "What are primary care physicians' perceptions of cancer risk in Asians?" Physicians perceived Asian cancer risk for all cancer slightly above "same risk," as compared to the general population. The highest perceived cancer

risk for Asians was liver and stomach cancers which was consistent with actual incidence

data from the National Cancer Institute's Cancer Statistics Review (National Cancer

Institute, 2006). However, results showed that this group of physicians had a perception

of cancer risk that was lower than the actual risk regarding female cancers (i.e., breast

and cervical) and higher than the risk regarding lung and prostate cancers. One

explanation for this finding is the variation in cancer rates in the diverse Asian cultures as

generalized to a larger group and is disproportionate among various Asian subgroups. For

example, Koreans have the highest mortality rate from stomach cancer (Miller et al.,

1996), Chinese have the highest mortality rate from lung cancer (Kwong et al., 2005),

Japanese have the highest incidence rate of colorectal cancer (Kwong et al., 2005),

Vietnamese women have the highest incidence rate of cervical cancer (Miller et al.,

1996), and Filipino men have the highest rate of prostate cancer (Kwong et al., 2005).

Physicians may find it difficult to generalize perceived cancer risks by specific type—

with the exception of liver and stomach cancer (National Cancer Institute, 2006)—to all

Asians.

The risk of breast and prostate cancer risk in Asians was perceived as being

slightly lower in comparison to those cancers in the general population. This finding was

expected for prostate cancer, as Asians (overall) have one of the lowest incidence rates

(101.4 per 100,000) and the lowest mortality rates (12.1 per 100,000) as compared to all

racial and ethnic groups (American Cancer Society, 2006). However, the American

Cancer Society (ACS) groups Pacific Islander data with Asian data for all cancer

statistics. Breast cancer risk, commonly considered as a low risk among Asians, was

perceived as a low risk. However, Deapen and colleagues (2002) found a significant

annual change (6% increase) in age-specific incidence rates of invasive breast cancer in

Asians, as compared to that of other racial/ethnic groups among women (age 50 and

older) living in Los Angeles County. Further, Japanese and Filipino women (age 50 and

older) had the highest incidence rates of invasive breast cancer among all Asian women

in Los Angeles County (Deapen et al., 2002). Recent cancer registry data from a study

examining breast cancer incidence trends among Asian women in northern California

also suggested increased rates of invasive breast cancer incidence for Chinese, Korean,

Vietnamese, and South Asian women from 1990 to 2002 (Keegan et al., 2006).

Factors Associated with Cancer Screening Recommendations

The second research question of this study was, "What factors are associated with

the likelihood of physicians making appropriate and persuasive cancer screening

recommendations?" The exploration of the ELM as a model for examining the

occurrence of cancer screening recommendations by physicians has not been explored

previously. The exploratory aspect of this study incorporated the application and

adaptation of the components of a communication and persuasion theory to a public

health problem. The ELM is a "receiver-based" model in which two information

processing routes (central and peripheral) are used to elaborate messages that, in turn,

will affect attitude and, subsequently, behavioral intentions. Although ELM can be used

to analyze patient responses to a message provided by physicians, this study used ELM

components in a nontraditional manner to examine ELM components in relation to the

occurrence of cancer screening recommendations. Factors related to a central processing

route (motivation and ability to process) and a peripheral processing route (peripheral

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cues) were assessed from the physician perspective and physician perspective of the patient as they related to screening recommendation occurrence.

MOTIVATION

Motivation in this exploratory study consisted of four conceptual components: physician perception of personal relevance, physician perception of personal responsibility, physician perception of the screening recommendation's relevance to the patient, and physician perception of capacity to deliver effective recommendations. The following is a discussion of the findings.

Physician Perception of Personal Relevance

Physicians strongly agreed in finding it personally significant to educate their Asian patients on the importance of screening and smoking cessation. This finding was consistent with that of a study of 128 primary care physicians and their attitudes and effectiveness of delivery of preventive services to the general population (Litaker, Flocke, Frolkis, & Stange, 2005). All of the physicians indicated that smoking cessation counseling was highly important for patients (general), and most of the physicians rated Pap tests and PSA screenings as being highly important for patients (general) (Litaker, Flocke, Frolkis, & Stange, 2005).

Physician Perception of Personal Responsibility

Physicians in this study strongly agreed that recommending cancer screening is a responsibility of the physician. This finding corroborates the American Medical

Association's principles of medical ethics, which include ensuring responsibility to the patient as a chief standard and to participate in activities that contribute to the improvement of public health (American Medical Association, 2007).

Physicians almost always provided screening recommendations in the context of the patient. One study on physician intentions to offer cancer screening found that health status is a factor affecting physician intent to offer screening mammography and Pap tests to older women (in the general population) (Heflin, Pollak, Kuchibhatla, Branch, & Oddone, 2006). A large proportion of physicians in this dissertation study strongly agreed in intentions to make persuasive arguments for their Asian patients to get recommended cancer screenings. This intention reflects physician positive attitudes toward screening and shared beliefs about the importance of screening as a secondary prevention method for Asian patients like the general population.

Physician Perception of the Screening Recommendation's Relevance to the Patient

The physicians almost always emphasized the importance of the screening recommendation and provided a rationale for the screening recommendation. Among Chinese women, using the physician as a source for information on both clinical breast examination and screening mammography was a significant predictor for ever having completed a clinical breast examination or screening mammography (Su, Ma, Seals, Tan, & Hausman, 2006).

The physicians reported almost always explaining that getting screening is a responsibility of the patient. Nutting and colleagues (2001) suggested that a physician's belief that his or her patient will comply with a recommendation was associated with the

patient receiving a mammography recommendation. Providers who perceived poor

patient compliance were less likely to give a fecal occult blood test recommendation for

colorectal cancer screening (Dulai et al., 2004).

Physician Perception of Capacity to Deliver Effective Recommendations to Asian Patients

The physicians responded with high levels of confidence in carrying out tasks

related to situations assessing cultural competence. The physicians felt most confident

interacting with people of diverse backgrounds, however, the physicians felt least

confident with effectively using an unskilled interpreter. In a study assessing residents'

attitudes about cross-cultural care and preparedness to deliver care to diverse populations,

96% of the residents thought that it was important to consider the patient's culture when

providing care (Weissman et al., 2005). Further, only a small amount of residents

reported being very or somewhat unprepared to treat patients on the basis of the patient

culture being different from their own (5.2% of family practice, 7.1% of internal

medicine, and 9.9% of OB/GYN) or the patient having a different race/ethnicity (3.5% of

family practice, 5.2% of internal medicine, and 4.4% of OB/GYN) (Weissman et al.,

2005). This finding is consistent with this dissertation study's findings of the physicians

reporting very high confidence in feeling comfortable interacting with people of diverse

backgrounds. This dissertation study's findings also indicated that the physicians felt

most confident interacting with people of diverse backgrounds and feeling least confident

in using an unskilled interpreter to interview or counsel a patient effectively. This is

consistent with the pretraining survey scores among pharmacy students participating in a

cultural competency course (Assemi, Cullander, & Hudmon, 2004).

ABILITY TO PROCESS

In this exploratory study, a physician's ability to process consisted of two conceptual components: physician distractions to providing recommendations and physician perception of patient distractions. The following is a discussion of the findings.

Physician Distractions to Providing Recommendations

This study assessed the frequency, significance, and difficulty of several common barriers for physicians to communicate with their Asian patients regarding cancer screenings. Among barrier frequency, "patient seen for different reason" was the most frequently encountered barrier by physicians when communicating with their Asian patients regarding cancer screening. In a study of factors influencing mammography recommendations for women 40 to 75 years old during a doctor visit, Nutting and colleagues (2001) found that mammography recommendations were associated with visits scheduled during an annual examination significantly more frequently than for chronic care visits.

Frequency ratings for "insufficient compensation" as a barrier had the most variability of scores indicating that insufficient compensation was more of a frequent barrier to some physicians versus others. In a study on physician cancer screening practices, one of the most common physician barriers to ordering screening was reported to be financial resources or insurance of the patient, which may provide no coverage for preventive services (Rutledge et al., 2006).

"Patient refusal" had the highest scale scores for significance and difficulty of barriers. In a survey of 122 primary care physicians who serve in areas of New York City

with low income, low educational attainment, and medically underserved populations to determine their cancer screening and prevention knowledge, attitudes, and practices, Ashford and colleagues (2000) found that 55% of the physicians stated that a lack of patient interest was a barrier to physicians' practicing cancer preventive services and that 21% considered it a major barrier. Results from a needs assessment of barriers to cervical cancer screening among Vietnamese health care providers (Kwon, Solomon, & Nguyen, 2006) found that some patients refused provider recommendations to get a Pap test because of the following factors: too busy, lack of knowledge of the benefits of a Pap test, modesty, or patient belief in the test.

Physicians also reported "patients seen for different reason" (e.g., an illness visit) and "lack of time" as significant barriers when communicating with their Asian patients. Physicians serving Chinese Americans in San Francisco felt that performing a clinical breast exam was inappropriate when the patient visited the physician because of other health problems (Lee, Lee, Stewart, & McPhee, 1999). A total of 66% of New York City primary care physicians participating in a survey on cancer screening practices stated that "lack of time" was a physician barrier to practicing cancer prevention, and 37% labeled it as a major barrier, all in reference to the general population (Ashford et al., 2000).

"Lack of confidence in ability to communicate cancer screening information" with Asian patients was the least frequent, significant, and difficult of all reported barriers encountered by the physicians. In a meta-analysis of 76 studies published between 1966 and 1998 on barriers to physician adherence to clinical practice guidelines, only 13% of the respondents in 19 surveys reported a lack of self-efficacy (i.e., the

physician believes that he or she cannot perform guideline recommendations) as a barrier as referred to the general population (Cabana et al., 1999).

Physician Perception of Patient Distractions

"Lack of knowledge" was the most cited Asian patient barrier to cancer screening as perceived by physicians, followed by not having health insurance and by language. This finding is consistent with those from a study on barriers to cervical cancer screening among Vietnamese women by Vietnamese physicians in which over 71% thought that lack of knowledge about the importance of Pap tests was influential, of which over 58% indicated "very influential," in explaining why Vietnamese women may not seek a Pap test (Kwon, Solomon, & Nguyen, 2006). Cost and not having health insurance were considered as an important general patient barrier to colorectal cancer screening, according to most primary care physicians surveyed in a study of colorectal cancer screening practices (Shieh, Gao, Ristvedt, Schootman, & Early, 2005). The impact of cost as a barrier to screening recommendation is highlighted by Nutting and colleagues (2001), who found that women 40 to 75 years old were less likely to receive a recommendation for screening mammography if the physician thought that mammography costs would be a barrier to the patients. In a study of breast cancer screening among Chinese women, Su and colleagues (2006) found that the most frequently cited barriers to access to care among Chinese women were cost/lack of insurance, language problems, and lack of knowledge of where to access care. Further, language barriers were the third most influential barrier for Vietnamese women to get a Pap test, as perceived by Vietnamese physicians (Kwon, Solomon, & Nguyen, 2006).

The peripheral cues component of this exploratory study consisted of one conceptual component: physician perception of patient views of source credibility of the physician. The following is a discussion of the findings.

Physician Perception of Patient Views of Source Credibility of the Physician

The perception of the physician as being credible and trustworthy had the highest reported agreement among this study's sample of physicians. This finding indicated that these physicians thought that their Asian patients perceived them as trustworthy and credible. From the perspective of patients in the general population, these findings support the physicians' beliefs. In a study on ELM effects on risk communication on food and alcohol poisoning, Frewer and colleagues (1997) found that medical sources (committee of medical doctors) were rated as highly knowledgeable about risks and have a greater responsibility in providing information. A qualitative study on information source preference about abnormal Pap tests and HPV found that the woman's health care provider was the most trusted source for information (McCree, Sharpe, Brandt, & Robertson, 2006). Results from interviews with older Chinese women on their views of health and illness as related to cancer screening behavior indicated that physician trustworthiness was an important factor to cancer screening and that physician recommendation was the most important reinforcing factor for cancer screening (Liang, Yuan, Mandelblatt, & Pasick, 2004). However, results from a national survey on health care experiences and trust in doctor at the most recent visit indicated that only 55% of Asian Americans, compared to 71.6% of non-Hispanic Whites, reported "a great deal of

trust" when asked about their amount of confidence and trust in the doctor at the most recent visit; this result was significantly different (Ngo-Metzger, Legedza, & Phillips, 2004).

SUMMARY

This study applied ELM components to several survey items to assess factors related to primary care physicians' perceptions of personal relevance and responsibility (motivation) to providing screening recommendations and the distractions (ability to process) to providing screening recommendations. In addition, surveys items assessed— from the physicians' perspective—patients' personal relevance, personal responsibility (motivation), distractions to getting screening recommendations (ability to process), and perception of physician credibility (peripheral cue). The responses indicated strong (positive) physicians' perceptions of personal relevance, personal responsibility, screening recommendation relevance, capacity to deliver effective recommendations to Asian patients, and source credibility of the physician (by the patient). Further, the frequency, significance, and difficulty of some common patient-provider related communication barriers acted as distractions to providing cancer screening recommendations to Asian patients.

FACTORS RELATED TO OCCURRENCE OF SCREENING RECOMMENDATIONS

In the context of this study, the components of motivation, ability to process, and peripheral cues were examined in their relation to the occurrence of physician recommendations for screening. It was hypothesized that there was a significant

relationship between individual components of the theoretical constructs and the occurrence of physician recommendations to Asian patients. Findings from the multivariate examination of the relationship between the individual components of the theoretical constructs and the occurrence of physician recommendations to Asian patients indicated that the motivation factor of following organizational screening guidelines (follow guidelines) contributed to the occurrence of prostate and colorectal cancer screening recommendations made by physicians to their Asian patients. Providing a rationale for the screening recommendation (recommendation rationale) was a significant predictor of the occurrence of prostate cancer screening recommendations, and suggesting ways to help patient with getting screening (physician suggestions) was a significant predictor of the occurrence of cervical cancer screening recommendations. However, the ability to process factor of physicians' perceived ability to deal with barriers (barriers difficulty) negatively affected the occurrence of stomach and colorectal cancer screening recommendations. Peripheral cues were significant in univariate results on the occurrence of prostate and colorectal cancer screening recommendations, but they were not examined in the multivariate model due to adjusted R^2 selection method analysis. No multivariate analyses were conducted for breast cancer screening, hepatitis B screening, and smoking cessation occurrence variables. These findings are discussed below.

Occurrence of Breast Cancer Screening Recommendations

The individual components reflecting motivation, ability to process, and peripheral cues did not affect the occurrence of breast cancer screening

recommendations. One explanation is that this sample of physicians reported always making breast cancer screening recommendations (as shown in Table 10). A multitude of factors may contribute to breast cancer screening recommendation occurrence beyond what was examined in this study. For example, previous studies have indicated that physicians who are obstetricians/gynecologists were much more likely to offer mammography recommendations to their patients (Bhosle, Samuel, Vosuri, Paskett, & Balkrishnan, in press; Van Harrison et al., 2003). The predictor variables in this dissertation study did not include physician characteristics, and the sample was composed mostly of internal medicine and family practice physicians.

Occurrence of Cervical Cancer Screening Recommendations

Each of the following contributed to the occurrence of cervical cancer screening recommendations: following organizational screening guidelines, providing a rationale for screening recommendation, and providing suggestions to help patients get screening. However, after controlling for all other factors, physician suggestions—an ability to process factor—was the only variable that was significant as a predictor of the occurrence of cervical cancer screening recommendations.

The Pap test as a screening tool has contributed greatly to the decline of morbidity and mortality due to cervical cancer (National Institutes of Health, 1996) and is perhaps one of the best and most widely acknowledged cancer screening tools available. In addition, the U.S. Preventive Services Task Force (USPSTF) strongly recommends cervical cancer screening and gives an "A" recommendation rating, encouraging physicians to discuss this screening with their eligible patients and strongly recommend it

(USPSTF, 2006). These findings offer support to physicians to follow guidelines and provide rationale for screenings.

Encouraging physicians to suggest ways to help their patients get screening services is important because it complements cervical cancer screening recommendations. For example, physicians may refer women to the Centers for Disease Control and Prevention (CDC) National Breast and Cervical Cancer Early Detection Program, which provides access for low-income, uninsured, and underserved women to screening services (CDC, 2007). This resource may be helpful for Asian women who do not have the resources (i.e., insurance and/or cost) to pay for screening.

Occurrence of Colorectal Cancer Screening Recommendations

Multivariate analyses on colorectal cancer screening (CRC) recommendation occurrence indicated that the motivation factor of following organizational screening guidelines contributed to the occurrence of CRC screening recommendations. The USPSTF strongly recommends colorectal cancer screening and gives an "A" recommendation rating, encouraging physicians to discuss this screening with their eligible patients and strongly recommend it to them (USPSTF, 2006).

The ability to process factor of physicians' perceived ability to deal with barriers had a negative affect on the occurrence of CRC screening recommendations, indicating that the more difficult it was to deal with barriers, the less likely it was that CRC screening recommendations would occur. The physicians in this study reported patient refusal as the most difficult barrier that they have encountered when communicating with their Asian patients regarding cancer screenings. There may be a lack of knowledge or

understanding on the part of the Asian patient regarding the importance of cancer screening which in turn, may interrupt the communication of making a CRC screening recommendation. One reason why other components were not significant may be because four different CRC screening tests are available (fecal-occult blood test, sigmoidoscopy, barium enema, and colonoscopy).

Occurrence of Hepatitis B Screening Recommendations

In the multivariate model, none of the theoretical component variables were significant in contributing to the occurrence of hepatitis B screening recommendations by the physicians. However, motivation factors of following organizational screening guidelines and providing a rationale for the recommendation, as well as ability to process factors of assessing a patient's self-efficacy for getting screening and suggesting ways to help the patient with getting screening, individually and positively, contributed to the occurrence of hepatitis B screening recommendations. Screening for hepatitis B involves conducting a simple blood test to screen for the hepatitis surface antigen. With regard to screening, USPSTF strongly recommends screening for hepatitis B in pregnant women but recommends against screening the general population (USPSTF, 2006). Hepatitis B vaccination policies, including school requirements, add to the public awareness of the disease. Findings from the univariate results indicate that some of the individual components of motivation and ability to process affect the occurrence of hepatitis B screening recommendations. In addition, the ability to process factors were indicative that the physicians may have been aware of the significance of the hepatitis B problem among

the Asian population and thus encouraged the physician to assess patient self-efficacy and suggest ways to get screening.

Occurrence of Prostate Cancer Screening Recommendations

The univariate analyses indicated several significant predictors reflecting each of the theoretical components. However, to control for multicollinearity, not all predictors were included in the multivariate model. Multivariate analyses indicated that the motivation factors of following organizational screening guidelines and providing a rationale for screening recommendations contributed to the occurrence of prostate cancer screening recommendations. There are two possible reasons for this result. First, screening tests for prostate cancer using the current methods of the prostate specific antigen (PSA) test or digital rectal examination (DRE) are not fully supported by USPSTF and the American College of Preventive Medicine (Ferrini & Woolf, 1998); however, the importance of conducting this screening is supported by other guidelines (American Cancer Society, 2006) and the American Urological Association and American College of Radiology (Ferrini & Woolf, 1998). Second, the PSA test is a simple blood test that can be part of one's physical examination who meets the prostate cancer screening criteria. These findings indicate that some of the individual components reflecting motivation affect the occurrence of prostate cancer screening recommendations with Asian patients.

Occurrence of Smoking Cessation Counseling Recommendations

None of the theoretical component variables were significant in contributing to the occurrence of smoking cessation counseling by the physicians. Further, in the univariate analysis, providing a rationale for the recommendation was the only factor (motivation) that contributed to the occurrence of smoking cessation counseling. A study on primary care providers' attitudes of smoking cessation counseling found that providers who had positive attitudes of smoking cessation counseling were associated with reported counseling and referral of patients to a smoking cessation program (Meredith et al., 2005). The individual components reflecting motivation, ability to process, and peripheral cues did not affect the occurrence of smoking cessation counseling recommendations. In addition, smoking cessation counseling was reported as the most offered free preventive service by the physicians in this dissertation study. A multitude of factors may contribute to smoking cessation counseling recommendation occurrence with Asian patients, and they warrant further investigation. Further, smoking cessation counseling is a strong recommendation made by USPSTF and ACS.

Occurrence of Stomach Cancer Screening Recommendations

Multivariate analyses on stomach cancer screening recommendation occurrence indicated that the ability to process factor of physicians' perceived ability to deal with barriers significantly had a negative relationship with the occurrence of stomach cancer screening recommendations. Stomach cancer screening had the most significant relationships with ELM variables, reflecting multiple sources of predictors of stomach cancer screening recommendation occurrence. Because there are no real screening tests

and guidelines for stomach cancer (Carson-Dewitt, 2003), it is up to the physician to make these recommendations in relation to the context of the patient. These findings indicate that some of the individual ability to process components affects the occurrence of stomach cancer screening recommendations.

RELATIONSHIP BETWEEN AGGREGATE THEORETICAL CONSTRUCTS AND SCREENING RECOMMENDATION OCCURRENCE

Based on the second research question, it was also hypothesized that there was a significant aggregate relationship between motivation, ability to process information, and peripheral cues (theoretical constructs of the ELM) and the occurrence of physician cancer screening recommendations to Asian patients. The aggregate theoretical construct of motivation was positive and significant ($p < .05$) for the occurrence of CRC screening recommendations, and motivation and peripheral cues were positive and significant ($p < .05$) in relation to stomach cancer screening recommendation occurrence. Ability to process was negative and significant ($p < .05$) in relation to both colorectal and stomach cancer screening recommendation occurrence.

Only stomach cancer screening recommendation occurrence was significant across all three aggregate domains (motivation, ability to process, and peripheral cues) without any clear reasons. Of all of the assessed prevention screenings, stomach cancer screening lacks standard guidelines and robust screening tests. One possibility is that the lack of guidelines and screening tests to screen for stomach cancer may lead to screening recommendation occurrence that involves multiple pathways, including peripheral cues. Further, moderate elaboration—defined as a co-occurrence of peripheral and central route

processing (Hague & White, 2005)—is a possibility in explaining the multiple routes in making stomach cancer recommendation occurrence. In their web-based intervention for changing attitudes of obesity, subjects were randomly assigned experimental groups to evaluate the effect of an education obesity module, the credibility of the presenter, attitudes of obesity, and processes of attitude change. The authors concluded that the perceived expertise and trustworthiness of the presenter influenced attitudes (Hague & White, 2005). As indicated previously, stomach cancer screening does not have any real guidelines or standardized screening tools. This, in addition to generally low numbers of stomach cancer cases and possible low awareness of stomach cancer among both doctors and patients, may explain the why all three domains (on the aggregate level) are associated with stomach cancer screening recommendation occurrence.

In addition, peripheral cues were significant in prostate cancer screening recommendation occurrence. As indicated earlier (occurrence of prostate cancer screening recommendations), USPSTF states that there is "insufficient evidence" to recommend for or against prostate cancer screening. Lefevre (1998) adds that no randomized prostate cancer screening trials have been conducted to examine its effects on reducing mortality. Sharing the same trait (poor recommendations) may be a precursor to peripheral cues. However, this notion is challenged by the fact that CRC screening has strong recommendations (e.g., USPSTF, ACS) and that peripheral cues were found to be significant in relation to the occurrence of those recommendations. These findings show that on an aggregate level, some of the general components of the ELM can yield to the occurrence of making cancer screening recommendations, specifically CRC and stomach

cancer screening recommendations. However, caution is necessary in interpreting these results because of the low explained variance of the multivariate models.

ADDITIONAL FINDINGS

In addition to the research questions, several additional findings of interest resulted from the survey responses. The following is a discussion of these additional findings.

Health Insurance

Most physicians (58.8%) reported that over three-fourths (76%-100%) of their Asian patients had health insurance. Moreover, 27.8% of the physicians indicated that 51% to 75% of their Asian patients had health insurance. These data indicated that a large percentage of Asian patients that come to these physicians possessed some form of health insurance. The findings were consistent with the "Income, Poverty, and Health Insurance Coverage in the United States: 2005" report by the U.S. Department of Commerce which found that the 3-year average health uninsurance estimate among Asians was 17.7%, second lowest behind Whites (DeNavas-Walt, Proctor, & Lee, 2006). However, these findings contradict the Kaiser Commission on Medicaid and Uninsured report which found that Asian Americans were less likely than Whites to have health insurance and access to a regular source of health care (Kaiser Family Foundation, 2000).

Patient Education

Patient education averaged 12.2 minutes during a regular checkup with Asian patients. According to the 2004 National Ambulatory Medical Care Survey, which is a

national probability sample survey that assesses patient visits to office-based physicians in the United States and that describes the characteristics of ambulatory care visits made to physician offices, the mean time that patients spend with a physician was 18.7 minutes, and 90% of office visits with face-to-face contact between the physician and patient had a duration of 6 to 30 minutes (Hing, Cherry, & Woodwell, 2006).

Preventive Services and Smoking Cessation Counseling

Approximately two-thirds of the physicians offered at least one free preventive service. This finding was unexpected because over half of the physicians participating in this study were in private practice. A study of the delivery of preventive services to Medicare beneficiaries by primary care physicians, using data from the 2000 Community Tracking Study Physician Survey, found that beneficiaries were more likely to receive preventive services (including mammography and colon cancer screening) if their physician was board certified, received his or her medical education in the United States or Canada, worked in group practices of three or more physicians, or was a general internist, as compared to a family practice physician (Pham, Schrag, Hargraves, & Bach, 2005). In addition, over half of the physicians in this dissertation study received their medical education in the U.S.

Smoking cessation counseling was the most common free preventive service offered by the physicians. This finding is consistent with previous studies. In a self-report survey of 2,000 primary care physicians affiliated with the American Medical Association on smoking cessation practices, almost 75% of the sample reported that they advised cessation (Schnoll, Rukstalis, Wileyto, & Shields, 2006). Further, physicians who

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were older, had faculty appointments, had trained cessation counseling staff, and were

confident to counsel patients were more likely to report smoking cessation advisement, as

compared to those physicians who did not possess the aforementioned traits (Schnoll,

Rukstalis, Wileyto, & Shields, 2006). The physicians in this dissertation study were older

and highly confident in communicating cancer screening information; however, this

dissertation study did not assess faculty appointments and the availability of trained staff.

Data from the 2000 Behavioral Risk Factor Surveillance Survey on 10,582 smokers who

reported a clinical encounter during the past year showed that almost 55% received

smoking cessation advice and that older patient age, patient education, body mass index,

asthma, and private health insurance were positively associated with smoking cessation

recommendation (Lucan & Katz, 2006). In a survey of a random sample of family

physicians to determine what preventive services they would provide to a 53-year-old

woman during a 5-minute illness visit versus a 30-minute physical examination, over half

responded that they offered smoking cessation advice during the illness visit, but during a

physical examination, they offered more preventive services, including breast

examination, Pap tests, and mammogram recommendations (Stange, Fedirko, Zyzanski,

& Jaen, 1994). In sum, smoking cessation counseling or advice from physicians is

common. The frequencies of the other free preventive services provided by the

physicians in this study were far less than the frequency of smoking cessation counseling.

This may be due to the high cost of screening tests for cancer.

Charting Smoking Status

A total of 96 physicians (96%) reported that they charted the smoking status of their Asian patients. This finding was similar to the findings from a survey of 122 primary care physicians in New York City about their cancer prevention and screening knowledge, attitudes, and practices, which showed that 94% of physicians "always or usually" asked their patients about their smoking status (Ashford et al., 2000). These findings suggest that charting smoking status was a common practice among physicians and can be used as an opportunity to make smoking cessation counseling recommendations if the patient was a smoker.

Screening Reminder Methods

Almost 30% of the study sample reported using a telephone- or mail-based cancer screening reminder method. In a survey of 132 primary care and OB/GYN practices in Massachusetts on reminder and scheduling methods for mammography, approximately 27% of the practices reported using telephone and mail methods to remind their patients of mammography screenings (Melville, Luckmann, Coughlin, & Gann, 1993). Medical staff time devoted to making reminders (either by phone or mail) may be limited; however, more efforts should be made because reminding patients about their routine cancer screenings is an important role for clinicians.

Interpreters

Almost two-thirds of the physicians reported that less than 10% of their Asian patients needed an interpreter to speak with them. This finding may be associated with

the large number of physicians identifying themselves as the one who provides

translation or interpretation services. In addition, almost two-thirds of the physicians

reported having patients of a diverse ethnic background (mostly Asian), and almost half

reported that their primary language was one other than English. A study that examined

health information and cancer screening differences among over 6,700 adult Asian and

non-Asian Americans found that Asians were significantly less likely to need an

interpreter than were non-Asians and that they preferred to be treated by a racially

concordant physician (Shive, Ma, Tan, Toubbeh, & Parameswaran, 2006).

"Family member" was selected the most by the physicians as the one who

provided translation or interpretation services. Family members are used as interpreters

because there may be no other alternative (Robert Wood Johnson Foundation, 2004) or

for the convenience. This was a concern in that physicians in this dissertation study

reported the least confidence to effectively use an unskilled interpreter to interview or

counsel a patient (Table 18). However, researchers suggest that physicians are reducing

their dependence on family members as interpreters, according to the Commonwealth

Fund report on providing language services (Youdelman & Perkins, 2005). In addition,

results from focus groups conducted in Massachusetts with Chinese and Vietnamese

patients with limited English proficiency indicated that Asian patients preferred trained,

professional interpreters to their own family members because of the following reasons:

family members are not trained in using medical terminology, they may not completely

translate word for word, or they may not be available (Ngo-Metzger et al., 2003). Shive

and colleagues (2006) found that Asians, in comparison to non-Asians who did not speak

English, were less likely to report that an interpreter was available and to rely more on friends and relatives as interpreters, instead of on staff persons at the health care facility.

Policy is also an issue related to medical interpreters. Federal and state laws require patient access to interpreters if they have difficulty speaking English. Title VI of the Civil Rights Act of 1964 provides a major policy platform supporting language assistance. It states "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance" (U.S. Department of Justice, 2000). The U.S. Department of Health and Human Services provided guidance on how Title VI applies to the health services (Office of Minority Health, 2005) and stipulated that anyone receiving federal funds must "provide meaningful access to limited English proficient persons" (Federal Register, 2003). The states of New York and New Jersey, the sites of this dissertation study, enacted their own statutes related to language assistance. In New Jersey, effective July 22, 2005, Title 8, Chapter 43G (5) states that all hospitals must provide "a translator or interpreter to facilitate communication between the patient and the hospital's health care personnel" (New Jersey Department of Health and Senior Services, 2005b). In New York, effective September 13, 2006, hospitals must develop a "language assistance program to ensure meaningful access to the hospital's services and reasonable accommodation for all patients who require language assistance" (New York State, 2006). The City of New York has also enacted Local Law 73 (8-1003) of 2003 which states "the agency and all agency contractors shall provides free language assistance services as required by thus chapter to limited English proficient individuals" (Local

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Laws of the City of New York, 2003), and compliance efforts have begun in the City's

health clinics and agencies (New York City Department of Health and Mental Hygiene,

2006). In sum, these regulations apply directly to hospitals and city health department

clinics and not private practices where over half of the physicians indicated their practice

settings.

Organizational Cancer Screening Guidelines

Physicians reported following the American Cancer Society (ACS) cancer

screening guidelines the most. ACS provides clear guidelines for the early detection of

cancer. This finding is not surprising; in a study of 122 primary care physicians in New

York City to assess their cancer prevention and screening knowledge, attitudes, and

practices, Ashford and colleagues (2000) found that 70% of the physicians were familiar

with the ACS guidelines for cancer-related checkups. In a study of the impact of

physicians' health beliefs on CRC screening practices, over 79% of the physicians in the

St. Louis area agreed with ACS guidelines, and 91.3% complied with ACS guidelines for

recommending CRC screening to their patients (Shieh, Gao, Ristvedt, Schootman, &

Early, 2005). In a study examining the cancer screening practices of physicians serving

Chinese Americans in San Francisco, physicians reported using ACS guidelines the most

for breast, cervical, and colorectal cancer screening practices (Lee, Lee, Stewart, &

McPhee, 1999).

As shown in the results, almost half of the physicians had reported following

other organizational screening guidelines, indicating a variation in followed cancer

screening recommendations. Holland-Barkis and colleagues (2006) suggested that many

physicians may be confused or unaware of the current guidelines or how they may differ from other guidelines. In their study on physicians' awareness and adherence to cervical cancer screening guidelines in Texas, which involved a cross-sectional, mail survey of physicians in a large, university-based health organization, Holland-Barkis and colleagues (2006) found that the most commonly identified guideline for cervical cancer screening was the American College of Obstetrics and Gynecology, followed by the American Academy of Family Practice, ACS, and USPSTF. The National Cancer Institute had the lowest reported following of cancer screening guidelines in this sample, which is expected because it does not make recommendations or establish guidelines. Often, the National Cancer Institute will refer to the guidelines made by USPSTF.

Occurrence of Preventive Screening Recommendations

The preventive screenings were almost always recommended to Asian patients during a visit, with the exception of stomach cancer screening—perhaps because no official stomach cancer screening guideline was available (Carson-Dewitt, 2003). Moreover, ACS (2006) suggests that stomach cancer is not very common in the United States and reports that mass screening has not been useful. In its physician data query, the National Cancer Institute (2007b) suggested that screening would not result in a decrease in mortality due to gastric cancer. Currently, the American Medical Association and USPSTF lack clear guidelines on stomach cancer screening.

IMPLICATIONS OF THE FINDINGS

There are several implications of the findings. First, study results indicated that selected subcomponents and constructs of the ELM were significant in relation to the occurrence of cancer or preventive screening recommendations made by physicians. More specifically, based on the multivariate analysis, subcomponents of the motivation construct (e.g., follow guidelines and recommendation rationale) were related to colorectal and prostate cancer screening recommendation occurrence and subcomponents of the ability to process construct (e.g., physician suggestion, barrier difficulty) were related to cervical, colorectal, and stomach cancer screening recommendation occurrence. On a practical level, the subcomponents (e.g., follow guidelines, recommendation rationale, etc.) of the constructs provide opportunities for which interventions to encourage screening recommendation behavior by physicians can be designed. The adaptation of the ELM to examine cancer screening recommendation occurrence by physicians has not been previously explored, and these findings suggest that the ELM can be applied to patient-physician communication research.

Second, physician perceptions varied on perceived cancer risk among Asians. Physicians perceived liver cancer and stomach cancer as a higher cancer risk and breast and prostate cancer as a lower cancer risk among Asians as compared to the general population. In addition, physician perceptions of lung, cervical, and breast cancer risks in Asians differed from actual risk. These findings indicated that perceptions of Asian cancer risk by primary care physicians varied as compared to the general population and may differ from actual risk. Continuing education is needed to inform physicians of the Asian cancer disparities to raise awareness of the cancer risks that Asians face.

Third, lack of knowledge, not having health insurance, and language were the top barriers that physicians believed Asian patients encounter in getting cancer screening. System and cultural barriers such as transportation, trust, and screenings against cultural beliefs were the least selected patient barriers to cancer screening as perceived by physicians. These findings indicated that perceptions of the barriers that Asian patients faced when seeking cancer screenings varied among primary care physicians and may contradict with the actual barriers experienced by Asian patients. Physicians should be informed about the barriers that are reported by Asian patients when seeking cancer screenings, and be presented with opportunities on how physicians can play a role in reducing or eliminating these barriers.

Fourth, although over half of the physicians in this study indicated that only a small segment of their Asian patients needed a translator or interpreter, physicians selected the family member the most as the provider of translation/interpretation services. Using an untrained medical interpreter is not ideal because important health messages and recommendations may not get conveyed to the patient. In addition, Federal and state laws require a trained medical interpreter to translate medical advice between a physician and patient. Efforts should be made to encourage physicians to use trained translator professionals should be made.

IMPLICATIONS FOR HEALTH PROMOTION PRACTICE

The following are implications for health promotion practice. First, physicians need to be educated on the cancer health disparities experience by Asians using the most current data available, especially data at the Asian subgroup level. This will raise

awareness of the cancer burdens possibly unknown to physicians and may prompt making cancer screening recommendations. Second, following organizational screening guidelines was one of the major contributors to the occurrence of screening recommendations for several cancer types. It is recommended to reinforce, or to encourage physicians to follow the latest cancer screening guidelines. Not only is this appropriate, but it serves as a proxy to recommend screenings. Third, physicians should be informed on typical barriers that Asians face when getting screening. Moreover, potential solutions should be shared on how to overcome these barriers. More awareness should be raised of the opportunities of federal and state programs and initiatives that can provide assistance to patients and providers in areas of cancer screening (e.g., National Breast and Cervical Cancer Early Detection Program) and patient-provider communication (e.g., medical interpreters).

The results of this study should be disseminated to physicians and policy makers. Physicians will benefit from learning about this study's results to increase awareness of current frequency of prevention screening recommendations practices among physicians in addition to physician perceptions of cancer risks among Asians. These results present an opportunity to raise awareness of the cancer burden experienced by Asians and provide a platform for physicians to learn and understand the importance of making cancer screening recommendations and addressing the barriers experienced by Asian patients. Policy makers will benefit from learning about cancer burden experienced by Asians, the issues and barriers related to physicians making cancer screening recommendations, and physician perceptions of Asian cancer risk. Increasing awareness of the issues related to cancer screening among Asians will help support policy makers to

draft policy and guidelines to promote and support screening and education efforts as an initial step to decrease the cancer burden experienced by Asians. Finally, physicians should be encouraged to continue making effective and appropriate cancer screening recommendations and to offer cancer screening reminders to their patients.

LIMITATIONS

There were several limitations to this exploratory study. First, a low response rate was achieved which may lead to concerns of non-response bias. However, low response rates have been common in mailed physician surveys. In an analysis of physician-mailed survey studies published from 1986 to 1995 involving studies with more than 1,000 physicians, Cummings, Savitz, and Konrad (2001) found the response rates ranged from 11% to 39%. In a study of 178 articles on factors associated with response rates, physicians were found to have the lowest response rates among all types of respondent groups including dentists, nurses, other health care workers, administrators, patients, students, and other respondents (Asch, Jedrziewski, & Christakis, 1997). Non-response bias may not be as significant of a concern in physician surveys in comparison to surveys with non-physicians because physician characteristics (knowledge, attitudes, and behaviors) as a group are more homogeneous than the general population (Kellerman & Herold, 2001).

The threat of social desirability bias in the survey responses serves as another limitation of the study. The mean scale scores of several questions indicated scores that were deemed (acute) positive with little variation. One study examining clinician self-reported measures of adherence to guidelines found that clinicians over-estimate adherence to guidelines by 27% compared to actual adherence (Adams, Soumerai,

Lomas, & Degnan, 1999). Physicians may provide higher or inflated answers to questions on how much time is spent on patient education or confidence related to cultural competency due to social desirability and therefore may have influenced its presence in the analytical model. Future efforts to effectively design and rigorously test survey questions are needed to facilitate non-social desirable responses.

A third limitation was the cross-sectional design implemented in this study. Causal inferences cannot be achieved from surveys that utilize a cross-sectional design. In addition, this study collected data during a specific time frame as part of the cross-sectional design. This limits the ability to account for changes in knowledge, attitudes, or behaviors that may be due to policy changes, historical events, or adjusted practice recommendations. In addition, the self-report of physicians' screening recommendation frequency may have been over reported. Lee, Lee, Stewart, and McPhee (1999) indicated that the physicians in their study who served Chinese Americans may have over reported their cancer screening practices.

The measurement of theoretical components with single-item, self-report questions may be less valid than measurement with multiple items. Although this instrument demonstrated reliability and face validity, culturally tailored survey instruments and controlled sampling designs will need to be implemented to better assess the specific population of interest. Further, tailoring the constructs into scale items on the survey may not have truly reflected the original intent of the construct as used in the model. The multivariate models examined in this study explained only a small amount of variance (depending on cancer type). Causes for this include how the survey may have been constructed in that the scale items used may not have been appropriate to test

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constructs of the ELM. In addition, controlling for multicollinearity resulted in selecting only a portion of eligible significant predictor variables into the multivariate model examining the factors related to the occurrence of screening recommendation by cancer type. This introduced a variable selection bias, even though statistical (SAS) methods were used to select the most appropriate variables to enter in the multivariate model. More reliable and valid instruments that truly capture the theoretical components of the ELM should be used. In addition, some variables entered in the multivariate model were selected on the basis of the highest adjusted R^2 based on a combination of the variables. The SAS R^2 test provided a list of all possible variable combinations ranked in ascending order from the most variance explained to the least variance explained. In addition to providing all possible combinations from a quantitative (R^2) perspective, the investigator also has the option to select the best combination of variables that may have theoretical implications. However, for this study, only the combination of variables that explained the most variance was selected, and this was another example of variable selection bias. By selecting a combination of variables by the variance explained rather than the theoretical attributes does not allow the examination of the theoretical contributions to the model.

Errors in the survey instrument also served as a limitation. Although the survey inherently suggested that this survey was in regards to the Asian patients of the physician, some of the survey items (e.g., cultural competency) did not reference "Asian" in the question. This provided an opportunity for the physician to answer a question irrespective of the Asian patient and may have introduced bias into the answer.

Sample bias is another limitation because a majority of the physicians were Asian which may indicate that a self-selected sample of Asian physicians chose to participate in this study. This may affect the interpretability of the results because Asian physicians may be more aware of the cancer issues faced by their Asian patients. In addition, these physicians may have responded differently to the cultural competency questions than non-Asian physicians because of their experience, relation, or knowledge to a specific Asian culture. It is also possible that physicians who did not participate in this study may provide less screening recommendations for Asian patients or are not aware of the cancer disparities and cancer risk among Asians. However, a random sample was used and the racial background of the physicians in the master list was unknown. Therefore, the degree of the potential sample bias could not be determined.

Finally, this study did not focus on specific Asian subgroups and only examined Asians in aggregate form. Though this method establishes useful means of examining an issue with a larger group, the effects for specific Asian subgroups were not analyzed. Further, some data sources relied upon for comparisons contained Pacific Islander data. There are many different Asian subgroups, and most of these groups experience different cancer burdens. In addition, although the results may be weighted more towards male and Asian physicians practicing in New Jersey and New York City, another limitation challenging the generalizability of the study is the fact that this sample's Asian patients were reported to be highly insured and a majority of the physicians reported that less than 10% of their patients need a translator/interpreter. These characteristics contradict current statistics indicating a high uninsured rate and strong need for translators or interpreters for this population. In addition, this sample's Asian patients may not represent

underserved Asian populations who are generally uninsured and less likely to have access to health care. This underserved cohort is of most concern. The underserved and uninsured Asian population is most vulnerable to not receiving secondary prevention (screening and early detection) activities because they are not accustomed to the preventive health care system as compared to Asians with health insurance.

RECOMMENDATIONS FOR FUTURE STUDY

The findings of this exploratory study suggest the following recommendations for future research. First, future research should further explore the relationships between the ELM components and screening recommendation occurrence through path analysis. Each of the components should be examined for any indirect or direct effects on screening recommendation occurrence. Further exploration is warranted for colorectal cancer and stomach cancer screening recommendation occurrence as it relates the motivation, ability to process, and peripheral cues factors of the ELM. Repeat studies with physicians who serve specific Asian subgroups (e.g. Chinese, Korean, etc.) should also take place to examine variances among subgroups.

Second, based on multivariate analyses, it was discovered that individual and aggregate components of the ability to process construct negatively impacted the occurrence of making cancer screening recommendations. For example, the ability to process factor of physician perceived ability to deal with barriers negatively affected the occurrence of colorectal cancer screening recommendations indicating that the more difficult it is for the physician to deal with barriers, the less likely the colorectal cancer screening recommendation will occur. Future studies should examine the underlying

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reasons as to why some of the factors elicit a negative impact towards the occurrence of cancer screening recommendations. In addition, moderating (and mediating) variables should be examined for their effects on the relationship between ELM components and cancer screening recommendation occurrence.

Future studies should examine the patterns and developmental factors of Asian cancer risk perceptions among primary care physicians in order to explain the differences of cancer risk perceptions. The use of qualitative methods (focus groups, in-depth interviews, etc.) is recommended to explore the underlying reasons leading to a physicians' perception of Asian cancer risk and physicians' perceptions of the barriers that Asian patients face when getting cancer screenings. In addition, a further analysis is needed, either through survey or qualitative research, on physician utilization of cancer screening guidelines and the underlying reasons for following a specific organization's guidelines.

Future studies should compare Asian and non-Asian physicians on their frequency of cancer screening recommendations and perceptions of cancer risks. Racial concordant physicians may provide more screening recommendations or perceive cancer risks as higher than racial discordant physicians. The opposite may also be observed. Further investigation on attitudes and beliefs related to cancer risk perception and cancer screening recommendations for Asians will be needed if significant differences are found.

Finally, more research is needed to study patient factors related to patient-provider communication as it relates to receiving cancer screening recommendations. Studies should be conducted using the ELM in its traditional application to assess physician messages (recommendations) received by Asian patients. No studies have

examined how Asians process (central/peripheral) or elaborate on (low/high) cancer screening recommendations or messages received by their physician. It is also recommended that more focus be placed on the medically underserved Asian groups as these groups are less likely to engage in the health care system and are the most vulnerable not to get screened.

CONCLUSION

This study described the medical practices, perceptions of Asian cancer risk, following cancer screening guidelines, and factors associated with the occurrence of cancer screening recommendations of primary care physicians practicing in New York City and New Jersey. The findings indicated that perceptions of Asian cancer risk by primary care physicians varied compared to the general population and may differ from actual risk. The application of both the individual components and aggregate constructs of the ELM (motivation, ability to process and peripheral cues) was examined in relation to the occurrence of physician recommendations for screening and the results from this exploratory study indicated that some of the components and constructs of the ELM are significant in the occurrence of screening recommendations by physicians for certain cancers.

Asians in the U.S. continue to experience a disproportionate burden among all racial and ethnic groups with respect to incidence and mortality rates of certain cancers. Physicians are integral public health liaisons that are both influential and resourceful toward educating Asians about specific cancer awareness and screening information. Cancer screening recommendations must be made in such a manner that they are given,

effective, and age, gender, race, and culturally appropriate. The findings from this study

provide pertinent information to develop interventions for physicians to recommend

cancer screening in a way that maximizes the likelihood that a patient will follow-up and

be screened.

APPENDICES

A. Survey Instrument

B. Validity Check Questionnaire

C. Pilot Test Questionnaire

D. University of Maryland and Temple University IRB Applications

E. IRB Approval Letters

F. Introductory Letter

G. Consent Form

H. Thank You Letter

Asian Patient Barriers To Cancer Screening

The Center for Asian Health at Temple University needs your input concerning possible barriers in cancer screening practice for Asian patients. The U.S. Census categorizes the following as Asians: Asian Indian, Cambodian, Chinese, Filipino, Hmong, Japanese, Korean, Laotian, Thai, Vietnamese, and other Asian (Bangladeshi, Bhutanese, Burmese, Indochinese, Indonesian, Iwo Jiman, Madagascar, Malaysian, Maldivian, Nepalese, Okinawan, Pakistani, Singaporean, Sri Lankan). Your answers will guide us as we develop more effective programs and health education materials that will motivate this population to receive routine cancer screening. This survey should take 10 to 15 minutes to complete. Your participation in this survey is completely voluntary and your responses will be confidential.
Thank you in advance for your time and participation.

A. GENERAL PRACTICE INFORMATION

1. Approximately, how many total patients do you see in a week? _____

2. Approximately, what percent of your patients are Asian? _____

3. Approximately, what percent of Asians that you serve have some form of health insurance?

_____ Less than 10%   _____ 51-75%
_____ 10-25%   _____ 76-100%
_____ 26-50%   _____ Don't know

4. Do you provide any of the following preventive services free of charge? (Check all that apply)

_____ Smoking cessation counseling   _____ Hepatitis B screening or vaccination
_____ Mammograms   _____ Prostate cancer screenings
_____ Pap tests   _____ Other preventive services
_____ Colon cancer screenings

5. In which of the following settings do you see the majority of your Asian patients?
_____ Hospital
_____ Community or local clinic/health center
_____ Private practice
_____ HMO medical center/facility
_____ Other (please specify): _____

6. Approximately, what *percent* of the Asian patients that visit you are primarily: (Please write in a percent)
_____ Referrals from other health care providers
_____ Self-referrals
_____ Other (please specify): _____

7. On average, how many minutes do you usually spend on patient education for your Asian patients during a regular check-up? _____

8. Do you chart the smoking status of your Asian patients? _____ Yes _____ No

9. How do you remind your Asian patients to come in for routine cancer screening?
_____ No reminder
_____ Mail reminder
_____ Phone reminder
_____ Email reminder
_____ Other reminder (please specify):
_____

10. What percent of your Asian patients need an interpreter to help them speak with you?
_____ Less than 10%   _____ 51-75%
_____ 10-25%   _____ 76-100%
_____ 26-50%   _____ Don't know

11. Who provides translation or interpretation services at your practice for your Asian patient? (Check all that apply)
_____ Yourself
_____ Another health care provider (physician, nurse, physician assistant, etc.)
_____ Administrative staff (e.g., receptionist, records clerk, etc.)
_____ Volunteer
_____ Family member or friend of the patient
_____ Not needed

12. During a check-up, how **often** do you recommend the following prevention screenings to your Asian patients?

Prevention Screening	Never				Always	N/A
a. Cervical cancer screening (e.g. Pap test)	1	2	3	4	5	N/A
b. Breast cancer screening (e.g. mammogram)	1	2	3	4	5	N/A
c. Prostate cancer screening	1	2	3	4	5	N/A
d. Hepatitis B screening	1	2	3	4	5	N/A
e. Colorectal cancer screening (e.g. sigmoidoscopy)	1	2	3	4	5	N/A
f. Stomach cancer screening	1	2	3	4	5	N/A
g. Smoking cessation counseling among smokers	1	2	3	4	5	N/A

B. ASIAN PATIENT COMMUNICATION

1. Please rate how *often* you encounter the following barriers in communicating with your Asian patients regarding cancer screening:

Barrier	Never				Always
a. Language difficulty	1	2	3	4	5
b. Lack of time	1	2	3	4	5
c. Lack of knowledge of guideline	1	2	3	4	5
d. Insufficient compensation	1	2	3	4	5
e. No reminder system	1	2	3	4	5
f. Patient refusal	1	2	3	4	5
g. Intervention against patient's cultural beliefs	1	2	3	4	5
h. Patient seen for different reason	1	2	3	4	5
i. Lack of confidence in your ability to communicate cancer screening information	1	2	3	4	5

2. Please rate the *significance* of these barriers that you have encountered in communicating with your Asian patients regarding cancer screening:

Barrier	Not significant				Very significant
a. Language difficulty	1	2	3	4	5
b. Lack of time	1	2	3	4	5
c. Lack of knowledge of guideline	1	2	3	4	5
d. Insufficient compensation	1	2	3	4	5
e. No reminder system	1	2	3	4	5
f. Patient refusal	1	2	3	4	5
g. Intervention against patient's cultural beliefs	1	2	3	4	5
h. Patient seen for different reason	1	2	3	4	5
i. Lack of confidence in your ability to communicate cancer screening information	1	2	3	4	5

3. Please rate *how easy or difficult* it is in dealing with these barriers that you have encountered in communicating with your Asian patients regarding cancer screening:

Barrier	Not difficult at all				Very difficult
a. Language difficulty	1	2	3	4	5
b. Lack of time	1	2	3	4	5
c. Lack of knowledge of guideline	1	2	3	4	5
d. Insufficient compensation	1	2	3	4	5
e. No reminder system	1	2	3	4	5
f. Patient refusal	1	2	3	4	5
g. Intervention against patient's cultural beliefs	1	2	3	4	5
h. Patient seen for different reason	1	2	3	4	5
i. Lack of confidence in your ability to communicate cancer screening information	1	2	3	4	5

4. What barriers do you believe that *Asian patients* have encountered to get cancer screening? (Check all that apply)

_____ Language problem   _____ Fear of positive result
_____ No regular place for health care _____ Trust
_____ No regular doctor   _____ No transportation
_____ Do not know where to get screened _____ Lack of knowledge
_____ No insurance to cover the cost _____ Screening is against
cultural beliefs
_____ Other (please specify): _____

5. Please rate your level of agreement or disagreement for each statement.

Statement	Strongly Disagree				Strongly Agree
a. I consider it my responsibility as a physician to make cancer screening recommendations to my patients.	1	2	3	4	5
b. I find it personally significant to educate my patients on the importance of cancer screening.	1	2	3	4	5
c. I find it personally significant to educate my patients on the importance of smoking cessation.	1	2	3	4	5
d. I intend to make persuasive arguments for my Asian patients to get recommended cancer screenings.	1	2	3	4	5

6. Please rate how *often* you do the following.

In making cancer screening recommendations, do you:	Never				Always
a. Assess the patient self-efficacy (patient's confidence in ability) for getting screening?	1	2	3	4	5
b. Suggest ways to help patient with getting screening?	1	2	3	4	5
c. Provide screening recommendations in context of the patient (e.g., medical history, background)?	1	2	3	4	5
d. Emphasize the importance of the screening recommendation?	1	2	3	4	5
e. Provide rationale for the screening recommendation?	1	2	3	4	5
f. Explain that getting screening is a responsibility of the patient?	1	2	3	4	5

7. Please rate your level of agreement or disagreement for each statement.

Your Asian patients act on your medical advice because they:	Strongly Disagree				Strongly Agree
a. Perceive you as knowledgeable on cancer control and prevention issues.	1	2	3	4	5
b. Perceive you as trustworthy.	1	2	3	4	5
c. Perceive you as credible.	1	2	3	4	5
d. Perceive you as an expert on cancer control and prevention.	1	2	3	4	5

8. Please rate your confidence in relation to each statement.

How confident are you in your ability to:	Not at all confident				Extremely confident
a. Accurately define and describe the difference between culture, ethnicity, and race?	1	2	3	4	5
b. Feel comfortable interacting with people of diverse backgrounds?	1	2	3	4	5
c. Accurately explain the difference between a stereotype and an assumption?	1	2	3	4	5
d. Recognize assumptions you have or make about different groups of people?	1	2	3	4	5
e. Identify the influence of stereotypes on your thoughts, feelings, and behaviors toward different groups of people while providing patient education?	1	2	3	4	5
f. Accurately list and describe elements of culturally competent health care?	1	2	3	4	5
g. Elicit a patient's perspective of illness during a patient encounter?	1	2	3	4	5
h. Effectively counsel a patient from a background different from your own?	1	2	3	4	5
i. Effectively use an unskilled interpreter to interview or counsel a patient?	1	2	3	4	5
j. Effectively use a skilled interpreter to interview or counsel a patient?	1	2	3	4	5

C. SCREENING GUIDELINES AND ASIAN CANCER RISK

1. Which of the following organizational cancer screening guidelines do you follow? (Check all that apply)

_____ National Cancer Institute

_____ American Cancer Society

_____ American Medical Association

_____ Specific Academy/College/Society (e.g., American Academy of Family Physicians)

_____ Guide to Clinical Preventive Services (U.S. Preventive Services Task Force)

_____ Other (please specify): _____

2. Please rate how *often* you follow any or all of the following organizational cancer screening guidelines?

Organization	Never				Always
a. National Cancer Institute	1	2	3	4	5
b. American Cancer Society	1	2	3	4	5
c. American Medical Association	1	2	3	4	5
d. Specific Academy/College/Society	1	2	3	4	5
e. Guide to Clinical Preventive Services	1	2	3	4	5

3. Compared to the general population, what do you believe are the relative cancer *risks* for Asians?

Cancer Type	Lower Risk		Same Risk		Higher Risk
a. All cancer	1	2	3	4	5
b. Breast cancer	1	2	3	4	5
c. Cervical cancer	1	2	3	4	5
d. Colorectal cancer	1	2	3	4	5
e. Liver cancer	1	2	3	4	5
f. Lung cancer	1	2	3	4	5
g. Prostate cancer	1	2	3	4	5
h. Stomach cancer	1	2	3	4	5

D. DEMOGRAPHICS

1. Age: _____

2. Gender: _____ Male   _____ Female

3. Race/Ethnicity (Check all that apply)
_____ White
_____ African American
_____ Hispanic/Latino (please specify): _____
_____ Asian (please specify): _____
_____ Native Hawaiian/Pacific Islander
_____ American Indian or Alaska Native
_____ Other (please specify): _____

4. What is your primary language?
_____ English
_____ Other (please specify):
_____

5. What is your area of specialization?
_____ OB/GYN
_____ Family Practice
_____ Internal Medicine
_____ Other (please specify): _____

6. How many years have you been in clinical practice <u>in the U.S.</u>?
_____ 5 years or less   _____ 21-30 years
_____ 6-10 years   _____ 31 years or more
_____ 11-20 years

7. Did you receive your medical education in the United States, Asia, or in another country?
_____ United States
_____ Asia (please specify Asian country): _____
_____ Other country (please specify): _____

Thank you for taking time to complete this survey. Please return this survey in the postage paid envelope or mail to:

Center for Asian Health
Temple University
1415 N. Broad St., Suite 116
Philadelphia, PA 19122

February 1, 2006

Thank you again for agreeing to review a survey that will be used in my dissertation study. Here is some background information and purpose of the study.

Background:

      Racial and ethnic cancer health disparities exist and are attributable to poorer health outcomes. Asians compose one of the largest and fastest growing minority groups in the United States. Further, this group has experienced disproportionate cancer burdens including having the third highest rates of cancer during 1992-1999 of all racial and ethnic groups.   Primary care physicians are a critical source for communication of the importance of cancer control and prevention services. However, some physicians may not be aware or understand the cancer disparities in this population or may not be culturally prepared to communicate with Asians. Further, cancer screening recommendations must be made in such a manner that they are given, effective, and age, gender, race, and culturally appropriate.

      The purpose of this study is to assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. A 30-question mailed survey will be administered to primary care physicians in New Jersey and New York City. The results from this study will add to the growing research conducted on patient-physician communication, the cultural competency of physicians, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S. Further, the results from this study will provide pertinent information to develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

This study will address the following primary research questions:
1.   What are primary care physicians' perceptions of cancer risk in Asians?
2.   What are the factors associated with the likelihood of physicians making appropriate and persuasive cancer screening recommendations?

What you are being asked to do:

1. Please review the survey.
2. Please complete the validity check questionnaire and return it to me.

It is estimated that this process should take no longer than 10 to 15 minutes of your time. Your help is greatly appreciated. If you have any questions, please email me at hkwon@umd.edu or call me at 301-###-####. Thank you in advance.
HARRY KWON, MPH, CHES

VALIDITY CHECK QUESTIONNAIRE

Instructions: *There are three sections on this questionnaire. Please type or print clearly your responses in the space provided. Thank you again for your assistance.*

Relevance to the Research Questions:

Please assess whether the questions by survey section are relevant to the overall research questions. If you think that a particular question or a set of questions are not relevant, please indicate which question(s) and why.

1. Please rate how *relevant* the questions are (from each of the survey sections) with respect to the overall research questions.

Survey Section	Not Relevant at All				Very Relevant
A. General Practice Information	1	2	3	4	5
B. Asian Patient Communication	1	2	3	4	5
C. Screening Guidelines and Asian Cancer Risk	1	2	3	4	5
D. Demographics	1	2	3	4	5

2. If you think that a particular question or a set of questions are not relevant, please indicate which question(s) and why.

Section/Question	Problem	Recommendation

Appropriateness to the Respondent:

Please assess whether the question components (by survey section) are appropriate with respect to the respondent. That is, do you think physicians are capable of understanding and answering the question given how the question is written? If you think that a particular question or a set of questions are not appropriate, please indicate which question(s) and why.

1. Please rate how *appropriate* are the questions from each of the survey sections with respect to the respondent.

Survey Section	Not Appropriate at All				Very Appropriate
A. General Practice Information	1	2	3	4	5
B. Asian Patient Communication	1	2	3	4	5
C. Screening Guidelines and Asian Cancer Risk	1	2	3	4	5
D. Demographics	1	2	3	4	5

2. If you think that a particular question or a set of questions are not appropriate, please indicate which question(s) and why.

Section/Question	Problem	Recommendation

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Theoretical Face Validity

The theoretical model used in this study is the Elaboration Likelihood Model. The Elaboration Likelihood Model (ELM) is a framework for understanding the processes underlying attitude and perception change through processes of persuasion (Petty & Cacioppo, 1986). ELM theorizes the likelihood that issue-relevant information will be carefully and critically processed (i.e., elaborated) which may lead to attitude change and subsequent behavior change. There are three important constructs of the ELM and include motivation, ability to process, and peripheral cues. In the table below, a conceptual and operational definition of each construct is provided along with the corresponding question(s) in the survey. Please examine the survey question that corresponds to the theoretical construct (shown in the table). *Please indicate which questions, if any, do not reflect the construct and what your recommendations are.*

Theoretical Construct	Conceptual Definition/Component	Operational Definition	Items/Scale
Motivation	Physician perception of personal relevance	Agreement of personal significance to education	B5b, B5c
		Perception of Asian cancer risk	C3
		Frequency of following organizational screening recommendation guidelines	C2
	Physician perception of personal responsibility	Agreement of making screening recommendations a responsibility of the physician	B5a
	Physician's perception of screening recommendation relevance to patient	Provide recommendation in context of patient	B6c
		Emphasis on importance of recommendation	B6d
		Provide rationale for recommendation	B6e
		Emphasis on patient responsibility to get screened	B6f
	Physician perceived capacity to deliver effective recommendations to Asian patients	Physician perception of cultural competence	B8
Ability to process	Physician distractions to providing recommendations	Physician perceived communication barriers with Asian patients	B1
		Significance of barriers in communication	B2
		Perceived ability to deal with barriers	B3
	Physician perception of patient distractions	Barriers of Asian patients to getting screened	B4
		Perception of patient self-efficacy	B6a
		Physician suggestions to help patient get screened	B6b
Peripheral cues	Physician perception of patient's view of source credibility of the physician	Perception of physician trustworthiness, credibility, knowledge, and expertise	B7

Responses to Section C or any additional comments?

February 22, 2006

Dear Pilot Tester,

Thank you again for agreeing to review a survey and additional documentation that will be used in an upcoming study. Here is some background information and purpose of the study.

Background:

The purpose of this study is to assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. A 30-question mailed survey will be administered to primary care physicians in New Jersey and New York City. The results from this study will add to the growing research conducted on patient-physician communication, the cultural competency of physicians, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S. Further, the results from this study will provide pertinent information to develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

What you are being asked to do:

3. Please review the survey (Item A) and the cover letter and consent form (Item B).
4. Please fill out the survey (Item A) and the pilot test questionnaire (Item C).
5. Please return Item C only via email (hkwon@umd.edu) or fax (301-XXX-XXXX) as soon as you can.

It is estimated that this process should take no longer than 10-15 minutes of your time. Your help is greatly appreciated and you will receive a $10 Barnes and Noble gift card for your participation. If you have any questions, please email me at hkwon@umd.edu or call me at 301-XXX-XXXX. Thank you in advance.

Harry Kwon, MPH, CHES

Pilot Test Questionnaire

Instructions: *Please complete the survey (Item A) and review the cover letter and consent form (Item B) prior to completing this questionnaire. If you select "no" for any question, please provide an explanation as to why you had selected no and what you recommend as a solution to your concern.*

QUESTIONS ON THE SURVEY INSTRUMENT

1. How long did it take to complete the survey? _____ minutes

2. How would you rate the difficulty in completing the survey (1—very easy to 5—very difficult)? _____

3. Were the instructions for the survey clear? ___Yes ___ No

4. Was the language used in the survey questions clear? ___ Yes ___ No

5. If there was a question that you did not understand or were concerned about, please identify the question and concern.

6. Do you have any additional comments regarding the survey instrument?

QUESTIONS ON THE COVER LETTER AND CONSENT FORM

1. Did you find the information in the cover letter easy to understand? ___ Yes ___No

2. Did you find the instructions on the cover letter easy to understand? ___ Yes ___No

3. Did you understand the purpose of the study? ___ Yes ___No

4. Did you understand the contents of the consent form? ___ Yes ___No

5. Do you have any additional comments regarding the cover letter and consent form?

DEMOGRAPHICS OF THE PILOT TESTER

1. Age: _____

2. Gender: _____ Male _____ Female

3. Ethnicity
    _____ White
    _____ African American
    _____ Hispanic/Latino (please specify): _____
    _____ Asian American (please specify): _____
    _____ Native Hawaiian/Pacific Islander
    _____ Other (please specify): _____

4. What is your area of specialization?
    _____ OB/GYN
    _____ Family Practice
    _____ Internal Medicine
    _____ Other (please specify):_____

5. How many years have you been in clinical practice <u>in the U.S.</u>?
    _____ 5 years or less   _____ 6-10 years
    _____ 11-20 years   _____ 21-30 years
    _____ 31 years or more

6. Did you receive your medical education in the U.S., Asia, or in another country?
    _____ U.S.
    _____ Asia
    _____ Other country (please specify): _____

IRB APPLICATION—UNIVERSITY OF MARYLAND

1. Abstract

The purpose of this study is to assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. Primary care physicians will be asked to voluntarily complete a 30-item survey. All subjects will be asked to review and sign a consent form that describes the purpose of the study, the risks and benefits of the study, confidentiality of the data, and the voluntary participation in this study. All identifiers and data will be kept in a locked and secure location. The results from this study will add to the growing research conducted on patient-physician communication, the cultural competency of physicians, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S. Further, the results from this study will provide pertinent information to develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

2. Subject Selection

a. Subjects. The study will be conducted among primary care physicians working within the state of New Jersey and in New York City. The subjects of the study are health care providers. The study will use various physician locator tools, including the American Medical Association physician search tool and information from the New Jersey Department of Health and Senior Services HMO Performance Report and the New York State Department of Insurance Consumer Guide to HMOs, to identify and provide contact information on physicians who serve in the specified ZIP Codes. The key assumption is that Asians residing within highly concentrated ZIP Codes will see physicians within that ZIP Code. A master list of primary care physicians within the specified ZIP Codes will be generated. The sampling design will use a systematic random sampling procedure. The investigator will randomly select survey participants from the master list of physicians in order to support the generalizability of the results. No specific recruitment will take place; the subjects will be asked to voluntarily complete the survey.

b. Inclusion Criteria. The study will use the following inclusion criteria for participation: any physician who is a doctor of osteopathic medicine (D.O.) or doctor of medicine (M.D.) currently practicing in internal medicine, family practice, or a specialty (e.g., OB/GYN, oncology) and practicing within a specified Asian–concentrated ZIP Code in New Jersey or New York City is eligible for participation. There will be no minors (under 18 years old) completing this survey.

c. Selection Basis. A key assumption in this study is that Asians residing within highly concentrated ZIP Codes will see primary care physicians within that ZIP Code.

According to the 2000 census, 480,276 residents of New Jersey—approximately 5.7 percent of the state's population—identified themselves as Asian (U.S. Census Bureau, 2005). The large Asian population is complemented by the large metropolitan area of Philadelphia to the south and New York City to the north. In New York City, 787,047 residents—approximately 9.8 percent of the city's population—identified themselves as Asian (U.S. Census Bureau, 2005). Using the American Fact Finder tool of the U.S. Census, the study will identify large proportions of Asian residents by ZIP Code. For the purpose of this study, a "large proportion" will be operationally defined as a proportion of Asians composing at least 7.2 percent (twice the average of the U.S. population for Asians) of the population residing within a specified ZIP Code.

d. Total Subjects. According to the statistical power analysis it was determined that the minimum sample size needed for this study is approximately 80 primary care physicians.

3. Procedures

Subjects will be asked to complete a 30-item, closed-ended survey. The survey includes questions on physician's general practice, issues and barriers related to Asian patient communication, screening guidelines and Asian cancer risk, and demographics. Participation in the survey is completely voluntary and respondents may opt out at any time. The minimum sample size needed to satisfy statistical power requirements is 80 subjects. It is estimated that the survey will take approximately 10 to 15 minutes to complete. A copy of the survey instrument (Appendix A) is attached.

Subjects randomly selected from the master list will be involved in three mailings. First, an introductory letter (Appendix B) will be sent to the potential participants describing the purpose of the study and announcing that a survey will be sent in the near future. Approximately 2 weeks after the introductory letter, a cover letter (Appendix C) and informed consent form (Appendix D) will be sent along with the survey to the primary care physicians. The cover letter and consent form will provide information regarding the purpose of the study and to encourage completion and return of the survey. Upon return of the completed survey, a third mailing consisting of a thank you letter (Appendix E) and incentive ($25 gift card to Barnes and Noble Bookstore) will be conducted.

A second mailing to non-respondents will be implemented after 2 weeks from the initial mailing of the survey. Phone call reminders to complete and return the survey will be commence after 2 weeks from the second mailing and will be continued at least once every week for 2 more weeks at which time, a decision will be made to continue reminder calls, resend the initial survey, or suspend any further contacts.

4. Risks and Benefits

The only potential risks to the subjects include scheduling conflicts in order to complete the survey. There are no potential benefits from participating in this study other than receiving an incentive for completing the survey.

5. Confidentiality

Adequate provisions will be made to protect the privacy of the subjects and to maintain the confidentiality of identifiable information. All data will be stored in a secure location. More specifically, all hard copy forms containing identity information, surveys, informed consent forms, and other potentially identifying and confidential information will be kept in a locked file cabinet accessible by study investigators. The study investigators include the principal (student) investigator, and the co-investigator (dissertation chair) and the co-investigator (dissertation advisor). All electronic data will be kept secure. All data will be entered at one computer located in a locked facility. Further, computer access is user name and password protected and only accessible by the principal (student) investigator. All hard copy data will be kept for up to one year following the completion of the study. Upon the one-year date, all hard copies will be destroyed via a shredder.   To assure anonymity, each survey will contain a numerical identification code to match the subject from the master mailing list.

6. Information and Consent Forms

The consent form (Appendix D) will contain information pertinent to the study. More specifically, subjects will receive a consent form that describes, the risks and benefits of the study, confidentiality of the data, and the voluntary participation in this study. None of the information is considered deceptive. Participants will be given the opportunity to ask any questions regarding the study or consent form. Consent forms will be attached to the survey instrument. Subjects will be asked to review the consent form, sign it, and return it along with the completed survey.

7. Conflict of Interest

This study will be conducted under the guidance of the Center for Asian Health at Temple University and the Department of Public and Community Health at the University of Maryland. There are no conflicts of interest.

8. HIPAA Compliance

The survey does not assess or ask about "Protected Health Information" regarding an individual as defined by the HIPAA regulations.

9. Research Outside of the United States

Not applicable.

10. Research Involving Prisoners

Not applicable.

11. Additional Notes

As noted earlier, this study will be conducted under the guidance of the Center for Asian Health at Temple University and the Department of Public and Community Health at the University of Maryland. An IRB application will be filed at Temple University. Temple University requires that the consent form be on Temple University letterhead and that the following statement is included somewhere in the consent form:

"I understand that if I need more information regarding my rights as a research subject, I may contact Richard Throm, Program Manager & Coordinator at the Office of the Vice President for Research of Temple University by phoning (215) 707-8757."

12. Supporting Documents/Enclosures

I. Survey Instrument

J. Introductory Letter

K. Survey Cover Letter

L. Consent Form

M. Thank You Letter

Request for Protocol Review of Research Involving Human Subjects

Project Title

Provider Barriers Related to Counseling Asian American Patients on Cancer

Prevention and Screening Recommendations

Principal Investigator

Grace X. Ma, Ph.D., CHES
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Center for Asian Health
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Research Project Manager
Center for Asian Health
College of Health professions, Temple University

Funding Agency
National Cancer Institute
National Institutes of Health

Center for Asian Health:

Study Title

Provider Barriers Related to Counseling Asian American Patients on Cancer Prevention and Screening Recommendations

 Part I. Characteristics of Potential Subjects

Number of subjects

According to the statistical power analysis it was determined that the sample size needed for this study is approximately 100 health care providers. Depending on the number of health care providers that are available on the general list, approximately 200 health care providers may be contacted to complete the survey. This estimate is under the assumption that we will have a fifty percent participation rate. Since simple random selection will be utilized, the number of males or females that will participate cannot be determined at this point.

Subject description

The subjects for this study are health care providers including physicians, nurse practitioners, and physician assistants who are currently practicing in internal medicine, family practice, or a specialty (e.g., OB/GYN, oncology, etc.), and their practice center is located within a specified zip code in New Jersey or New York City. There will be no children (under 21years old) completing this survey. Gender, age range, ethnicity, as well as other descriptors may vary due to the simple random subject selection based on a general list of eligible health care providers.

Special subject characteristics

Subjects will be health care providers as indicated in section I-B. The study will not use any special subject characteristics, such as persons with mental handicaps, physical handicaps, prisoners, etc.

What is the general state of health of the subjects (physical and mental)?

Not applicable.

Access to subjects

The study will be conducted among health care providers working within the state of New Jersey and New York City. The subjects of the study are health care providers. Various health care provider locator tools including the American Medical Association provider search tool and information from the New Jersey Department of Health and Senior Services' HMO Performance Report and the New York State Department of Insurance Consumer Guide to HMOs will be used to identify and provide contact information on providers who serve in the specified zip codes. A general list of health care providers within the specified zip codes will be generated. From this list, providers will be randomly selected to participate in the survey. No specific recruitment will take place; the subjects will be asked to voluntarily complete the survey.

A key assumption in this study is that Asian Americans residing within highly concentrated zip codes with other Asian Americans will see health care providers within that zip code. According to the 2000 Census, 480,276 residents, or approximately 5.7 percent of the state's population identified themselves as Asian (U.S. Census, 2005). The large Asian population is complemented with the large metropolitan area of Philadelphia to the south and New York City to the north. In New York City, 787,047 residents, or approximately 9.8 percent of the city's population identified themselves as Asian (U.S. Census, 2005). Using the American Fact Finder tool of the U.S. Census, large proportions of Asian residents will be identified by zip code. For the purpose of this study, a large proportion will be operationally defined as the proportion of Asians in a zip code that is at least 7.2 percent (twice the average of the U.S. population for Asian) of the population residing within the specified zip code.

How will subjects be selected or excluded from the study?

Subjects will be randomly selected from a general list of eligible health care providers who are identified to be within specific zip codes. Inclusion criteria for participation are as follows: any physician with a doctor of osteopathic medicine (D.O.) degree or doctor of medicine (M.D.) degree, nurse practitioner, or physician assistant currently practicing in internal medicine, family practice, or a specialty (e.g., OB/GYN, oncology, etc.), and practicing within a specified Asian concentrated zip code in New Jersey or New York City are eligible for participation. Those health care providers that are not within the specified zip codes will be excluded.

Institution other than Temple University

This study will be conducted under the guidance of the Center for Asian Health at Temple University and the Department of Public and Community Health at the University of Maryland.

If the subjects are children, anyone suffering from a known psychiatric condition, or legally restricted, please explain why it is necessary to use these persons as subjects

There will be no children (under 21 years old) completing this survey.

Part II. Experimental or Research Procedure

Background
An important element in addressing the issue of cultural barriers to cancer screening in Asian Americans is the perceived barriers and current screening behaviors. Several studies have suggested that ethnic minorities, such as Asian Americans, do not utilize cancer screenings for several reasons: cost of screening, access to health care/screening, embarrassment, fear of the results, distrust of western medicine and doctors, lack of knowledge, and lack of understanding due to language restrictions (Mandelblatt, Yabroff & Kerner, 2004, Schulmeister & Lifsey, 1999, Mamon, 1990, Hyman et al, 2003.).

Understanding patients' and physicians' points of view can help develop programs to encourage and promote early cancer screening utilization. Physician recommendations for cancer screening have a strong influence on whether patients get screened or not. Studies show that some physicians are more likely to order cancer screening tests for their Caucasian patients than they are for their ethnic patients (Mandelblatt, Yabroff & Kerner, 2004). Therefore, understanding physicians' practice in advising/encouraging Asian patients cancer screening participation is important for Public Health.

a. Objectives/Goals for research

The purpose of this study is to assess and examine the issues and barriers related to provider counseling to Asian Americans on cancer prevention and screening recommendations, the predisposing, enabling, and reinforcing factors related to the recommendation of cancer screenings by health care providers, and what technological methods are key to educating providers on Asian American cancer and cultural issues. In addition, the information derived from this study will aid in the development of a theory-based intervention to raise awareness of cancer issues and cultural beliefs of the Asian American population for health care providers. Planned statistical

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analyses include computing descriptive statistics, univariate statistics, and multivariate logistic regressions.

b. Research Procedure/Data Collection and Statistics

The subjects will be asked to complete a 40-item, closed-ended survey. The survey includes questions on health care provider's general practice, providers' cancer screening recommendations, knowledge and attitudes towards cancer screening, continuing medical education, and demographics. Participation in the survey is completely voluntary and respondents may opt out at any time. The minimum sample size needed to satisfy statistical power requirements is 100 subjects. It is estimated that approximately 200 subjects may be contacted for participation. It is estimated that the survey will take approximately 10 minutes to complete. A copy of the survey instrument (Appendix A) is attached.

Subjects randomly selected from the general list will be involved in three mailings. First, an introductory letter (Appendix B) will be sent to the potential participants describing the purpose of the study and announcing that a survey will be sent in the near future. Approximately 2 weeks after the introductory letter, a cover letter and informed consent form (Appendix C) will be developed and will be sent along with the survey to the health care providers. The cover letter and consent form will provide information regarding the purpose of the study and to encourage participation and return of the survey. Further, upon return of the completed survey, a third mailing consisting of a thank you letter (Appendix D) and incentive ($20 gift card to Barnes & Noble Bookstore) will be conducted.

Three levels of non-parametric and inferential statistical analyses will be computed and include descriptive statistics, univaritate statistics, and multivariate statistics. Each analysis will serve a particular purpose in summarizing the data through numerical means. Data recoding and transformation will be conducted in order to meet the data variable requirements of specific statistics. Missing values will be coded appropriately when data are entered into the system. All data will be entered in, and statistics will be computed by using the Statistical Package for the Social Sciences (SPSS) version 13.0.

c. Will the subjects be deceived in any way? If yes, please describe below.

There will be no deception involved in this study.

d. Interrupted routine activities

It is estimated that the survey will take approximately 5 – 10 minutes to complete. It is assumed that the health care provider may complete this survey during work hours, which will interrupt routine work activities, or outside of work, which will interrupt routine leisure activities. It is understood, however, that a significant disruption in routine activities should not occur due to completing the survey.

e. Compensation

Upon return of the completed survey, a thank you letter (Appendix D) and incentive ($20 gift card to Barnes & Noble Bookstore) will be mailed to the subject.

Part III. Data Confidentiality
a. Confidentiality procedures

Adequate provisions will be made to protect the privacy of the subjects and to maintain the confidentiality of identifiable information. All data will be stored in a secure location. More specifically, all hard copy forms containing identity information, surveys, informed consent forms, and other potentially identifying and confidential information will be kept in a locked file cabinet accessible by study investigators. The study investigators include the principal (student) investigator, and the co-investigator (dissertation chair) and the co-investigator (dissertation advisor). All electronic data will be kept secure. All data will be entered at one computer located in a locked facility. Further, computer access is user name and password protected and only accessible by the principal (student) investigator. All hard copy data will be kept for up to one year following the completion of the study. Upon the one-year date, all hard copies will be destroyed via a shredder. To assure anonymity, each survey will contain a numerical identification code to match the subject from the master mailing list.

Part IV. Consent Procedures

a. Consent form

Please see Appendix A.

Part V. Benefits of the Study

A. How will any one subject benefit from participation in this study?

There are no potential benefits from participating in this study other than receiving an incentive for completing the survey.

B. How will society, in general benefit from the conduct of this study?

The results from this study will add to the growing research conducted on the cultural competency of providers, using the channel of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asian Americans.

Part VI. Risks/Discomforts to Subjects

a. Causes of discomfort

The only potential risks to the subjects include scheduling conflicts in order to complete the survey.

b. Long range risks

No long-range risks are anticipated nor expected.

c. Risk exposing rationale

The risks involved in this study are minimal at best.

March 6, 2006

Institutional Review Board
Temple University

RE: Modification to Protocol # 05-259

To Whom It May Concern:

Several modifications have been made to the above referenced protocol after further deliberation of the student's dissertation proposal and specific recommendations for changes made by the committee. The following nine modifications have been made to the above referenced protocol:

1. **Study Title:**

   To accurately reflect the goals of this study, the study title has been revised to: "Factors related to counseling Asian patients by primary care physicians on cancer prevention and screening recommendations."

2. **Part I A: Sample size**

   It was determined that for an effect size of 0.50, a sample of 80 subjects would be needed in order to achieve power at 0.8. Therefore, an acceptable sample size for this study is 80 subjects. It was originally reported that a sample size of 100 was needed for this study. However, reaching 100 subjects is still an optimal goal for this study.

3. **Part I B-C: Subject description**

   The original protocol had "health care providers" as the primary subjects which included nurse practitioners and physician assistants in addition to physicians as the subjects for the study. This study will now be focusing on "primary care physicians" only.

4. **Part I F: Subject selection/inclusion criteria**

   The original protocol included "nurse practitioner" or "physician assistant" as part of the inclusion criteria. This study will be focusing on "primary care physicians" only and will follow the physician inclusion criteria as originally outlined in the protocol.

5. **Part II A: Objectives/goals for research**

   The following is the revised statement of purpose of the study:

The purpose of this study is to assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. Primary care physicians will be asked to voluntarily complete a 30-item survey. All subjects will be asked to review and sign a consent form that describes the purpose of the study, the risks and benefits of the study, confidentiality of the data, and the voluntary participation in this study. All identifiers and data will be kept in a locked and secure location. The results from this study will add to the growing research conducted on patient-physician communication, the cultural competency of physicians, using the source of the physician for cancer screening and prevention counseling, and on cancer control and prevention among Asians in the U.S. Further, the results from this study will provide pertinent information to develop interventions for physicians to recommend cancer screening in a way that maximizes the likelihood that a patient will follow-up and be screened.

6. Part II B: Research Procedure/data collection and statistics

The survey instrument and accompanying introduction, cover, and thank you letters have been modified. The following appendices have been revised and are included with this letter:

APPENDIX A—REVISED 30-ITEM SURVEY INSTRUMENT

The survey instrument was revised based on the comments and recommendations of the dissertation committee. In addition, a new theoretical model was selected and thus resulted in significant modifications to the survey. Further, a survey methodologist provided additional recommendations in question wording. Based on the recommendations, many of the original questions (original survey that was submitted for IRB review) have been modified by moving the question to a different section of the survey, adjusting the question for clarity or for better wording purposes, adding or deleting questions to reflect the new theoretical model and recommendations, and/or changing the response categories (into a scale, categories, or continuous variable) for better statistical analysis capabilities. The new survey now contains 30 questions as opposed to the original 40 question survey. The following describes the changes that were made to the original survey and are now reflected in the new survey:

Overall survey:

- The instructions were expanded to define Asians according to the U.S. Census. Therefore, a list of the Asian categories is now included.
- At the end of the survey, the address to submit the survey (if the prepaid envelope is misplaced) was added.

- Section D (Continuing Medical Education) from the original survey has been deleted and not included on the revised survey.

Section A: General Practice Information:

- Questions 1-9 from the original survey remained, but were slightly modified for better clarification based on the recommendations of a survey methodologist.
- Questions 10-11 were originally in section B (#1 and #2) in the original survey but were transferred to the new section A. Further, the questions were modified for clarity.
- Question 12 is a modified question of the original question 11 in Section A. This question was turned into a scale for better clarification and analysis capabilities.

Section B: Asian Patient Communication:

- Questions 1-3 are new questions that were added to the survey.
- Question 4 on the revised survey was question #3 on the original survey.
- Question 5 is a modification of the question #6 on the original survey.
- Questions 6-8 are new questions.

Section C: Screening Guidelines and Asian Cancer Risk:

- Questions 1-3 are modifications and extensions of questions 1-2 from the original survey.

Section D: Demographics:

- Question 3 (Race/ethnicity) was expanded to include American Indian/Alaska Native group.

APPENDIX B—REVISED INTRODUCTORY LETTER

- Minor modifications were made from the original introductory letter including updating the description of the survey, updating what the survey questions are now comprised of, replacing health care provider with physician, updating the length of time to complete the survey, and updating the information about the new $25 gift card.

APPENDIX C—REVISED COVER LETTER AND CONSENT FORM

- Minor modifications were made from the original cover letter including shortening the first paragraph, replacing health care provider with physician, updating the length of time to complete the survey, updating the purpose of the study, updating what the survey questions are now comprised of, and updating the information about the new $25 gift card.
- Please see item 9 below for consent form modification information.

APPENDIX D—REVISED THANK YOU LETTER

- Minor modifications were made from the original thank you letter including revising the survey description and updating the information about the new $25 gift card to Barnes and Noble.

7. **Part II D: Interrupted routine activities**

It is now estimated that the revised survey will take approximately 10-15 minutes to complete and not 5-10 minutes as originally stated.

8. **Part II E: Compensation**

All subjects who complete a survey will receive a $25 gift card to Barnes & Noble bookstore for their incentive and not a $20 gift card as originally stated.

9. **Part IV: Consent form**

Changes were made to the consent form as reflected in Appendix C. Changes include:

- Modifying the language of the consent form for clarity and easier comprehension.
- Modified the estimated time to complete the survey to 10-15 minutes.
- Added contact information for the University of Maryland's IRB office as requested by the University of Maryland IRB office.

Thank you for your time in reviewing these modifications.

Sincerely,

Harry Kwon

APPENDIX E

UNIVERSITY OF
MARYLAND

INSTITUTIONAL REVIEW BOARD

2100 Lee Building
College Park, Maryland 20742-5121
301.405.4212 TEL 301.314.1475 FAX
irb@deans.umd.edu
www.umresearch.umd.edu/IRB

April 28, 2006

MEMORANDUM

Application Approval Notification

To:	Dr. Robert S. Gold Mr. Harry T. Kwon Department of Public and Community Health
From:	Roslyn Edson, M.S., CIP IRB Manager University of Maryland, College Park
Re:	IRB Number 05-0579 Project Title: "Factors Related to Counseling Asian Patients by Primary Care Physicians on Cancer Prevention and Screening Recommendations"
Approval Date:	April 28, 2006
Expiration Date:	April 28, 2007
Type of Application:	New Project
Type of Research:	Nonexempt
Type of Review For Application:	Expedited

The University of Maryland, College Park Institutional Review Board (IRB) approved your IRB application. The research was approved in accordance with 45 CFR 46, the Federal Policy for the Protection of Human Subjects, and the University's IRB policies and procedures. Please reference the above-cited IRB application number in any future communications with our office regarding this research.

Recruitment/Consent: For research requiring written informed consent, the IRB-approved and stamped informed consent document is enclosed. The IRB approval expiration date has been stamped on the informed consent document. Please keep copies of the consent forms used for this research for three years after the completion of the research.

Continuing Review: If you intend to continue to collect data from human subjects or to analyze private, identifiable data collected from human subjects, after the expiration date for this approval (indicated above), you must submit a renewal application to the IRB Office at least 30 days before the approval expiration date.

Modifications: Any changes to the approved protocol must be approved by the IRB before the change is implemented, except when a change is necessary to eliminate apparent immediate hazards to the subjects. If you would like to modify the approved protocol, please submit an addendum request to the IRB Office. The instructions for submitting a request are posted on the IRB web site at: **http://www.umresearch.umd.edu/IRB/irb_Addendum%20Protocol.htm.** *(continued)*

Unanticipated Problems Involving Risks: You must promptly report any unanticipated problems involving risks to subjects or others to the IRB Manager at 301-405-0678 or redson@umresearch.umd.edu.

Student Researchers: Unless otherwise requested, this IRB approval document was sent to the Principal Investigator (PI). The PI should pass on the approval document or a copy to the student researchers. This IRB approval document may be a requirement for student researchers applying for graduation. The IRB may not be able to provide copies of the approval documents if several years have passed since the date of the original approval.

Additional Information: Please contact the IRB Office at 301-405-4212 if you have any IRB-related questions or concerns.

TEMPLE UNIVERSITY
A Commonwealth University

Office for Human Subjects Protections
Institutional Review Board
Medical Intervention Committees A1 & A2
Social and Behavioral Committee B

3400 North Broad Street (509-00)
Philadelphia, Pennsylvania, 19140
(215)707-8757 Fax: (215)707-8387
e-mail: richard.throm@temple.edu

MEMORANDUM

To: Grace Ma, Ph.D.
           Center for Asian Health

From: Richard C. Throm
           Director, Office for Human Subjects Protection
           Institutional Review Board Coordinator

Date: April 7, 2006

Re: Modifications to Protocol # 05-259/Provider Barriers Related to
           Counseling Asian American Patients on Cancer Prevention and
           Screening Recommendations

~~~~~~

This is to acknowledge receipt of your memorandum dated 3/9/06, requesting changes to the referenced research project.

The followed items were reviewed and approved by the IRB Chair.

- IRB Revision Letter
- 2 week Intro Letter
- Cover Letter and Consent form
- Physician Survey Form
- Thank you letter for Survey

The letter of invitation, the thank you letter and the revised informed consent have been stamped with the most recent approval date of 11/30/05 (Committee B).

Thank you for keeping the IRB informed of your clinical Research.

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APPENDIX F

TEMPLE
UNIVERSITY

ATECAR, Center for Asian Health
1415 N. Broad Street
Suite 116
Philadelphia, PA 19122

phone 215-787-5434
fax 215-787-5436
web www.temple.edu/cah

Date

Dear Dr. _____ :

My name is Harry Kwon and I am currently a doctoral candidate in the Department of Public and Community Health at the University of Maryland, College Park. I am asking for your cooperation on a research study that I am conducting as part of my Ph.D. dissertation under the mentorship of Dr. Grace Ma, Director of The Center for Asian Health and Professor of Public Health at Temple University and Dr. Robert S. Gold, Dean of the College of Health and Human Performance and Professor of Public and Community Health at the University of Maryland.

You are being invited to participate in this research study because you are a physician practicing in a region known to have a large Asian population. Enclosed is a short survey assessing the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. The survey should take 10 to 15 minutes to complete. Your participation in this study is voluntary and strictly confidential. The following information is provided in order to help you make an informed decision as to whether or not to participate.

The purpose of this research study is to:
> Assess and evaluate the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S.

The survey is comprised of questions regarding:
1. General practice information
2. Issues and barriers related to Asian patient communication
3. Screening guidelines and Asian cancer risk
4. Demographics

By participating in this study you will be contributing to our understanding of cancer control and prevention among Asian patients. Please see the enclosed consent form for more details. Kindly read and sign the consent form and return it with the completed survey in the addressed and stamped envelope. Upon return of your consent form and survey, a $25 gift card to Barnes and Noble Bookstore will be sent to you for your participation. If you have any questions please feel free to contact me at (240) 421-1653 or via email at hkwon@umd.edu. I appreciate your assistance towards the completion of my doctorate in Public and Community Health. Thank you for your time and participation.

Sincerely,

Harry Kwon, MPH, CHES
Center for Asian Health, Temple University, and
Department of Public and Community Health, University of Maryland

APPENDIX G

TEMPLE UNIVERSITY
A Commonwealth University

ATECAR, Center for Asian Health

College of Health Professions
Department of Public Health

1415 N. Broad Street
Room 116
Philadelphia, PA 19122
(215) 787-5434
Fax: (215) 787-5436
E-mail: cah@temple.edu
www.temple.edu/cah

Consent Form

You are being invited to participate in this research study because you are a physician practicing in a region known to have a large Asian population. By participating in this study, you will be contributing to our understanding of cancer control and prevention among Asian patients.

You are asked to sign this form and return it with the completed survey in the stamped, addressed envelope provided. You may ask any questions that you may have about the research study. There are no known risks to study participants and this research is not designed to benefit you personally. The survey is estimated to take 10 to 15 minutes to complete. Your participation is completely voluntary and you may withdraw from this research study at any time.

Confidentiality:

Only the investigator, study staff, Temple University's Institutional Review Board and the University of Maryland's Institutional Review Board will have access to the information collected by the study. A unique identification number designated by the investigator will be used to catalogue mailed and returned surveys. Only the investigator will have access to the master list of names and assigned identification numbers. The results of this study may be presented at professional conferences or in publications; however, your identity will not be disclosed in those presentations.

By signing this consent form, you have not waived any of your legal rights that you otherwise would have as a participant in this research study. If you need more information regarding your rights as a research subject, you may contact Richard Throm, Program Manager & Coordinator at the Office of the Vice President for Research of Temple University by phoning (215) 707-8757 or the University of Maryland Institutional Review Board Office at (301) 405-0678.

Having thoroughly read, understood, and received a full explanation of the above information, you voluntarily consent to participate in this research study.

_____   _____
Study Participant Signature   Date

_____
Print Name

IRB APPROVED
VALID UNTIL

APR 2 8 2007

UNIVERSITY OF MARYLAND
COLLEGE PARK

TEMPLE UNIVERSITY
IRB (COMMITTEE B) APPROVAL

NOV 3 0 2005

VALID FOR NO MORE
THAN ONE YEAR

APPENDIX H

TEMPLE UNIVERSITY

ATECAR, Center for Asian Health
1415 N. Broad Street
Suite 116
Philadelphia, PA 19122

phone 215-787-5434
fax 215-787-5436
web www.temple.edu/cah

Date

Dear _____:

Thank you for your recent participation in a survey about the issues and barriers related to appropriate and effective screening recommendations for early detection of cancer for Asians in the U.S. It has been extremely important for us to hear what you have to say and your contributions to our understanding of cancer control and prevention among Asian patients is greatly appreciated. Your help is essential in this process, and we appreciate your time, input, and candor.

For your involvement in this effort, please find the enclosed $25 gift card to Barnes and Nobles Bookstore as a small token of thanks. If you have any questions, please feel free to contact me at (240) 421-1653 or via email at hkwon@umd.edu. Thank you again for your time and for completing the survey.

Sincerely,

Harry Kwon, MPH, CHES
Center for Asian Health, Temple University, and
Department of Public and Community Health, University of Maryland

GLOSSARY

Ability: Also referred to as ability to process or elaborate issue-relevant arguments (information) in an objective manner (Petty & Cacioppo, 1986, p. 79).

Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian Subcontinent (U.S. Census Bureau, 2000). Broadly defined for this study, reference to Asians also reflects Asians living in the United States unless otherwise noted.

Asian American: An Asian person who is a U.S. citizen or legal resident. Broadly defined for this study, reflects Asians living in the United States, and included if the original reference indicated Asian American.

Asians in the U.S.:   Reflects Asians who may or may not be U.S. citizens or permanent residents but are residing in the United States.

Breast cancer: Cancer that forms in tissues of the breast, usually the ducts (tubes that carry milk to the nipple) and lobules (glands that make milk). It occurs in both men and women, although male breast cancer is rare (National Cancer Institute, 2005c).

Cancer: A disease in which abnormal cells divide without control. Cancer cells can invade nearby tissue and spread through the bloodstream and lymphatic system to other parts of the body (U.S. Department of Health and Human Services, 2000).

Cancer screening: Checking for changes in tissue, cells, or fluids that may indicate the possibility of cancer when there are no symptoms (U.S. Department of Health and Human Services, 2000).

Cervical cancer: Cancer that forms in tissues of the cervix (organ connecting the uterus and vagina). It is usually a slow-growing cancer that may not have symptoms, but can be found with regular Pap smears (procedure in which cells are scraped from the cervix and looked at under a microscope) (National Cancer Institute, 2005c).

Colorectal cancer: Cancer that develops in the colon (large intestine) and/or the rectum (the last several inches of the large intestine before the anus) (National Cancer Institute, 2005c).

Cultural competency: A set of congruent behaviors, attitudes, and policies that come together in a system or agency, or among professionals, enabling effective work in cross-cultural situations (Cross et al., 1989).

ELM: Elaboration Likelihood Model (ELM) is a framework for understanding the processes underlying attitude and perception change through the processes of persuasion (Petty & Cacioppo, 1986).

Health care provider: A physician, nurse practitioner, physician's assistant, or nurse.

Health disparities: Differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States (National Institutes of Health, 2000).

Hepatitis B virus: A virus that causes hepatitis (inflammation of the liver). It is carried and passed to others through blood or sexual contact. Also, infants born to infected mothers may become infected with the virus (National Cancer Institute, 2005c).

Liver cancer: A disease in which malignant (cancer) cells are found in the tissues of the liver (National Cancer Institute, 2005c).

Lung cancer: Cancer that forms in tissues of the lung, usually in the cells lining air passages. The two main types are small cell lung cancer and non-small cell lung cancer. These types are diagnosed based on how the cells look under a microscope (National Cancer Institute, 2005c).

Motivation: The factor that propels and guides people's information processing and gives it its purposive character (Petty & Cacioppo, 1986, p. 218).

Peripheral cues: Stimuli that can affect attitudes without critical processing of information.

Physician distractions to providing recommendations: Operationally defined as the physician perceived communication barriers with Asian patients, significance of the barriers in communication, and perceived ability to deal with barriers (in terms of difficulty).

Physician perceived
capacity to deliver
effective
communications: Operationally defined as confidence in the physician's ability to
                          conduct culturally competent related tasks

Physician perception
of patient distractions: Operationally defined as barriers of Asian patients to getting
                          screened, perception of patient self-efficacy, and physician
                          suggestions to help patients with getting screened.

Physician perception of
patient's view of source
credibility of the
physician: Operationally defined as the perception of physician
                          trustworthiness, credibility, knowledge, and expertise.

Physician perception
of personal relevance: Operationally defined as agreeing that it is personally significant
                          to educate patients on the importance of cancer screening and
                          smoking cessation, physician perception of Asian cancer risks,
                          and frequency of following organizational cancer screening
                          guidelines.

Physician perception
of personal
responsibility: Operationally defined as agreement to making cancer-screening
                          recommendation a responsibility as a physician.

Physician's perception
of screening
recommendation
relevance to the patient: Operationally defined as the physician providing screening
                          recommendations in context of the patient, emphasizing the
                          importance of the recommendation, providing a rationale for the
                          screening recommendation, and physician emphasizing patient
                          responsibility to get screened (i.e., it is the responsibility of the
                          patient to get screened).

Primary care provider: A general practitioner who sees people of all ages for common
                          medical problems (National Library of Medicine, 2004).

Primary care physician: A physician practicing in general or family practice, internal
                          medicine, or a related specialty in medicine (e.g.
                          obstetrician/gynecologist).

Prostate cancer: Cancer that forms in tissues of the prostate (a gland in the male reproductive system found below the bladder and in front of the rectum). Prostate cancer usually occurs in older men (National Cancer Institute, 2005c).

Screening: Checking for disease when there are no symptoms (National Cancer Institute, 2005c).

Smoking cessation: Trying to quit cigarette smoking.

Stomach cancer: Cancer that forms in the tissues lining the stomach. Also called gastric cancer (National Cancer Institute, 2005c).

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