

Contributing Factors to Colorectal Cancer and Hepatitis B Screening Among Vietnamese Americans

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Colorectal cancer (CRC) and liver/bile duct cancers are two of the top five leading causes of cancer deaths affecting Vietnamese men and women in the United States (immigrants and those born in the United States) (Miller, Chu, Hankey, & Ries, 2008). From 2000 to 2010, the Vietnamese population in the United States increased by 40%, from 1,169,672 to 1,632,717 (Hoeffel, Rastogi, Kim, & Shahid, 2012). Although Vietnamese is the fourth largest subgroup within the Asian American Pacific Islander (AAPI) group (Hoeffel et al., 2012), the literature about contributing factors to CRC and hepatitis B screening among this subgroup is limited. The purpose of this integrative review is to systematically assess factors associated with CRC screening (i.e., fecal occult blood testing [FOBT], sigmoidoscopy, or colonoscopy) and hepatitis B screening (i.e., hepatitis B virus [HBV] serologic testing) among Vietnamese Americans. CRC screening is significant to cancer control because regular screening examinations can result in detection and removal of precancerous lesions before they become malignant (American Cancer Society [ACS], 2012b). Hepatitis B screening is considered an essential parallel model for liver cancer screening because a common risk factor for liver cancer is chronic infection with HBV, a common infection in Asian countries, including Vietnam (ACS, 2012c).

The authors sought to identify known barriers to CRC and hepatitis B screening in the Vietnamese American population. Although Vietnamese Americans have low CRC incidence rates compared to White non-Hispanics (Miller et al., 2008), Vietnamese Americans have later diagnoses of CRC than many other subgroups. Vietnamese American women present more often with a late-stage CRC diagnosis compared to White non-Hispanic women (43% versus 32%, respectively) as did Vietnamese American men when compared to White non-Hispanic men (42% versus 30%, respectively) and also when compared to four larger Asian ethnic subgroups (Chinese, Filipino, Japanese, and Korean) (Miller et al., 2008).

Purpose/Objectives: To identify factors associated with screening for colorectal cancer (CRC) and hepatitis B, because hepatitis B can increase the risk of liver cancer.

Data Sources: MEDLINE®, CINAHL®, and PsycINFO databases from January 1998 to April 2012.

Data Synthesis: The 23 reviewed studies included 15 descriptive, 2 intervention, 3 qualitative, 2 chart or medical record review, and 1 mixed method. Most studies used an investigator-developed instrument with no reported reliability. Inconsistent operational definitions for contributing factors to screening made it challenging to make comparisons.

Conclusions: CRC and hepatitis B screening are consistently low among Vietnamese Americans. Contributing factors included sociodemographics, knowledge, cultural beliefs, and external factors. External factors such as having a regular place of care and a healthcare provider were crucial because they influenced adherence to screening recommendations. Use of a public media education plus healthcare provider model and a culturally tailored intervention using Vietnamese lay advisors appeared to be promising for improving CRC screening. Additional intervention studies are needed to increase screening.

Implications for Nursing: Vietnamese is a fast-growing subgroup within the Asian American Pacific Islander (AAPI) group that may require targeted approaches to screening for disease. Future studies should focus on immigrants or those who were born in the United States (men and women) as disaggregated subgroups. Such research can inform culturally sensitive and appropriate interventions that may improve cancer screening rates.

Knowledge Translation: Although Vietnamese is the fourth largest racial-ethnic subgroup within the AAPI group, the literature about contributing factors to CRC and hepatitis B screening is limited among this subgroup. CRC and hepatitis B screening are consistently low among Vietnamese Americans. Use of public media education plus a healthcare provider model and a culturally tailored intervention using Vietnamese lay advisors appears promising for improving CRC screening.

Likewise, screening rates for liver disease in this population are lower, and this may have implications for cancer incidence in this group. For example,

Vietnamese American men have high liver/bile duct cancer incidence rate compared to White non-Hispanic men (age-adjusted 55.5 versus 6.7 per 100,000, respectively) and higher than four other larger Asian ethnic subgroups (Chinese, Filipino, Japanese, and Korean) (Miller et al., 2008). The incidence of liver/bile duct cancer also is high among Vietnamese American women compared to White non-Hispanic women (age-adjusted 16.8 versus 2.6 per 100,000, respectively) (Miller et al., 2008). Vietnamese American men die from liver/bile duct cancer at a rate almost six times higher compared to White non-Hispanic men (age-adjusted 33.8 versus 6.1 per 100,000) and higher than three other larger Asian ethnic men subgroups (Chinese, Filipino, and Japanese) (Miller et al., 2008). Vietnamese American women die from liver/bile duct cancer at a rate of four times higher compared to White non-Hispanic women (age-adjusted 10.9 versus 2.7 per 100,000, respectively) and higher than three other larger Asian ethnic women subgroups (Chinese, Filipino, and Japanese) (Miller et al., 2008).

Vietnamese Americans hold cultural health beliefs, including rarely seeking care when asymptomatic (Purnell, 2008). Culturally held beliefs, barriers, and access issues that might prevent early detection of precancerous and cancerous lesions among Vietnamese Americans must be better understood to decrease late-stage cancer diagnoses and mortality rates. Understanding factors associated with cancer screening among Vietnamese Americans is necessary to inform culturally sensitive and appropriate interventions to increase CRC and hepatitis B screening for this underserved group.

Methods

An electronic search was performed with the MEDLINE®, CINAHL®, and PsycINFO databases. Search strategies were developed with university reference and instruction librarians. The following key search terms were used: *mass screening*, *screen\$.mp* (searches the title, abstract, heading word, table of contents, and key concepts), *cancer screening*, *Vietnam\$.mp.*, and *neoplasms*. The search was limited to original research articles that were published in English (none were published in Vietnamese). The time frame for the literature search was from January 1998 to April 2012.

A manual search of the retrieved references was performed to exclude articles that did not pertain to CRC and hepatitis B screening. The authors also excluded articles from the review if the reported findings were based on aggregated data on nonspecific Asian ethnic subgroups or if the study population only involved healthcare providers, rather than Vietnamese Americans. The first and second author independently conducted the search and assessed the title and abstract of each retrieved reference, met for discussion, and

then arrived at a consensus. The searches identified 90 articles, and 23 met the criteria for review.

Results

Critique and Overview of Reviewed Studies

A tool was used to systematically extract variables of interest and generic study elements (i.e., research purpose and aim, sample, setting, design, and measures) for this systematic integrative review (Smith & Stullenbarger, 1991). Table 1 contains a summary of the 23 reviewed studies. Fifteen studies were descriptive (65%), two interventions (9%), three qualitative (13%), two chart reviews or medical records (9%), and one mixed-methods (4%) (chart review or medical record and pilot survey). Twenty (87%) focused on Vietnamese Americans (both men and women), two on Vietnamese American women (9%), and one on Vietnamese men who self-identified as immigrant (4%). For types of screening, 11 (48%) focused on CRC screening, 6 (26%) on hepatitis B screening, and 6 (26%) on other type(s) of cancer screening in addition to CRC and/or hepatitis B screening.

The sample size across chart review or medical record and descriptive studies among Vietnamese Americans was diverse and ranged from 29–1,016. The sample size across intervention studies also was diverse and ranged from 108–793. The wide variation in sample sizes was likely attributed to the differences in the number of variables (factors) being examined with CRC and hepatitis B screening. Many studies did not report how sample size or power was determined. The sample size across qualitative studies ranged from 20–47, and this depended on achieving data saturation. Samples were mostly drawn from states in the western (California, Washington, and Hawaii), eastern (Pennsylvania, Maryland, and New Jersey,) and southern (Texas and Alabama) regions of the United States. Most studies conducted in California and Washington appeared to use large samples from a county or metropolitan area compared to most of the Eastern and Southern state studies, which were from community-based organizations (except for Texas and Maryland).

Only six studies reported using a conceptual or theoretical framework, which included the Andersen's Behavioral Model of Health Services Use (Lee, Lundquist, Ju, Luo, & Townsend, 2011; Wong, Gildengorin, Nguyen, & Mock, 2005), Public and Provider Pathways of the Pathways Framework (Nguyen, McPhee, Stewart, & Doan, 2010), Grounded Theory (Nguyen, Barg, Armstrong, Holmes, & Hornik, 2008), Health Behavior Framework (Taylor et al., 2004), and Transtheoretical Model of Behavior Change (Walsh et al., 2010). The descriptive and intervention studies used an investigator-developed instrument and/or adapted items from questionnaires

Table 1. Colorectal Cancer and Hepatitis B Screening Studies on Vietnamese Americans

Study	Purpose and Aim	Sample and Setting ^a	Design	Measures
Burke et al., 2004	To identify cultural factors influencing hepatitis B knowledge, self-knowledge, transmission, barriers, and facilitators to testing; to develop culturally appropriate intervention materials	47 immigrants (male and female) in Seattle, WA. Mean age was 43 years (range = 21–74 years).	Qualitative	Twenty-five semistructured individual interviews, six focus groups Taped interviews and focus groups were transcribed in Vietnamese and translated into English.
Gomez et al., 2007	To identify clustered characteristics of Asian American women ethnic subgroups most likely to not follow mammography screening guidelines, Pap test, and colorectal cancer (CRC) screening practices	226 immigrant and U.S.-born women from California	Descriptive with recursive partitioning (a form of regression analysis)	Secondary analysis of the 2001 California (CA) Health Interview Survey (telephone), which included demographics, percentage of lifetime in the United States, English proficiency, screening practices (mammogram, Pap test, CRC tests), eligibility for public programs, and preexisting health conditions Formal testing of the instrument was not reported; interviews were conducted in Vietnamese, English, or other native languages.
Kandula et al., 2006	To examine CRC, cervical, and breast cancer screening practices and determine whether Asians reported different reasons than White non-Hispanics for not obtaining cancer screening	857 immigrant and U.S.-born men and women from California with a mean age of 39.5 years. Only participants older than age 50 were analyzed.	Descriptive with regression analysis	Secondary analysis of the 2001 CA Health Interview Survey (telephone), which included demographics, access to care, nativity, language use, screening practices (CRC tests, Pap test, mammogram), identified the most important reason for not getting screened and noted serious chronic disease Formal testing of the instrument was not reported; interviews were conducted in Vietnamese, English, or other native languages.
Lee et al., 2011	To examine CRC screening by disaggregating Asian American Pacific Islanders into seven subgroups (Vietnamese, Chinese, Korean, Japanese, South Asians, Filipinos, and Pacific Islanders) to identify the most vulnerable subgroups regarding CRC screening	704 immigrants (male and female) from California with a mean age of 60.6 years. Only participants older than age 50 were analyzed.	Descriptive with logistic regression analysis; Andersen's behavioral model of health services use	Secondary analysis of merged data from the 2001, 2003, and 2005 CA Health Interview Survey (telephone), which included demographics, access to care, years in the United States, language use, CRC screening tests, health status, number of doctor visits, number of chronic diseases, and smoking Drew on Andersen's behavioral model of health services use. Predisposing factors, enabling factors, and need factors were included as potential confounders. Formal testing of the instrument was not reported; the authors did not report that interviews were conducted in Vietnamese.
Levy et al., 2010	To conduct community-driven research regarding the predictors and barriers to use of hepatitis B-related preventive healthcare services	207 immigrant and U.S.-born men and women approached at community events in Philadelphia, PA. Mean age was 51 years (range = 18–83 years).	Descriptive with chi-square and multivariate logistic regression analyses	Investigator-developed, self-administered, and face-to-face administered questionnaire included demographics; receipt, knowledge, and attitudes about hepatitis B vaccination and screening; and cultural beliefs. Questionnaire based on interviews with community experts, published literature, National Cancer Institute's Health Information National Trends Survey, Public Health Management Corporation's Household Health Survey, and prior investigator-developed surveys The questionnaire was translated into Vietnamese and back-translated into English.
Ma et al., 2007	To identify beliefs, attitudes, and practices about hepatitis B virus infection, its transmission, and liver cancer risks; to examine testing and vaccination history	256 immigrant and U.S.-born men and women from community organizations in Pennsylvania and New Jersey. Mean age was 41.8 years.	Descriptive with chi-square analysis	Investigator-developed instrument (47 items) included demographics, knowledge and beliefs about hepatitis B virus, screening behavior, and health perceptions. Pilot-tested and supported face validity; a Vietnamese and an English version were provided

(Continued on the next page)^aThe n value represents Vietnamese subsample from each study.

Table 1. Colorectal Cancer and Hepatitis B Screening Studies on Vietnamese Americans (Continued)

Study	Purpose and Aim	Sample and Setting ^a	Design	Measures
Maxwell & Crespi, 2009	To compare trends in CRC screening prevalence from 2001–2005 by ethnic group	224 immigrant and U.S.-born men and women from California (age not provided). Only participants older than age 50 were analyzed.	Descriptive with Wald tests	Secondary analysis of merged data from the 2001, 2003, and 2005 CA Health Interview Survey (telephone), which included having ever been screened for fecal occult blood test (FOBT) and endoscopy, and being up to date with CRC screening Formal testing of the instrument was not reported. Interviews were conducted in Vietnamese, English, or other native languages.
Maxwell et al., 2010	To examine the roles of demographic characteristics, English proficiency, and access to health care in explaining the observed differences in CRC screening prevalence among Asian American ethnic groups	709 immigrant and U.S.-born men and women from California (age not provided). Only participants older than age 50 were analyzed.	Descriptive with hierarchical logistic regression analysis	Secondary analysis of merged data from the 2001, 2003, and 2005 CA Health Interview Survey (telephone), which included demographics, English proficiency, access to care, most recent doctor's visit, and CRC screening Formal testing of the instrument was not reported; authors did not report that interviews were conducted in Vietnamese.
Nguyen et al., 2003	To determine the degree of preventive care use and to examine factors that might influence CRC, breast, and cervical cancer screening practices	952 immigrants (men and women) from a private internal medicine office in Honolulu, HI. Mean age was 57 years (range = 18–82 years). Only participants 50 years and older were analyzed.	Chart review 1996–2000	Data extracted included demographics, insurance, last doctor visit, and screening tests. Data collection form based on the 1997 National Ambulatory Medical Care Survey (20 most common diagnoses), literature, and vital statistics report
Nguyen et al., 2006	To identify sources and credibility of health information, media use, and intervention approaches for promoting CRC screening	32 immigrants (men and women) from community organizations in the cities of Oakland and San Jose and Alameda and Santa Clara counties in California. Only participants aged 50–74 years were analyzed.	Qualitative	Four focus groups Audio-recorded focus groups were transcribed in Vietnamese and translated into English.
Nguyen, Barg, et al., 2008	To examine elements of provider-patient cancer communication from the perspectives of older patients	20 immigrants (men and women) from community organizations in Philadelphia, PA (age range = 50–74 years)	Grounded theory; qualitative	Semistructured individual interviews Interview format was pilot-tested; audio-recorded interviews were transcribed in Vietnamese and translated into English.
Nguyen, McPhee, et al., 2008	To examine CRC screening rates and identify determinants of CRC screening recognition, receipt, intention, and being up to date	894 immigrant and U.S.-born men and women from Alameda and Santa Clara counties in California and Harris County in Texas (age range = 50–74 years)	Descriptive with multiple logistic regression analyses	Telephone survey included demographics, healthcare characteristics, and knowledge of and attitudes toward CRC and screening. Questions adapted from the National Health Interview Survey and literature on cancer control surveys of Vietnamese Americans The survey was translated into Vietnamese and back-translated into English, pilot-tested, and interviews were conducted in Vietnamese or English.

(Continued on the next page)^a The n value represents Vietnamese subsample from each study.

Table 1. Colorectal Cancer and Hepatitis B Screening Studies on Vietnamese Americans (Continued)

Study	Purpose and Aim	Sample and Setting ^a	Design	Measures
Nguyen et al., 2010	To conduct a controlled trial of a public media education and healthcare provider intervention to increase CRC screening rates	533 immigrant and U.S.-born men and women from Alameda and Santa Clara counties in California (intervention) and Harris County in Texas (control). Only participants aged 50–74 years were analyzed.	Quasi-experimental, two-year intervention; chi-square and McNemar tests; mediation analysis using the Baron and Kenny method; repeated-measures analysis	Telephone survey included demographics, healthcare characteristics, knowledge of and attitudes and beliefs toward CRC and screening, and exposure to media regarding CRC. Questions adapted from the National Health Interview Survey and literature on cancer control surveys of Vietnamese Americans. Questionnaire development process reported elsewhere. The questionnaire was pilot-tested and interviews were conducted in Vietnamese or English.
Samuel et al., 2009	To assess colorectal, breast, and cervical cancer screening rates among immigrant women from Cambodia, Somalia, and Vietnam, and explore screening behaviors	29 immigrant women from a general medicine clinic in Portland, MA. Mean age was 62 years (range = 50–75 years).	Mixed methods, chart review (2002–2005) and pilot survey (n = 15); bivariable and multivariable logistic regression analyses	Data extracted included age; years of U.S. residence; country of origin, marital status; personal or family history of colorectal, breast, and cervical cancer; and year of the patient's most recent screening tests (Pap smear, clinical breast examination, mammography, colonoscopy or sigmoidoscopy, and FOBT). Developed a pilot survey instrument that included education level; knowledge of colorectal, breast, and cervical cancer; screening options; perception of preventive medicine; perceived barriers to screening; and preferences for receiving information on cancer screening
Taylor et al., 2000	To examine hepatitis B knowledge	75 immigrant and U.S.-born men and women from Seattle, WA. Mean age was 44 years.	Descriptive with chi-square and Fisher's exact tests, and Student's t test	Community-based telephone survey included demographics, if the participant had heard of hepatitis B, had knowledge about hepatitis B transmission (11 items, summed scores), knew of possible sequelae of infection with the hepatitis B virus (6 items, summed scores), or knew of hepatitis B virus disease prevention. Adapted survey instruments developed by other research groups surrounding evaluation of childhood hepatitis B virus vaccination programs. Questionnaire was translated into Vietnamese and back-translated into English. Interviews were conducted in Vietnamese or English.
Taylor et al., 2004	To examine factors associated with hepatitis B virus testing	345 immigrant men from Seattle, WA. Only participants aged 18–64 years were analyzed.	Descriptive with chi-square test and logistic regression model; Health Behavior Framework	Population-based investigator-developed face-to-face survey included demographics, if the participant had heard of hepatitis B, had hepatitis B screening, had a negative hepatitis B test, and whether a hepatitis B vaccine was received. Guided by an earlier qualitative study (Health Behavior Framework categories). Survey was translated into Vietnamese and back-translated into English; pilot-tested
Taylor et al., 2005	To describe hepatitis B awareness, self-reported hepatitis B virus testing, and knowledge about hepatitis B transmission; to compare the hepatitis B virus knowledge and practices of Vietnamese American men and women	715 immigrant and U.S.-born men and women from Seattle, WA. Only participants aged 18–64 were analyzed.	Descriptive with logistic regression analyses	Needs assessment face-to-face survey included demographics, if the participant heard of hepatitis B, had hepatitis B screening, and had knowledge about hepatitis B transmission (11 items, summed scores). Guided by an earlier qualitative study and adapted survey instruments developed by other research groups surrounding evaluation of childhood hepatitis B virus vaccination programs. Interviews were conducted in Vietnamese or English.

(Continued on the next page)^a The n value represents Vietnamese subsample from each study.

Table 1. Colorectal Cancer and Hepatitis B Screening Studies on Vietnamese Americans (Continued)

Study	Purpose and Aim	Sample and Setting ^a	Design	Measures
Tu et al., 2010	To examine CRC screening rates	1,016 immigrant and U.S.-born men and women from a community health center in Seattle, WA. Only participants aged 50–75 years were analyzed.	Practice management and electronic medical records, 2009; chi-square and Fisher's exact tests; multivariate logistic regression model	Data extracted included demographics, insurance, primary care provider, clinic visit, FOBT and colonoscopy data, and codes used to identify sigmoidoscopies
Walsh et al., 2004	To identify receipt, maintenance, and intentions of CRC screening tests, and barriers and facilitators to CRC screening among Vietnamese Americans and Latinos	239 men and women (native status not reported) from San Jose and Santa Clara County, CA, with a mean age of 60 years. Only participants aged 50–79 years were analyzed.	Descriptive with chi-square test, Student's t test, and logistic regression model	Investigator-developed, community-based telephone survey included demographics; if the participant heard of CRC screening; had knowledge, attitudes, and beliefs about CRC screening; had CRC screening behaviors; or had barriers and facilitators to CRC screening Based on focus group themes (awareness of colon cancer, screening tests, and perceived need for the test; fear; social influences; logistics) Survey was based on findings from focus groups; survey was translated into Vietnamese and Spanish and back-translated into English; pilot-tested; interviews were conducted in Vietnamese, Spanish, or English
Walsh et al., 2009	To examine factors associated with CRC screening	808 immigrants (men and women) from Santa Clara County, CA, with a mean age of 60.8 years. Only participants aged 50–79 years were analyzed.	Descriptive with chi-square test, Student's t-test, and logistic regression model	Investigator-developed telephone survey included demographics, perceived health status, CRC screening behaviors, intention to be screened, beliefs, knowledge (five items, summed scores), and perceived barriers and facilitators to CRC screening. Adapted Short Acculturation Scale (five items) Survey was based on investigator's prior survey study; survey was translated into Vietnamese and back-translated into English, pilot-tested, and interviews were conducted in Vietnamese or English.

^a The n value represents Vietnamese subsample from each study.

(surveys). Only two studies reported using a reliable and valid Short Acculturation Scale that had been examined for use with Latina women (Walsh, Nguyen, Nguyen, Pasick, & McPhee, 2009; Walsh et al., 2010). However, the authors did not report examining the instrument's psychometric properties for Vietnamese Americans in their study. Eleven studies used some formal assessment for instrument development, which included the use of community experts, prior qualitative study findings (e.g., focus groups), or pilot testing (Levy, Nguyen, & Nguyen, 2010; Ma et al., 2007; Nguyen, Barg, et al., 2008; Nguyen, McPhee, Stewart, & Doan, 2008; Nguyen et al., 2010; Taylor et al., 2004, 2005; Walsh et al., 2004, 2009, 2010; Xu, Ross, Ryan, & Wang, 2005). The operational definitions across studies were inconsistent in their examination of factors associated with CRC and hepatitis B screening, therefore making comparisons very difficult. All descriptive and intervention studies that examined

use of CRC and hepatitis B screening used self-report without verification, for example, through a medical chart review. The findings may reflect overreporting; therefore, the actual CRC and hepatitis B screening rates may actually be lower.

The authors organized the description of the reviewed study findings as follows: CRC and hepatitis B screening rates across chart or medical record reviews and descriptive studies, factors associated with CRC and hepatitis B screening (sociodemographic characteristics, CRC and hepatitis B knowledge, and healthcare access [external factors]), cultural beliefs about CRC and hepatitis B screening, and interventions to promote CRC and hepatitis B screening.

Screening Rates

The authors reviewed reported findings on Vietnamese Americans regarding whether they had any

type of CRC screening within their lifetime, a FOBT in the past year, a sigmoidoscopy in the past five years, or a colonoscopy in the past 10 years. Findings were synthesized to examine adherence to national CRC screening guidelines. The findings vary because of the wide range in sample sizes. Zero to 67% reported having had any type of CRC screening test within their lifetime (Kandula, Wen, Jacobs, & Lauderdale, 2006; Maxwell & Crespi, 2009; Nguyen, McPhee, et al., 2008; Nguyen, Withy, Nguyen, & Yamada, 2003; Walsh et al., 2004; Wong et al., 2005; Xu et al., 2005). Ten to 53% reported having had a FOBT in the past year (Maxwell & Crespi, 2009; Nguyen, McPhee, et al., 2008; Samuel, Pringle, James, Fielding, & Fairfield, 2009; Tu et al., 2010; Walsh et al., 2009; Wong et al., 2005). Only one study examined the gender difference in rates of screening: 56% of women and 49% of men had a FOBT in the past year (Walsh et al., 2009). Between 3%–18% reported having had a sigmoidoscopy in the past five years (Nguyen, McPhee, et al., 2008; Tu et al., 2010; Walsh et al., 2004, 2009) and about 22%–28% had a colonoscopy in the past 10 years (Nguyen, McPhee, et al., 2008; Tu et al., 2010; Walsh et al., 2004, 2009). The findings supported low CRC screening rates among Vietnamese Americans. The authors were limited in their interpretation of these findings because of varying definitions of age eligibility for CRC screening across reviewed studies. Age eligibility included those aged 50–74 years (Nguyen, McPhee, et al., 2008), aged 50–75 years (Samuel et al., 2009; Tu et al., 2010), aged 50–79 years (Walsh et al., 2004, 2009), and aged 50 years and older (Kandula et al., 2006; Maxwell & Crespi, 2009; Nguyen et al., 2003; Wong et al., 2005; Xu et al., 2005).

Four studies aggregated data for CRC screening versus only examining one specific CRC screening examination, which limited the authors' interpretation of adherence to CRC screening guidelines. Those studies included examining any type of CRC screening in the past five years (Lee et al., 2011), either had a sigmoidoscopy or colonoscopy in the past five years (Samuel et al., 2009), or had a sigmoidoscopy or colonoscopy in the past 10 years (Maxwell & Crespi, 2009; Wong et al., 2005).

Only a few studies reported whether Vietnamese Americans have ever had at least one hepatitis B screening in their lifetime. The findings from chart and medical record reviews and descriptive studies have a wide variation because of the range in sample sizes. Two studies reported that about 8% (Ma et al., 2007) and 48% (Levy et al., 2010) had at least one hepatitis B test in their lifetime. For men, 51%–68% reported having had a hepatitis B test (Levy et al., 2010; Taylor et al., 2004, 2005). In contrast, for women, 32%–68% reported having had at least one hepatitis B test in their

lifetime (Levy et al., 2010; Taylor et al., 2004). The findings supported low hepatitis B screening rates among Vietnamese Americans.

Sociodemographic Factors

CRC screening was associated with gender, marital status, and health insurance coverage. CRC screening was positively associated with gender, marital status (never been married versus married), and health insurance (public and private health insurance versus only public health insurance). Two studies examined gender and its relationship to adherence to CRC screening recommendations and found that Vietnamese American women were more likely than men to have had a FOBT in the past year (Tu et al., 2010; Walsh et al., 2009). Two other studies, focusing only on women (Gomez, Tan, Keegan, & Clarke, 2007), found that Vietnamese American women who had never been married were more likely to have received at least one CRC screening within a lifetime compared to married women. Samuel et al. (2009) only focused on Asian ethnic immigrant women and aggregated sociodemographic data across these subgroups; therefore, what is different for Vietnamese immigrant women alone is not known. A study that aggregated data across both immigrants or those born in the United States (men and women) subgroups found marital status to be positively associated with adherence to CRC screening recommendations among Vietnamese Americans (for men and women). Those who were married were more likely than those never married to have received a sigmoidoscopy in the past five years (Nguyen, McPhee, et al., 2008). This study also addressed whether Vietnamese Americans received indigent care from the county governments where they lived. The participants without health insurance inquired about low-cost CRC screening services from the Northern California Cancer Center's Colon Screening Project hotline. Vietnamese Americans who had either public or private health insurance were more likely to have had a colonoscopy in the past 10 years than those who had received indigent care from a local county government or those who had no health insurance (Nguyen, McPhee, et al., 2008). This finding somewhat differed from Tu et al. (2010) study, where Vietnamese Americans who had public health insurance were more likely than those with private or no health insurance to adhere to CRC screening guidelines.

Xu et al. (2005) identified reported reasons for not obtaining a CRC screening among Vietnamese Americans, including cost, lack of insurance, difficulty with language, finding a doctor, transportation, fear or anxiety about the procedure, and lack of time. Hepatitis B screening was positively associated with gender, age, fluency in reading English (a proxy variable for acculturation to the United States), and education level.

Gender was a factor associated with hepatitis B screening where Vietnamese American men were more likely to have been screened for hepatitis B compared to women (Ma et al., 2007). One study sampled only Vietnamese immigrant men and found that older men were more likely to have had a hepatitis B test than younger men (Taylor et al., 2004). As for age, one study found that having received a hepatitis B screening within a lifetime differed significantly by age groups among Vietnamese Americans: 62% of men and women aged 18–34 years, 64% of those aged 35–49 years, and 75% of those aged 50 years and older reported having had a hepatitis B test (Taylor et al., 2005). Ma et al. (2007) defined acculturation to the United States with two proxy items that related to language proficiency: English reading fluency and speaking fluency. Vietnamese Americans who reported greater fluency in reading English and higher educational level were more likely to have been screened for hepatitis B (Ma et al., 2007). Only two studies examined the relationship between health insurance and hepatitis B screening, and neither study found a significant association (Ma et al., 2007; Taylor et al., 2004).

In summary, most of the data from reviewed studies aggregated immigrant and those born in the United States (men and women) subgroups, which made it a challenge to determine whether differences existed in factors associated with CRC and hepatitis B screening among these subgroups. The authors' ability to accurately compare findings was, therefore, limited despite most studies having reported that the majority of their sample consisted of foreign-born Vietnamese (immigrants). Therefore, the findings must be interpreted within these limitations.

Knowledge Factors

Few studies examined knowledge as a factor of CRC screening. In Xu et al.'s (2005) study, the dependent variable was defined as CRC screening rate and not as a binary variable (e.g., whether the participant received CRC screening). The authors did not clearly define knowledge of FOBT or colonoscopy conceptually or operationally. The CRC screening rate was reported to be significantly positively associated with knowledge of FOBT or colonoscopy (Xu et al., 2005). A correlation analysis, rather than logistic regression, was used to examine that relationship, which limited interpretation of the findings. Walsh et al. (2009) examined five items regarding knowledge of the CRC screening test separately and also as a summed score of correct responses with dependent variables (i.e., having received any CRC screening, a FOBT in the past year, a sigmoidoscopy in the past five years, or a colonoscopy in the past 10 years). Only one knowledge item about routine CRC screening was associated with CRC screening. Vietnamese Americans who disagreed that one no longer

needs to have additional tests if a CRC screening test is normal were more likely to have received any CRC screening and have had a sigmoidoscopy in the past five years or colonoscopy in the past 10 years (Walsh et al., 2009).

Maxwell, Crespi, Antonio, and Lu (2010) identified Vietnamese Americans who were not adherent to CRC screening guidelines. The two most-reported reasons for not obtaining a FOBT, sigmoidoscopy, or colonoscopy were not presenting with health problems and not being aware of the CRC screening tests.

Studies of knowledge regarding hepatitis B screening varied in how knowledge was defined across the few studies that examined knowledge. In Ma et al.'s (2007) study, knowledge of HBV and cancer were not clearly defined. The authors examined the items that were reported on in this study and found 19 items measured knowledge and attitudes of HBV and cancer. This study did not specify which items measured knowledge as these items also were included with items on attitudes of HBV and cancer. Therefore, the findings must be interpreted within these limitations.

Ma et al. (2007) found that a low proportion of Vietnamese Americans knew about HBV (46%), a screening test for HBV (33%), and a vaccine for HBV (36%). Interestingly, despite the low proportion of participants who knew about a vaccine for HBV, about 71% thought that getting vaccinated would prevent HBV. A possible explanation may be attributed to knowing that vaccines are preventive for diseases in general. However, a moderate proportion of Vietnamese Americans reported not knowing that cancer could be prevented (59%) or cured (59%) (Ma et al., 2007). When those variables were examined with hepatitis B screening, Vietnamese Americans who knew about HBV, a screening test for HBV, a vaccine for HBV, that the vaccine would be protective, and that cancer was preventable, were more likely to have received a hepatitis B screening than those who did not have this knowledge (Ma et al., 2007).

Ma et al. (2007) also found that a moderate proportion of Vietnamese Americans (61%) reported thinking that cancer was beyond their control. The finding is similar to Taylor et al.'s (2000) study with Vietnamese immigrant men and women, in which 41% did not think that anything could be done to protect themselves and their families against hepatitis B infection. A high proportion of Vietnamese Americans (80%) reported knowing that someone could die from being infected with HBV (Taylor et al., 2000). However, only a moderate proportion of Vietnamese Americans knew that hepatitis B could cause liver cancer (63%) and that asymptomatic individuals infected with HBV can transmit the disease to others (58%) (Taylor et al., 2000).

In a different study, Taylor et al. (2005) examined knowledge about hepatitis B transmission with 11

items and compared HBV knowledge of Vietnamese American women and men. A wide variation was noted in the percentage of correct responses of women and men regarding the items about hepatitis B transmission. For example, hepatitis B is not spread by eating food that has been prepared by an infected person (27% of women versus 46% of men were correct), coughing (25% of women versus 39% of men), or by holding hands (72% of women versus 78% of men); however, hepatitis B could be spread by someone who looks and feels healthy (75% of women versus 81% of men), eating food that has been prechewed by an infected person (76% of women versus 65% of men), sharing toothbrushes (77% of women versus 67% of men), and sharing razors (67% of women versus 59% of men) (Taylor et al., 2005). When HBV knowledge of men and women were compared, men were more likely than women to know that hepatitis B is not spread by eating food that has been prepared by an infected person, coughing, and holding hands; and that HBV could be spread by someone who looks and feels healthy (Taylor et al., 2005). Women were more likely than men to know that HBV could be spread by eating food that has been prechewed by an infected person, sharing toothbrushes, and sharing razors (Taylor et al., 2005).

Taylor et al. (2005) also found a small proportion of women and men did not know that hepatitis B could be spread during sexual intercourse (39% of women versus 29% of men) and during childbirth (15% of women versus 19% of men). In a prior study, Taylor et al. (2004) examined knowledge about hepatitis B with Vietnamese immigrant men only. Knowledge about hepatitis B was measured with three items and each item was analyzed separately with hepatitis B screening. Men who knew that hepatitis B could be spread by someone who looks and feels healthy, could be spread during sexual intercourse, and during childbirth were more likely to have received a hepatitis B test.

Levy et al. (2010) examined knowledge about cancer among Vietnamese Americans. These authors acknowledged that flaws of the study included some recruitment and data collection issues, including the possibility that some individuals may have participated in the study more than once, and that the questionnaire did not ask whether participants were Vietnamese. The findings must be interpreted with caution. Of the Vietnamese Americans who knew that hepatitis B was a risk factor for liver cancer, a much larger percentage had received a hepatitis B test compared to those who did not know.

External Factors Associated With Screening

External factors pertaining to healthcare access included having a regular place of care, a healthcare provider, and a doctor recommendation. Two stud-

ies found having a regular place of care was associated with CRC and hepatitis B testing. Vietnamese Americans who reported having a regular place of care were more likely to have had a sigmoidoscopy in the past five years and a colonoscopy in the past 10 years (Nguyen, McPhee, et al., 2008). Taylor et al. (2004) examined hepatitis B screening among Vietnamese immigrant men and found that those who had a regular place of care were more likely to have had a hepatitis B test. That study only recruited men, which helped to accurately examine what is different among men.

Only one study found an association between CRC screening and the number of medical visits to see a regular healthcare provider. Adherence to CRC screening was lower for Vietnamese Americans who only had one medical visit in the past 12 months (Tu et al., 2010). In addition, adherence to CRC screening was lower for Vietnamese Americans without an assigned primary healthcare provider (Tu et al., 2010). In Taylor et al.'s (2004) study on hepatitis B screening, Vietnamese immigrant men who reported having a regular provider were more likely to have had a hepatitis B test. In addition, Vietnamese immigrant men who had a doctor that recommended hepatitis B screening were more likely to have received a hepatitis B test (Taylor et al., 2004). Only one study examined the gender of the healthcare provider. Vietnamese Americans who had a female physician were more likely than those with a male physician to have had a sigmoidoscopy in the past five years or a colonoscopy in the past 10 years (Walsh et al., 2009).

Cultural Beliefs

Three descriptive studies included a focus on cultural beliefs. Two of these studies did not clearly define how beliefs were operationalized (i.e., did not specify which items measured beliefs) (Ma et al., 2007; Walsh et al., 2009). Vietnamese Americans who believed that cancer was curable were more likely to have been screened for hepatitis B (Ma et al., 2007). In Levy et al.'s (2010) study, three items measuring cultural beliefs were analyzed separately. Of the items that examined cultural beliefs (testing leads to hepatitis B, fatalism, religion, and prayer), Vietnamese Americans who agreed that testing for the disease leads to having the disease were less likely to have received a hepatitis B test (Levy et al., 2010). A major limitation in those studies was examining cultural beliefs with only a single or few items.

Two qualitative studies emerged themes surrounding cultural beliefs. Both studies did not report use of validity criteria and reflexivity (i.e., how investigators examined their own personal biases during the research process). Therefore, the findings must be interpreted within these limitations. Nguyen, Barg, et al. (2008) examined elements of provider-patient cancer communication from

the perspectives of 20 patients aged 50–70 years with no personal history of cancer and who self-identified as Vietnamese immigrants. Grounded theory was used to examine the transcript text. The authors defined cancer communication broadly (i.e., interview questions included colon, breast, and prostate cancer). Vietnamese immigrant participants did not address cancer screening with healthcare providers because cancer was believed to only be a concern when symptoms arose; therefore, going to see a doctor was not needed if no symptoms were present (i.e., if there is nothing wrong, then why bother?) (Nguyen, Barg, et al., 2008). This meant that problems should not be looked for unless a strong reason to do so existed or *new troubles* would be invited into one's life. Vietnamese immigrants also relied on the doctor to advise necessary tests or treatments for them. Most individuals also believed that the doctor did not have time to talk about cancer screening. Vietnamese immigrants who had the opportunity to talk with their doctor about cancer screening reported not understanding what the doctor said. This also was found to be true in individuals who reported having a Vietnamese doctor (Nguyen, Barg, et al., 2008).

Burke et al. (2004), through in-depth interviews and focus groups, identified a range of cultural beliefs about hepatitis B illness, transmission, and prevention among Vietnamese immigrants (age range = 21–74 years). A limitation was the inclusion of both young and old adults in the same study without an analysis of differences. Vietnamese immigrant participants linked liver illness and health to well-being and internal and external balance of *khí* (energy). Vietnamese immigrants believed that weakness in the body may be from excess heat caused by dietary imbalance or susceptibility from social and political disharmony (e.g., the Vietnam war and communism). A weak liver was believed to be a predisposition for hepatitis B. The weakness and imbalance were thought to be manifested in the prison camp in Vietnam (e.g., deprivations suffered in the war, heavy labor, eating poorly). Vietnamese immigrants also believed that hepatitis B was transmitted in the following ways: eating and drinking habits, sharing of personal things, blood, sex, and childbirth. Vietnamese immigrants believed that visible signs and symptoms of hepatitis B existed, including skin color appearance, bloating, and tiredness. An emphasis was placed on being able to cure hepatitis B in its early stages through the use of traditional Vietnamese and Chinese medicine such as cooling herbs and teas (Burke et al., 2004).

Intervention Studies to Promote Colorectal Cancer Screening

Two intervention studies were conducted to promote CRC screening. Nguyen, Vo, Doan, and McPhee (2006) conducted focus groups among Vietnamese

Americans to develop intervention approaches for promoting CRC screening. Participants identified sources of health information as Vietnamese language newspapers, magazines, radio, and television. Vietnamese Americans placed their trust in doctors, trusted testimonials of patients, and information from health booklets, newspapers, and health programs (Nguyen et al., 2006). The findings contributed to a cultural and linguistic appropriate public media education and healthcare provider model for Nguyen et al.'s (2010) quasi-experimental study in Alameda and Santa Clara counties in California (n = 533, intervention communities), and Harris County, TX (control community) with Vietnamese Americans aged 50–74 years. The authors did not report on the sample size of the control community. The intervention was a media campaign on CRC screening, distribution of health education and promotional material, a hotline, medical education seminars, and distribution of patient counseling materials for providers as well as reminder items (booklets and penlights) and newsletters. The public education and healthcare provider model was found to be effective at increasing the amount of Vietnamese Americans who reported having ever had a sigmoidoscopy or colonoscopy, compared to the control community (11% comparison, p = 0.006) (Nguyen et al., 2010). Increased knowledge and attitudes about CRC screening mediated the effect of the intervention on CRC screening behavior. Media exposure mediated the effect of the intervention on knowledge (Nguyen et al., 2010). Limitations of the study included only recruiting from urban areas; screening out individuals who did not intend to stay in the study area for the two years of intervention, which introduced a systematic bias; and using self-report to measure outcome of CRC screening, which was not verified (e.g., through a medical chart review).

Walsh et al. (2010) conducted a randomized, controlled trial at a large public hospital in Santa Clara County, CA, with Vietnamese immigrant and Latin American patients aged 50–79 years with no history of cancer. The study was not a comparison; therefore, the authors of the current article will only report on the findings for Vietnamese (rather than Latin American). Participants completed a baseline investigator-developed telephone survey that included the Short Acculturation Scale. Then participants were randomly assigned to usual care (n = 113, control group), or culturally tailored brochure plus mailed FOBT kit (n = 339, intervention group 1), or culturally tailored brochure plus mailed FOBT kit and culturally tailored counseling (n = 341, intervention group 2). The authors used the term *tailored*, which meant that intervention materials were translated into Vietnamese and included information that was particular to the Vietnamese culture.

The FOBT kit contained three cards for collecting stool, wooden applicator sticks, a stamped return envelope, a laboratory slip, a letter from the individual's primary care provider emphasizing the importance of CRC screening, instructions for collecting the stool, and information on dietary restrictions particular to the Vietnamese culture. The authors did not provide a description of dietary restrictions. A telephone follow-up survey was administered 9–12 months after baseline. Participants in intervention group 2 (received all three components) were significantly greater (increased by 26%, $p = 0.006$) in having received a FOBT in the past year compared to intervention group 1 (only received two components: culturally tailored brochure plus mailed FOBT kit) or usual care (Walsh et al., 2010). In addition, significant differences were noted in being up to date with any type of CRC screening (FOBT in the past year, sigmoidoscopy in the past five years, or colonoscopy in the past 10 years) between intervention group 2 versus intervention group 1 (increased by 18%, $p = 0.001$) (Walsh et al., 2010). Limitations of the study included the authors not reporting on the psychometric properties of the Short Acculturation Scale for their Vietnamese sample, the use of a single public hospital setting, and the use of self-report regarding the outcome of CRC screening.

Discussion

Limitations

Few published studies exist on CRC and hepatitis B screening among Vietnamese Americans. A wide variety of sample sizes occurred across studies, and this may explain the diverse CRC and hepatitis B screening rates. The authors found that most of the studies used self-report without verification. Therefore, the findings may reflect over-reporting of CRC and hepatitis B screening rates. The authors also came across diverse findings that made comparisons very difficult. A possible explanation for the diverse findings may be from the differences in the number of factors being examined with CRC and hepatitis B screening. Investigators used different conceptual or theoretical frameworks or investigator-developed instruments. In addition, studies varied in how they defined factors and, therefore, were inconsistent in their examination of factors associated with CRC and hepatitis B screening. Studies that drew samples from a county or metropolitan area compared to other studies, which were from community-based organizations, may have varied in recruitment (e.g., selection bias). Therefore, differences in sampling strategies also could explain why such a wide variation in the findings existed.

Some evidence suggested gender differences in CRC and hepatitis B screening practices, such as more

women appeared to use CRC screening and more men engaged in hepatitis B screening (Tu et al., 2010; Walsh et al., 2009). Some of the chart and medical record reviews and descriptive studies combined immigrant data with data from those born in the United States (men and women). Aggregated data across groups made it challenging to determine whether differences existed across groups. That gap is important because intervention approaches may need to be targeted to gender and nativity status.

Low Screening Rates

The proposed Healthy People 2020 recommendation specifies 70.5% of adults aged 50–75 years should receive CRC screening. The U.S. Preventive Services Task Force (USPSTF) (2009a) recommended screening for CRC using FOBT, sigmoidoscopy, or colonoscopy in adults beginning at age 50 years and continuing until age 75 years. A FOBT primarily detects CRC and should be done annually (ACS, 2012a), whereas a sigmoidoscopy every five years or a colonoscopy every 10 years are tests used to detect premalignant polyps and CRC (ACS, 2012a). National CRC rates for both AAPIs and White non-Hispanics (56% versus 63%, respectively) (Centers for Disease Control and Prevention [CDC], 2008b) were lower than the Healthy People 2020 recommendations. To the authors' knowledge, no national hepatitis B screening rates have been reported. This review showed that CRC and hepatitis B screening were underused among Vietnamese Americans. CRC and hepatitis B screening among Vietnamese Americans are urgently needed to address cancer control for this at-risk population.

No formally stated national health objectives are currently in place for hepatitis B screening rates. Routine hepatitis B screening among the asymptomatic general population is not recommended (USPSTF, 2004), although USPSTF (2009b) recommended screening for HBV infection in pregnant women at their first prenatal visit. CDC (2008a) recommended that individuals from areas known to have high rates of hepatitis B, including Vietnam, be screened to identify those with chronic hepatitis B infection. Asian Americans who develop chronic hepatitis B soon after birth have a high risk of developing liver cancer at an early age, with men at greater risk (Asian Liver Center at Stanford University, 2012). When Asian American individuals have been identified as hepatitis B carriers, regular liver cancer screening should begin starting at 30–40 years of age (Asian Liver Center at Stanford University, 2012). This generally consists of a blood test for alpha-fetoprotein levels every six months and an ultrasound of the liver once or twice a year (Hepatitis B Foundation Cause for a Cure, 2003–2012a, 2003–2012b).

Multiple Factors Associated With Screening

Evidence supported CRC screening as positively associated with knowledge of CRC screening tests, having health insurance (public or private), having a regular place of care, having a regular healthcare provider, and having a female healthcare provider. A barrier to CRC screening may be attributed to the gender of the healthcare provider. A possible explanation may include Vietnamese patients feeling more comfortable having discussions with a female versus a male healthcare provider regarding CRC screening. For example, Vietnamese Americans may view a male healthcare provider as an authoritative person who should not be questioned. Therefore, if screening is not recommended, this may be viewed as a final decision that does not warrant additional discussion. That could contribute to lower CRC screening rates. Qualitative research is needed to understand the underlying context for why differences in screening exist based on the gender of the healthcare provider.

Evidence supported hepatitis B screening as positively associated with older age; acculturation to the United States, such as greater English reading fluency; higher educational level; knowledge of infection with HBV; having a regular place of care; having a regular healthcare provider; and having a doctor's recommendation for hepatitis B screening.

The authors identified healthcare access variables as crucial external factors positively associated with CRC and hepatitis B screening. However, based on this review, the authors do not know about nurses' roles in the CRC and hepatitis B screening process because the definition of healthcare providers across studies was limited to medical doctors. This represents a gap in nursing knowledge.

Cultural Beliefs

Cultural beliefs regarding cancer, prevention, and traditional Eastern or Asian medicine as curative remedies may delay detection of cancer and treatment. Evidence suggested that cultural beliefs exist about having to be symptomatic before cancer became a concern. This suggested that Vietnamese immigrants needed a compelling reason prior to seeking care from a doctor. Evidence suggested that cultural beliefs are in place about the use of traditional Vietnamese and Chinese medicine in the early stages of hepatitis B (Ma et al., 2007). Without timely treatment of Western or American medicine, the individual infected with HBV will remain a chronic hepatitis B carrier.

Instruments and Interventions

Almost all of the descriptive and intervention studies used an investigator-developed instrument and did not report on the psychometric properties (i.e., validity

or reliability), which made it a challenge to evaluate whether variables of interest were being measured as intended and whether items were internally consistent and stable across time. Of these studies, only some used formal assessment for instrument development, including the use of community experts, prior qualitative study findings, or pilot testing.

Only two intervention studies focused on CRC screening. Similar to findings from intervention studies on cervical and breast cancer screening (Bird et al., 1998; Mock et al., 2007; Nguyen et al., 2009), a public media education, healthcare provider model, and a culturally tailored intervention that used Vietnamese lay health advisors appeared to be promising for improving CRC screening. In Walsh et al.'s (2010) intervention study, the culturally tailored counseling was the kept component, which suggests that this was a significant intervention aspect in improving CRC screening. More randomized, controlled trials are needed to support the findings through the use of a control group or comparison group. Additional evidence is needed to support the effectiveness of training Vietnamese community members to be lay health advisors and use of language appropriate public media as a feasible education-based intervention.

Directions for Future Research

To improve and further refine the information, future research should consider the following

- Focus on immigrants and those born in the United States (men and women) as disaggregated subgroups.
 - Develop more randomized, controlled trials and use a control group or comparison group.
 - Verify self-report of CRC and hepatitis B screening through a medical chart review.
 - Conduct studies in other geographic areas in the United States to support generalizability of findings.
- In addition, to advance the science and promote future research and clinical care directed toward improving CRC and hepatitis B screening among Vietnamese Americans, future directions are suggested.
- Design qualitative studies to examine the role of communication from healthcare providers to patients regarding CRC and hepatitis B screening, perceptions by healthcare providers and patients, and examine patients' perceptions related to the gender of the healthcare provider.
 - Examine the nurse's role in the CRC and hepatitis B screening process.
 - Develop targeted interventions that are culturally and linguistically appropriate. For example, education topics which include explaining that a person can be asymptomatic and may have CRC or be infected

with HBV, risk factors, the screening tests and different types of CRC screening tests and guidelines. In addition, hepatitis B screening education should be included with childbirth education.

- Develop intervention materials in Vietnamese and English.

Whenever possible, be consistent with the use of research instruments to measure factors associated with CRC and hepatitis B screening so that operational definitions across studies are consistent, making comparisons more accurate.

Implications for Nursing Practice

Healthcare providers including advanced practice nurses need to be reminded of their essential role in cancer screening, which might include systematic electronic chart reminders that screening tests are due. Nurses can help promote CRC and hepatitis B screening education among Vietnamese Americans by understanding that cultural beliefs particular to Vietnamese Americans may exist regarding cancer screening. Nurses must be sensitive to these held beliefs and their potential to become barriers to early detection and treatment. Understanding that multiple factors are associated with CRC and hepatitis B screening may help target intervention efforts. Nurses could help evaluate whether an individual clearly understands what the screening test is for,

what will be done during the procedure, and screening guidelines. These may help improve communication surrounding cancer, a culturally sensitive topic, which, as a result, may improve screening.

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