

An Educational Tool with Recommendations for Providers: Barriers to Screening for Hepatitis B  
in Asian American and Pacific Islanders

Keisa M Lynch, MSN, APRN, FNP-BC

University of Utah

In partial fulfillment of the requirement for the Doctor of Nursing Practice

## Table of Contents

Executive Summary .....	3
Problem Statement .....	4
Objectives .....	5
Clinical and Policy Implications .....	6
Theoretical Framework .....	7
Literature Review .....	9
Methods .....	27
Evaluation .....	27
Results .....	28
Recommendations .....	28
Conclusion .....	30
References .....	32
Appendix A .....	40
Appendix B .....	57
Appendix C .....	60

### Executive Summary

Healthcare providers have long subscribed to the notion of providing culturally competent healthcare to diverse populations. Asian Americans and Pacific Islanders (AAPIs) are the fastest growing minority group in the United States and chronic hepatitis B affects more of this population than the general US population. The CDC reports that 1.25 million people are chronically infected with HBV in the United States and AAPIs account for 50% of those infected. Clearly, the infection rate of HBV in AAPIs is an important public health problem that needs to be addressed. There are several barriers to prevention and control efforts. The purpose of this project was to introduce the barriers to screening for hepatitis B viral infection in AAPIs. In hopes of increasing awareness of AAPIs health concerns, including language barriers, lack of insurance, belief systems, stigmatization, screening, and vaccination.

An educational tool, along with a pamphlet focused on barriers to screening for hepatitis B was developed for healthcare providers in order to address this healthcare burden in AAPIs. This project describes the method, implementation, evaluation and integration of this pamphlet into practice at primary practice clinics throughout Salt Lake City, Utah.

The ACE Star Model offers a framework for knowledge transformation to achieve evidence-based practice and was utilized with this project development. The five processes in this model included evaluating an existing problem seen in clinical practice, review and supply of current literature available, translation of current literature and integration of the practice guidelines. By utilizing this educational tool, health-care providers will have a resource that will (a) introduce barriers to screening for HBV in AAPIs, (b) increase awareness of Asian Americans and Pacific Islanders health disparity in regards to hepatitis B, (c) provide screening recommendations, (d) assist in surveillance of disease sequelae, and (e) review vaccination guidelines. By utilizing this educational tool, healthcare providers will be better prepared to identify and treat those in this population in relationship to HBV. By doing this, the long-term sequelae experienced by this population will be lessened with early screening and treatment, and the use of vaccinations will prevent others from acquiring the disease.

The DNP essentials used in the project include the following:

- Essential I: Scientific underpinnings for practice. Literature review completed
- Essential II: Organization and systems leadership for quality improvements and systems thinking. Educational tool to improve HBV screening and vaccination in AAPIs.
- Essential III: Clinical scholarship and analytical methods for evidence-based practice. Discovery of new knowledge was gained from a thorough literature review and translated into EBP.
- Essential V: Health care policy for advocacy in healthcare. An educational tool focused on barriers to screening for hepatitis B was developed.
- Essential VI: Interprofessional collaboration for improving patient and population health outcomes. This educational tool will better prepare healthcare providers to identify and treat those in the APPI population in relationship to HBV.
- Essential VIII: Advanced nursing practice. This educational tool will assist in decreasing the healthcare burden in AAPIs.

*Keywords:* Hepatitis B, Asian Americans, Pacific Islanders, barriers to screening for hepatitis B

Hepatitis B virus (HBV) infection is a major public health problem. The World Health Organization (2008) estimates that up to two billion people have been infected with the virus and approximately 350 million people globally are infected with chronic HBV. An estimated 600,000 people die annually from consequences of HBV. Worldwide, seventy five percent of those infected are Asian American and Pacific Islanders (AAPIs). It is estimated that one third of the world's population have been infected with HBV and 5% of the population will develop chronic hepatitis B (CHB), cirrhosis, end stage liver failure and hepatocellular carcinoma (HCC) (Hu, 2008). The prevalence of HBV amongst AAPIs is higher than any other ethnic or racial group in the United States. In the United States, 1.25 million people are chronically infected with HBV. AAPIs account for 50% of those infected and 50% of deaths caused by HBV-induced liver failure (Pollack et al., 2011). Clearly, the infection rate of HBV in AAPIs is an important public health problem that needs to be addressed and there are several barriers to prevention and control efforts.

Knowledge of barriers to screening for HBV and increasing awareness of AAPIs public health disparities by professionals is necessary to curb the incidence of HBV and its consequences in this population. There are several barriers to screening for HBV including access to care for many AAPIs and other immigrant groups due to lack of knowledge about the disease, as well as cultural, linguistic and financial challenges. The lack of knowledge and awareness by healthcare providers is also another barrier to screening for HBV in AAPIs. This lack of knowledge and awareness of HBV can contribute to continued transmission, missed opportunities for early diagnosis and medical care, and poor health outcomes in infected persons.

The focus of this scholarly project was to assist clinicians in the identification and treatment of HBV in the AAPI adult population. Understanding some of the common barriers to access of healthcare faced by AAPIs can help clinicians promote high-quality culturally

competent healthcare in an effort to overcome this healthcare disparity. The final project outcome was an educational tool for healthcare providers to improve screening recommendations for HBV in AAPIs, assist in disease sequelae surveillance, and review vaccination guidelines.

To do this the following objectives were addressed.

Objectives:

1. Developed an educational tool for healthcare providers for the AAPI adult population in primary practice.
2. Developed an algorithm within the educational tool for screening and vaccination guidelines.
3. Dissemination of the information developed through a scholarly article to be submitted in the future for publication.

The purpose of this scholarly project was to create an educational tool with which healthcare providers can gain a better knowledge of barriers to screening for hepatitis B viral (HBV) infection in adult Asian Americans and Pacific Islanders (AAPIs). This project introduced the barriers to screening for HBV and increased awareness of AAPIs health concerns, including language barriers, lack of insurance, belief systems, stigmatization, screening, and vaccination. This project ultimately offers guidelines and tips for decreasing this health disparity.

The first objective was to develop an educational tool for healthcare providers including physicians, nurse practitioners and physician assistants that addressed these barriers. This tool includes barriers to screening for HBV in AAPIs, it increases awareness of Asian Americans and Pacific Islanders health disparities in regards to HBV, provides screening recommendations, assists in disease sequelae surveillance, and reviews vaccination guidelines.

The second objective was to develop an algorithm for screening and vaccination for HBV in AAPIs. This was achieved by reviewing current Center for Disease Control and Prevention (CDC, 2008) guidelines for screening and vaccination, which were provided in a condensed format. This provides a simple, easy, reference tool.

The last objective was to write an article for publication utilizing information gained throughout the development of an educational tool for healthcare providers. Dissemination of information will help decrease barriers to screening in AAPIs. Understanding some of the common barriers to screening for HBV in AAPIs can help healthcare providers promote high-quality culturally competent healthcare in an effort to overcome the many challenges faced by this population.

### **Clinical & Policy Implications**

Chronic Hepatitis B virus infection is a common cause of death associated with cirrhosis, liver failure and liver cancer. This viral infection is the most common serious liver infection in the world. The WHO (2008) estimates that over 350 million people are affected with this chronic viral infection. Yet, despite this staggering statistic many people are unaware that they have this disease until symptoms of liver cancer or liver disease develop many years later. Each year about 600,000 people die from liver cancer or liver disease related to chronic HBV (CDC, 2008). Evaluating barriers to screening for HBV in Asian American and Pacific Islanders and the development of an educational tool for healthcare providers will help decrease the health burden that exists with this disease.

A literature review on barriers to screening for HBV in AAPIs gives guidance and increase knowledge and awareness about chronic HBV infection. It also improves disease sequelae surveillance and better prevention and screening to remedy this health burden. Removing these barriers uses the principles of cultural competency to build skills and to enhance

the health-care provider's knowledge of issues affecting this diverse population. By utilizing this educational tool, health-care providers will have a resource that will (a) introduce barriers to screening for HBV in AAPIs, (b) increase awareness of Asian Americans and Pacific Islanders health disparities in regards to hepatitis B, (c) provide screening recommendations, (d) assist in surveillance of disease and its sequelae, and (e) review vaccination guidelines. By utilizing this educational tool, healthcare providers will be better prepared to identify and treat those in this population in relationship to HBV. By doing this, the long-term sequelae experienced by this population will be lessened with early screening and treatment, and the use of vaccinations will prevent others from acquiring the disease.

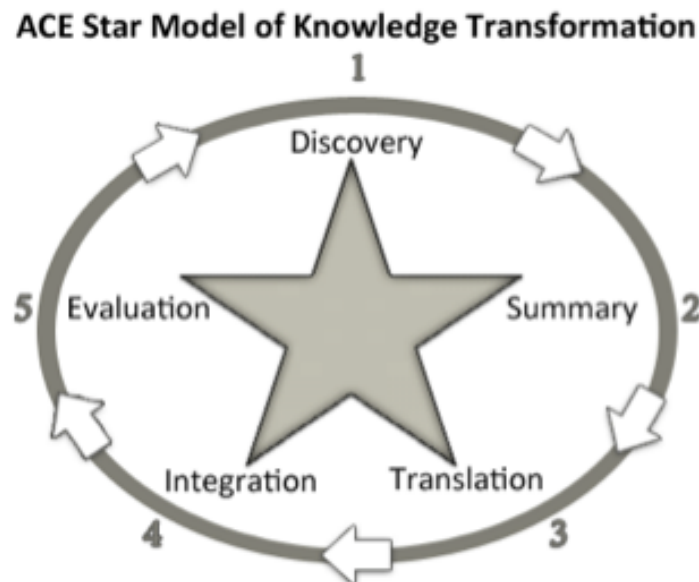
### **Theoretical Framework**

The ACE Star Model (Stevens, 2004), was chosen as the theoretical framework for this scholarly project. According to Stevens (2004), there are two main hurdles to achieving evidence-based practice. Hurdle number one is the complexity of knowledge, meaning the complexity of science and technology as science continues to advance and the abundance of available resources that become available. This proves difficult to stay current on all the literature that exists. The volume of literature is not the only problem clinicians face, the form of the knowledge is the second hurdle. The form of literature that is readily available is not at times applicable for practicing clinicians. Stevens proposes that the evidence should be summarized to help reduce the issues of complexity and volume of literature available along with the transformation of knowledge gathered to be applied to clinical practice. The conversion of knowledge is accomplished in the ACE Star Model (Stevens, 2004).

Development of an educational tool for primary care providers will help overcome both of the above listed hurdles. The ACE Star Model of Knowledge Transformation will guide the development of an educational tool based on the most recent literature. This model consists of

five steps or star points that help direct and organize evidence based processes and approaches (Figure 1) (Stevens, 2004).

Figure 1. ACE Star Model of Knowledge Transformation



Source: Stevens, K. R. (2004). *ACE Star Model of EBP: Knowledge Transformation*. Academic Center for Evidence-based Practice. The University of Texas Health Science Center at San Antonio. Retrieved from [www.acestar.uthscsa.edu](http://www.acestar.uthscsa.edu).

According to the ACE Star Model there are five major steps of knowledge transformation. In step one, new knowledge is discovered by research methodologies and scientific inquiry. Step two summarizes the evidence by synthesizing the corpus of research knowledge into a scientific statement. Step one and step two merge upon each other step one is knowledge discovered from single studies and then step two is from reviews. Step two is also considered a knowledge generating stage. Step three is knowledge transformation from actual studies into clinical practice. This step is where clinical practice guidelines are developed. Step four is the integration of clinical practice guidelines in healthcare. This step involves change by individual



clinicians and organizational practices. Step five is the final stage in the ACE Star Model where knowledge transformation is evaluated by endpoints and outcomes (Stevens, 2004).

With completion of this scholarly project, steps two and three have been accomplished. Step one was completed by scientific research. A thorough literature review to synthesize the extensive amount of information available was done to help accomplish step two. Transformation of knowledge obtained by completing a thorough literature review further helped develop an education tool for clinical practice which is step three. The scholarly project will lay the groundwork for future scholarly work to complete steps four and five.

### **Search Strategy**

The ability to thoroughly carry out a literature review about hepatitis B in Asian Americans and Pacific Islanders was performed by querying the PUBMED, CINAHL, and MEDLINE databases using the search terms hepatitis B virus, Asian Americans, Pacific Islanders, barriers to screening, liver cancer, cirrhosis and HBV health disparities. The search strategy was limited to articles published in the last five years and surveys of scholarly articles, books, and other sources, which were relevant to this topic. An initial review was then completed for inclusion and exclusion criteria prior to synthesizing the literature.

### **Literature Review**

Hepatitis B is a potentially serious liver infection caused by the Hepatitis B virus. Hepatitis B is a major global health problem and one of the most serious types of viral infections. This disease can be either acute or chronic. The virus is transmitted through blood and infected bodily fluids. Horizontal transmission can occur through direct blood-to-blood contact, unprotected sex, or use of unsterile needles. Vertical transmission occurs between an infected woman and her newborn during the delivery (Hepatitis B Foundation, 2009).

In 1965, Dr. Baruch Blumberg won a Nobel Prize for his discovery of the Hepatitis B virus. It was first known as the “Australia Antigen” because a blood sample of an Australian aborigine reacted with an antibody in the serum of an American hemophilia patient. Dr. Blumberg, and microbiologist, Irving Millman helped develop a blood test to help identify the virus. This blood test was used for screening blood donations in 1971, decreasing the risk of blood transfusions infected with hepatitis B by 25 percent. This duo went on to develop the first hepatitis B vaccine four years after the discovery of hepatitis B virus (Hepatitis B Foundation, 2009).

In 1982, the FDA approved a plasma-derived hepatitis B vaccine for human use. Merck Pharmaceuticals manufactured this plasma vaccine as “Heptavax”, which was the first commercial hepatitis B vaccine. By 1991, this vaccine was no longer available in the U.S. as a second-generation genetically engineered DNA recombinant hepatitis B vaccine was developed in 1986. The new DNA recombinant vaccine does not contain blood products, making it impossible to contract hepatitis B from this vaccine (Hepatitis B Foundation, 2009). The WHO estimates that this vaccine is 95% effective in preventing HBV infection and its chronic consequences, and is the first vaccine against a major human cancer.

The World Health Organization (WHO) estimates 350 million people globally are infected with chronic HBV. In the United States, there are an estimated 1.25 million hepatitis B carriers (Khalili et al., 2010). An estimated 600,000 people die annually from consequences of HBV (WHO, 2008).

Most people who are infected with HBV in adulthood can go on to clear the virus on their own, in childhood the virus often becomes chronic (WHO, 2008). The U.S. Department of Health & Human Services Office of Minority Health (2012) states that because viral hepatitis

can persist for decades without symptoms, 65-75% of infected Americans remain unaware of their infection status and are not receiving care and treatment.

Hepatitis B virus can cause an acute illness, although the number of people with acute hepatitis B is declining in the U.S., mostly because of the availability of the vaccine (CDC, 2008). Despite this vaccine, the Center for Disease Control and Prevention (2008) estimates that 80,000 people in the U.S. are newly infected each year. Hu, Pan, and Goodwin (2011) report an acute infection is characterized by positive Hepatitis B surface antigen (HBsAg) and IgM antibodies to HBV core antigen. Recovery from acute infection is characterized by the elimination of HBsAg and HBV DNA and the development of antibody to HBsAg (Hu et al., 2011). Mayo Clinic (2011) states that symptoms of an acute infection last several weeks, and include jaundice, dark urine, extreme fatigue, nausea, vomiting and abdominal pain. It can take several months to a year to fully recover from an acute infection. The Institute of Medicine (IOM, 2010) reports that many people present with no symptoms at all, and most people who have been infected with HBV are unaware they are infected until they develop progression of chronic liver disease.

Chronic Hepatitis B carriers are persons positive for Hepatitis B surface antigen (HBsAg) in a serum sample taken six months after the first test, or by the absence of IgM anti-HBc in the original sample (CDC, 2008). The World Health Organization (WHO, 2008) reports that the likelihood that an HBV infection will become chronic depends on the infected person's age at the time of the initial infection. Children are more likely to develop chronic HBV. It is estimated that 90% of infants exposed during the first year of life will develop chronicity and 30-50% of children infected between one to four years of age will develop chronic infections (WHO, 2008). Consequently, about 25% of adults who become chronically infected during childhood die from HBV-related liver cancer. Approximately 90% of all healthy adults who contract the virus will

recover and completely rid themselves of the virus within six months (Rein, Lesesne, O'Fallon, & Weinbaum, 2009).

With approximately two million people infected with HBV in the U.S. population, HBV infection has become one of our nation's leading causes of chronic liver disease and liver cancer (Hu, 2008). It also ranks as the number 15<sup>th</sup> leading cause of death in the United States (CDC, 2008). In all actuality, Ly, Klevens, Jiles, Ward, and Holmberg (2012) report that between 1999-2007, HBV deaths increased significantly and surpassed human immunodeficiency virus (HIV) related deaths. The IOM reports that HBV infections are 3-5 times more frequent than HIV (2010). Between 1999 and 2007, recorded deaths from HBV increased significantly to 15,106 whereas deaths from HIV declined to 12,734 by 2007. Factors that increase the odds of HBV-related deaths include chronic liver disease, Hepatitis C virus (HCV) co-infection, Asian or Pacific Islander descent, HIV co-infection, and alcohol-related conditions. Most deaths from HBV and HCV occurred in middle-aged persons (Ly et al., 2012).

Carriers of chronic hepatitis B are at increased risk of developing cirrhosis, hepatic decompensation, and hepatocellular carcinoma (HCC). Lok and McMahon (2009) report that 15-40% of chronic hepatitis B carriers will develop sequelae during their lifetime. Chronic hepatitis B is a major etiology of primary cancer of the liver, or HCC. Chang et al. (2007) completed a study in the greater San Francisco Bay area where the highest concentration of AAPIs in the United States live. Chang et al. (2007) concluded that over 90% of primary liver cancers in men and over 85% of primary liver cancers in women were due to HBV. Individuals who are chronically infected with HBV have a lifetime risk of death from end-stage liver disease or HCC of between 15-25% (Cohen et al., 2010). It is estimated by Hu et al. (2011) that 30% of cirrhosis cases worldwide are attributed to Chronic HBV. Liver cancer is the sixth most common newly diagnosed cancer and the third most common of cancer mortality in the world.

Statistics show that greater than 80% of liver cancers occur in developing countries, particularly Asia, Melanesia, the Pacific and Africa (Chang et al., 2007).

Hu et al. (2011) state that individuals with a higher HBV DNA viral load have been associated with a higher risk for cirrhosis and HCC. Before effective treatment for HBV became available, the five-year survival rate in patients with chronic HBV and compensated cirrhosis was 55% and 14% with decompensated cirrhosis. HCC may develop in HBV infected individuals without cirrhosis and in individuals below the age at which HCC screening is recommended (Hu et al., 2011). Cirrhosis is a risk factor for the development of HCC, although 30-50% of HCC in individuals infected with HBV occur in the absence of cirrhosis (Lok & McMahon, 2009).

The gold standard for screening for HCC recommended by the American Association for the Study of Liver Disease (AASLD) includes alpha-fetoprotein (AFP) testing and ultrasound. Tong et al. (2011) along with the AASLD suggest screening should be performed every 6-12 months lifelong. Testing should be done particularly in Asian men older than 40 years of age and Asian women older than 50 years of old, persons with a family history of HCC, and any individual with fluctuating liver enzymes (ALT, AST), high HBV DNA levels or both. It is also recommended to screen all AAPIs earlier (at age 30-35 years of age) with presumed infection at the time of birth or in early childhood because of their extremely high risk for HCC (Keeffe et al., 2008).

Hepatitis B is endemic in many parts of Asia, and the WHO (2008) estimates that 8-10% of adult persons in this region are chronically infected with HBV. Lee, Hontz, Warner, and Park (2005) report around 50% of adult AAPIs are thought to be immune. Liver cancer caused by HBV is among the leading cause of death in AAPIs. Without timely care, one fourth of chronically infected HBV individuals will die of liver cancer or cirrhosis (Lee et al., 2005).

AAPIs are 2.7 times more likely to develop liver cancer, and 2.4 times more likely to die from liver cancer than their Caucasian counterparts. The 5-year survival rate for liver cancer remains below 10%, and Asian Americans experience cancer as the leading cause of death in the United States (Lin, Chang, & So, 2007).

The WHO (2008) lists common modes of transmission in developing countries to be perinatal (from mother to baby during the delivery process), early childhood infections (apparent infection through close interpersonal contact with infected house hold contacts), unsafe injection practices, blood transfusion, and sexual contact. HBV is resilient and can survive outside of the body for seven days the virus incubation period is 90 days on average, but can vary from about 30-180 days. HBV may be detected as soon as 30-60 days after infection (WHO, 2008).

### **Demographics**

Asian Americans and Pacific Islanders (AAPIs) include Asian Americans and native Hawaiian and other Pacific Islander Americans. The U.S. Census Bureau (2011) defines “Asian American” to include persons having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent. They define “Pacific Islanders” to include persons having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

Lin, Chang, and So (2007) report that Asian Americans are the fastest growing minority group in the United States. There are an estimated 17.3 million U.S. residents of Asian descent, according to the 2010 Census. This group comprised 5.6 percent of the total population. There are an estimated 1.2 million U.S. residents who indicated they were Pacific Islanders, either alone or in combination with one or more additional races, in the 2010 Census. This group comprised 0.4 percent of the total population (U.S. Census Bureau, 2011).

The Asian American Health Initiative (2005) reports that chronic HBV is the largest health threat for Asian Americans, and Pacific Islanders (AAPIs) and the general US population. In 2010, The U.S. Centers for Disease Control and Prevention (CDC) estimated that up to 1.4 million persons in the U.S., roughly 1-2% of the populations are living with chronic HBV. It is estimated that 10 percent of Asian Americans and Pacific Islanders are infected with this chronic viral infection, compared to 0.2 percent in Caucasians. Therefore, a safe conclusion can be made that chronic HBV is a major health disparity amongst AAPIs (CDC, 2008).

Health disparities and barriers to healthcare place AAPIs as a high-risk population. Specifically, barriers to HBV treatment include language limitations, cultural and health belief differences, lack of health insurance, lack of healthcare provider knowledge regarding need for HBV testing and screening of the AAPI population, and lack of AAPI education and understanding of risks association with HBV infection.

### **Language barriers**

The most common confounding factors noted to be a major obstacle in receiving care is lack of fluency in English, and not understanding medical terminology (Tran, 2009). The U.S. Census Bureau reports that the population speaking a language other than English at home has increased steadily for the last three decades. AAPIs accounted for 8.3 million of the total people surveyed and of those 8.3 million AAPIs, only 4.2 million reported that they spoke English “very well” which is a term used by the Census Bureau. The U.S. Census Bureau categorizes language into four distinct groups, Spanish, Indo-European, AAPIs, and other. The AAPIs languages listed include Chinese, Korean, Japanese, Vietnamese, Hmong, Khmer, Lao, Thai, Tagalog or Pilipino, the Dravidian languages of India, such as Telugu, Tamil, and Malayalam; and other languages of Asia and the Pacific, including the Philippines, Polynesian, and Micronesian

It is important to note that the Asian continent is composed of 52 countries where 100 different languages and dialects are spoken (Tran, 2009). To overcome barriers, Tran (2009) emphasizes that an increased understanding of the diversity of Asia is an important component of culturally competent healthcare delivery.

### **Traditional health beliefs**

As reported by Ma et al. (2007), identifying beliefs is critical for adequate health promotion and prevention in all minorities. The first step of health belief identification is building trust with each patient. Critical screening and prevention relies on this ability. Identification of health beliefs is additionally important because health-related behaviors deviate significantly based on these beliefs. Some minorities do not understand that certain disease can be prevented.

### **Belief systems and perception of healthcare**

The religious beliefs and cultural attitudes of AAPIs toward healthcare providers can contribute to barriers to access of healthcare. AAPIs typically view holistic healthcare joining the mind, body, and soul and focusing on establishing and maintaining balance between these domains. Many AAPIs will intertwine traditional beliefs with Western concepts of health and illness. Patients subscribe to more traditional beliefs or western medicine based on their age, education, language proficiency, length of time in the U.S and general assimilation into Western culture. It is important to note that many Asians are reluctant to have blood drawn as a result of the belief that it will deplete the body of the removed blood and the body will be unable to replenish itself (Tran, 2009).



Pacific Islanders believe that the ideal concept of health has four components: the spiritual, the psychological, the physical, and the relationship with the family. Some Pacific Islanders believe any illness can be attributed to the loss of 'mana', defined as a special power or life force. If an imbalance of the mana occurs, Pacific Islanders believe that restoration of this imbalance through analysis of damaged relationships within oneself, the extended family, ancestors, the environment, or one's spirituality are critical for restoring the mana (Office of Minority Health and Bureau of Primary Health Care, 2012).

Wergowske and Blanchette (2011) explain that most Pacific Island societies place more emphasis on group and hierarchy within that group. Pacific islanders respect and admire their elders, and they are considered the hierarchy within the group. Issues of privacy and autonomy will be less important to the patient than the cohesiveness of the group. In matters of health, elderly members will often defer to the judgment of their adult children. A minor illness in an elder village chief may be of more concern than a more serious illness in someone younger or of lower rank. Historically, this behavior shows the importance of the chief or elders rank within this group. It is thought that the chief or elder has greater responsibility for the survival of the entire group. (Wergowske & Blanchette, 2011).

### **Lack of insurance**

Another barrier to access of health care is lack of health insurance coverage. According to Heck, Sell, and Gorin (2006) health insurance is an important factor in U.S. residents' receipt of timely and appropriate health care. The Agency for Healthcare Research and Quality (2005) reported that uninsured individuals are more likely to die early and have poor health status. The cost of early death and poor health totals between \$65 and \$130 billion annually. The financial burden of uninsured individuals is also great. Almost 50% of personal bankruptcy filings are due

to medical expenses (Agency for Healthcare Research and Quality Department of Health and Human Resources, 2008).

The US Census 2011 reports that 18% of Asian Americans and 17% of Pacific Islanders are without health insurance coverage. This is above the national average of 15 % and well above the percentage of uninsured, non- Hispanic whites (10 %). AAPIs are largely employed by small firms, low-wage firms, or certain employment sectors, which are less likely to offer coverage, and if coverage is offered, it is often unaffordable (U.S. Census Bureau, 2011).

The Viral Hepatitis Action Plan presents steps for improving the prevention of viral hepatitis and the care and treatment provided to infected persons and for moving the nation towards achieving Healthy People 2020 goals. The Viral Hepatitis Action Plan builds upon the 2010 Patient Protection and Affordable Care Act. This Action Plan will help bring health insurance coverage to more than 30 million people. This act calls upon the expertise of healthcare providers to facilitate health promotion and disease prevention, particularly among minorities and other populations with health disparities. Expanded health insurance coverage will help eliminate the financial challenges faced by AAPIs who are uninsured. It will improve their access to care; promote screening, prevention, care and treatment if needed (United States Department of Health and Human Services, 2011).

The Affordable Care Act according to Department of Health and Human Services (2012) report that an estimated two million AAPIs will be eligible for insurance coverage by 2016 under this new health care law. The 867,000 elderly and disabled Asian Americans and Pacific Islanders who receive health coverage from Medicare also have access to an expanded list of preventive services with no cost-sharing, including annual wellness visits with personalized prevention plans, diabetes and colorectal cancer screening, bone mass measurement and

mammogram. An additional 97,000 young Asian American and Pacific Islander adults between ages 19 and 25 who would have been uninsured now have coverage under their parent's employer-sponsored or individually purchased health plan. These are tremendous steps toward decreasing health disparities and eliminating the barrier of lack of insurance coverage in AAPIs (Department Of Health and Human Services, 2012).

### **Lack of knowledge healthcare providers**

Lack of knowledge and awareness by healthcare providers is another barrier to screening and treatment of HBV in AAPIs. Mainstreaming hepatitis B screening, adequate early diagnosis and treatment is essential to provide culturally competent care to this diverse population. Healthcare providers play a significant role in helping to decrease this healthcare disparity seen in AAPIs.

The Institute of Medicine drafted recommendations for the prevention and control of viral hepatitis in the United States. Their recommendations emphasized the lack of provider awareness of at-risk populations as one of the impediments to national efforts to successfully control HBV (Mitchell, Colvin, & Beasley, 2010). Jung et al. (2010) note that providers remain unaware of treatments for HBV infection and do not treat their HBV-infected patients or refer them for treatment. Upon investigation during a study conducted in 2010 by Jung et al. it was estimated that 84% of patients with HBV who were insured did not receive HBV treatment.

Daley et al. (2009) completed a national survey of physician practices and found that only 31% of the participating physicians reported routine assessment and vaccination of all adult patients for hepatitis B. The survey also found that nearly one-quarter of primary care providers' rate identification and vaccination of HBV in high-risk individuals to be 'low priority'. Results of a study evaluating primary care provider knowledge of the updated CDC HBV guidelines show that nearly 60% of providers accurately followed CDC guidelines however 40% of

respondents did not realize that heterosexual sex is the most common route of primary infection among U.S. born adults (Foster et al., 2011).

Research by Guirgis, Yan, Bu, and Zekry (2010) also indicate a significant gap in physician knowledge of hepatitis, which may compromise diagnosis and treatment. Physicians participating in the study noted the following barriers to treating migrants with hepatitis: language, lack of culturally and linguistically appropriate resources, and stigma attached to HBV or HCV diagnosis.

A survey completed in Australia and published in the *Internal Medicine Journal* evaluated general practitioners (GP) knowledge and similar conclusion were found as the Daley et al. (2009) national survey. This survey also identified that the most highly ranked educational tool was continuing medical education sessions and published guidelines. Of the GPs surveyed, 82% indicated that they would attend a specific education session on viral hepatitis. Interesting enough, internet resources, journal articles and pharmaceutical company literature were ranked lowest in preference (Guirgis et al., 2010).

The Action Plan for the Prevention, Care and Treatment of Viral Hepatitis reports that to further reduce the known health disparities of AAPIs with HBV, healthcare providers need to become educated and aware of opportunities for prevention, care, and treatment (United States Department of Health and Human Services, 2011). Ma et al., (2007) commented that it is important for healthcare providers to understand the common routes of HBV transmission in AAPIs. This includes vertical transmission from an infected mother to the newborn and horizontal transmission during childhood by chronically infected persons living in Asia or immigrating from endemic countries. Other recommendations for healthcare providers involve the promotion of HBV education and the decrease of HBV stigmatization (Ma et al., 2007).

### **Lack of knowledge AAPIs**

The AAPI populations also lack knowledge and awareness of chronic HBV. Mitchell, Colvin, and Beasley (2010) indicate that nearly two-thirds of persons infected with HBV are unaware of their status. A pilot program was developed in New York City, BfreeNYC, which provided HBV community education and awareness, free screening and vaccinations, and free or low-cost treatment primarily to immigrants from Asia and other racial and ethnic minority groups. The study screened 8,888 participants; eighty-four percent were foreign-born Asian Americans. The 18 percent of participants tested positive for HBsAg, and were infected with HBV, 46 percent had antibodies to hepatitis B, indicating immunity by resolved past infection or immunization. Lastly, 36 percent lacked hepatitis B antibodies and were susceptible to infection with HBV. Participants reported poor knowledge of HBV. Fewer than 10 percent reported that hepatitis B is typically asymptomatic, and only half of study participants knew about vaccinations for HBV. This study also suggested that HBV stigma persists, only 44 percent of the participants said that they would tell their family if they learned that they were infected (Pollack et al., 2011).

A study was also completed in San Francisco, CA to evaluate the knowledge of chronically infected individuals with hepatitis B. They evaluated the risk factors and prevention practices regarding HBV. This study data was gathered between October 2007 and July 2009 at which time 5,530 individuals reported to the San Francisco health department with probable or confirmed infection. Of the 5,530 individuals that were involved 1,177 cases were randomly sampled and interviewed. Eighty-seven percent of respondents were born outside of the US and were born in countries that are highly endemic for HBV. A large proportion likely acquired their infection from their mother at birth or through other infected household members. However, seventy-five percent were unable to identify how they acquired HBV, and forty-one percent stated that they do nothing to prevent transmission. Fewer than half of them questioned reported

HBV infection in their mother or family members. Only ten percent of the study participants were able to recommend a preventive measure: 1) HBV testing for their household members and sexual contacts who had not been tested, or 2) hepatitis B vaccinations. This study concluded that better efforts are needed regarding education of HBV not only in the healthcare setting, but also AAPIs community centers (Nishimura et al., 2012).

### **HBV stigmatization**

Unfortunately stigmatization is still a significant barrier to access of healthcare for AAPIs. Guirgis, Nusair, Bu, Yan, and Zekry (2011) state that 54% of participants surveyed reported fear of discrimination/stigma. Infection with HBV carries a stigma about the mode of transmission that can make people feel isolated.

The BeFreeNY pilot program completed in New York City reported that HBV stigma persists, and only 44 percent of the participants said that they would tell their family if they learned that they were infected (Pollack et al., 2011). Efforts to decrease the stigma associated with HBV can be reduced through education efforts of individuals, families, and the community as a whole.

### **Serological testing**

The American Association for the Study of Liver Diseases (AASLD) advises that serological testing to screen individuals for HBV should include hepatitis B surface antigen (HBsAg) and Hepatitis B surface antibody (anti-HBs). They alternatively discuss the use of hepatitis B core antibody (anti-HBc) but suggest that if the individual tests positive for anti-HBc, further testing with HBsAg and anti-HBs needs to be drawn to differentiate between active infection and immunity (Lok & McMahon, 2009). Hwang et al. (2010) report that an isolated positive anti-HBs test confers immunity because of previous vaccination or infection.

HBsAg is a protein on the surface of the Hepatitis B virus; it can be detected in high levels in serum with acute and chronic hepatitis B. The CDC (2008) previously provided recommendations for testing for hepatitis B in pregnant women, infants born to HBsAg-positive mothers, household contacts and sex partners of HBV-infected persons, persons born in countries with HBsAg prevalence of greater than or equal to 8%, persons who are in contact with blood or body fluid exposures that might warrant post-exposure prophylaxis and persons infected with human immunodeficiency virus. Then in September 2008, the CDC along with the Advisory Committee on Immunization Practices updated and expanded their previous guidelines for HBsAg testing. Along with the above listed individuals, HBsAg is now recommended for additional populations with HBsAg prevalence of greater than or equal to 2%: persons born in geographic regions with HBsAg prevalence of greater than or equal to 2%, men who have sex with men, sexually active people (greater than two partners per year), persons seeking treatment or evaluation for a sexually transmitted infection, and past or present injection-drug users (Rein, Lesesne, O'Fallon, & Weinbaum, 2009).

Lok and McMahon (2009) also recommend screening persons who have chronically elevated aminotransferases, persons needing immunosuppressive therapy, inmates of correctional facilities, dialysis patients, and HIV or HCV co-infected individuals.

In addition to following CDC guidelines Foster et al. (2011) reports that practitioners should obtain a history that emphasizes risks for sexual transmission and percutaneous or mucosal exposure to blood in all adults. Vaccination is recommended for all adults who are negative for HBV and at risk, as well as all adults who are inquire about vaccinations without admitting to a specific risk factor (Foster et al., 2011).

### **Vaccination**

Since the introduction of universal vaccine guidelines for hepatitis B in the 1990s the overall incidence of HBV infection in the United States has declined by almost 80%, but high-risk groups still remain elevated. This universal vaccination strategy was implemented for infants, adolescents and healthcare workers. In May 2012, the Asian Pacific Community Health Organizations (AAPCHO) and the Hepatitis B Foundation, with the help of the U.S. Department of Health and Human Services' Office of Minority Health have launched a new campaign to bring attention and action to end HBV in high-risk populations such as AAPIs. This monumental national campaign is known as "Hep B United" and the goal is to support community-based groups across the U.S. working to increase hepatitis B awareness screening, vaccination, and access to care and treatment for all Americans, particularly AAPIs who are disproportionately impacted by this disease (Hep B United, 2012). Seronegative persons of HBsAg and anti-HBs should be vaccinated (Lok and McMahon, 2009)

Despite the updated CDC vaccination guideline recommendations, vaccination rates remain sub-optimal with only 22% of susceptible individuals with a regular source of healthcare receiving vaccinations (Foster et al., 2011). Daley et al. (2009) report that less than 50% of adults with risk factors for HBV have been vaccinated.

### **Recommendations**

Reducing the burden of HBV and liver cancer is a priority among many U.S. public health authorities. HBV is a vaccine-preventable disease. Healthy People 2020 devised a goal of reducing the incidence of HBV infection and increasing immunization rates. They state that hepatitis B is preventable but our healthcare system often does not make the best of the available resources to support prevention efforts. An Institute of Medicine (2008) expert review committee concluded that chronic HBV is an important public health problem. Several barriers to prevention and control efforts were identified, such as a lack of knowledge among healthcare



providers, at risk populations and the public. On May 12, 2011, The U.S. Department of Health & Human Services released a Viral Hepatitis Action Plan addressing HBV health disparities. This plan was put into place to improve AAPIs access to care; promote screening, prevention, care and treatment if needed and for moving the nation towards achieving Healthy People 2020 goals. Consequently, on July 27, 2011, President Barack Obama proclaimed it to be World Hepatitis Day to address and increase awareness regarding this silent epidemic.

The Center for Disease Control and Prevention (2008) provides recommendations for routine screening and follow-up for chronic HBV infection. The CDC recommends screening persons born in regions of high and intermediate HBV endemicity (HBsAg > 2%) including immigrants, refugees, asylum seekers, and internationally adopted children. The CDC also recommends screening US born persons not vaccinated as infants whose parents were born in regions with high HBV endemicity. Asia and the Pacific Islands are considered to be in high endemic areas (CDC, 2008).

The Institute of Medicine of the National Academies (2010) review committee requested an organized, collaborative approach to decrease the rate of HBV infection and the consequences of undiagnosed, untreated HBV. They have recommended that a coordinated movement should include outreach and awareness, prevention of new infections, identification of infected people, social and peer support and medical management of chronically infected people. They recognize health disparities in certain ethnic groups such as AAPIs (Institute of Medicine of the National Academies, 2010).

It is critical for healthcare providers to provide culturally competent healthcare to Asian and Pacific Islanders to decrease this major health problem that exists in this population. All healthcare providers are at the forefront of decreasing the incidence of HBV infection in AAPIs by screening, prevention and medical treatment or referral when warranted. Promoting

education, prevention, and care about HBV and liver cancer will directly decrease this health burden in Asian American and Pacific Islanders.

### **Educational Tool and Pamphlet Design**

The Merriam-Webster (2012) dictionary defines a pamphlet as an unbound printed publication with no cover or with a paper cover. The United Nations Educational, Scientific and Cultural Organization (1964) defines a pamphlet as a non-periodical printed publication of at least 5 pages but not more than 48 pages. Printed materials such as pamphlets are widely used as an educational tool in the area of healthcare. Multiple studies have been conducted to evaluate the effectiveness of printed materials such as pamphlets, booklets, and leaflets as tools for education. Pamphlets were found to be effective in changing knowledge, attitudes and behavior with regard to a wide range of health-related issues (Paul, Redman, & Sanson-Fisher, 2003). Pamphlets are generally easy to read, skim through, and available for reference later.

The structure of pamphlets and other educational tools need to consider literacy issues in their development. In the 1930s, psychologists began to research how the human brain processes written information in regards to sentence length. At that time, they found the longer a sentence, the more difficult it is for short-term memory to hold its true meaning of conciseness; thus, clear and shorter sentences improve comprehension (Murray, 2006).

The Gunning Fog Index is one of the initial attempts to quantify readability and is still used today (Brucker, 2008). Readability is the measures of how easy it is to read and comprehend a document. The Gunning Fog Index evaluates the readability of a text for a wide audience. This test is designed to measure the readability of a sample of English writing. The resulting number is an indicator of the formal educational level a person is required to have to easily understand the text on the first reading. In other words, if a test has a Gunning Fog Index score of 12, it has the reading level of a 12<sup>th</sup>-grade student. Those who want their writing to be

read by a large number of people generally use the Gunning Fog Index. Therefore, if the target audience includes a large segment of people, the test should be designed with a Gunning Fog Index score of less than 12 (Spinks & Wells, 1993).

The Gunning Fog Index (Brucker, 2008) can be calculated with the following algorithm:

1. Take a full passage that is approximately 100 words.
2. Find the average sentence length (divide the number of words by the number of sentences).
3. Count words with three or more syllables (complex words), not including (a) proper nouns; (b) compound words; or (c) common suffixes such as *ed*, *es*, or *ing*.
4. Add the average sentence length (step 2) and the percentage of complex words from step 3 and multiply by 0.4.

Medical journals usually score between 14 to 16, tabloid newspapers between 10 and 12, and graduate level and beyond at 18. Professional writing should score between 10 and 15. If the score is below 10, the message may be oversimplified. If the score is more than 15, the reader may struggle to understand (Brucker, 2008).

Research has shown that the number of years of school completed is not a reliable predictor of reading level. Therefore, recommendations for texts designed for wide audiences generally require a Gunning Fog Index score of less than 12 (Brucker, 2008).

Additionally, it is also important to customize health-related education material to healthcare providers also. Along with the Gunning Fog index, The New Dale-Chall readability formula was used for pamphlet development. This additional formula was developed specifically for evaluating health education material and achieves the highest validity when tested for reader comprehension. The New Dale-Chall readability formula takes into consideration the vocabulary and sentence structure, which is needed for a short, precise

pamphlet. This formula calculates readability by the number of syllables per sentence and the percentage of difficult words. The formula is as followed.  $\text{raw score} \times \text{average words per sentence} + 0.1579 \times \% \text{ unfamiliar words} + 3.6365 = \text{final score}$  (Badarudeen & Sabharwal, 2010).

### **Methods**

The methods for completion of the objectives of this scholarly project were the completion of a literature review about barriers to screening for HBV in AAPIs, including language barriers, lack of insurance, stigmatization, traditional beliefs, lack of knowledge, and access to care. Following the completion of the literature review, an education tool and pamphlet based upon the most recent evidence regarding screening, treatment, disease and its sequelae surveillance, and vaccination were developed (Appendix A & B). This also included knowledge obtained from a thorough literature review, along with knowledge from my content experts in development of an educational tool and pamphlet that will assist healthcare providers to identify at risk adult individuals, screening for HBV, assist in disease surveillance and vaccinate if warranted.

An algorithm was developed and is available in both the educational tool and the accompanying pamphlet, based upon the CDCs guidelines and the AASLD practice guidelines regarding screening and vaccination. It discusses screening at risk adult populations, and when it is appropriate to vaccinate. After development of the educational tool and algorithm, an article was prepared for submission for publication (Appendix C) in the *ADVANCE for NPs and PAs*, which will include the literature review, as well as the education pamphlet and algorithm. These methods were employed to accomplish the requirements of the scholarly project.

### **Evaluation**

Evaluation of these scholarly project objectives was met through critique and review of the scholarly project by the project chair and authenticated by the content expert. Objectives one and two state that an education tool was developed for healthcare providers in primary practice. This educational tool and pamphlet was created after completion of a thorough literature review to obtain the knowledge and accuracy regarding HBV in AAPIs. This educational tool and pamphlet includes barriers to screening, screening recommendations for HBV in adult AAPIs, how to assist in disease and its sequelae surveillance, and review vaccination guidelines.

There was attention given to the readability when preparing the accompanying educational tool and pamphlet. Brucker (2008) gives recommendations for texts designed for a wide audience generally requires a Gunning Fog Index score of less than 12 and medical journals usually score between 14 to 16. Therefore, the goal for the educational tool and accompanying pamphlet was to have a Gunning Fog Index score greater than 12. Secondly, The New Dale-Chall readability goal of greater than 10 was the target for educational materials for grades 16 and above, college graduate (Badarudeen & Sabharwal, 2010).

Evaluation of the first and second objective by the project chair and content experts was completed prior to the third objective being addressed. Objective three was evaluated by my project chair/content experts who provided critique and evaluation of the scholarly project and confirmed that was ready for submission to the *ADVANCE for NPs and PAs* for publication along with the educational tool. This final scholarly project will then be defended by November 17<sup>th</sup>, 2012 at the University of Utah College of Nursing.

### **Results**

An educational tool and pamphlet were designed to assist healthcare providers including physicians, nurse practitioners and physician assistants in understanding the barriers to screening for HBV. By utilizing these items, health-care providers will have a resource that will (a)

introduce barriers to screening for HBV in AAPIs, (b) increase awareness of Asian Americans and Pacific Islanders health disparity in regards to hepatitis B, (c) provide screening recommendations, (d) assist in disease and it's sequelae surveillance, and (e) review vaccination guidelines (Appendix A).

The accompanying educational pamphlet is unique in design, compiles extensive important data into a very condense resource. The effectiveness of printed material has been studied numerous times and pamphlets were found to be effective in changing knowledge, attitudes and behavior with regard to healthcare choices (Paul, Redman, & Sanson-Fisher, 2003). Pamphlets are also generally easy to read, skim through and available for reference later.

The data used for the tool and pamphlet were gathered through a thorough, integrated literature review. Product development included healthcare vocabulary, keywords, along with clear and short sentences to facilitate improved comprehension. The pamphlet received a Gunning Fog index of 14. The Gunning Fog Index score of 14 accomplished the pamphlet's goal of greater than 12, which is recommended when targeting a healthcare provider audience. Secondly, The New Dale-Chall readability goal of greater than 10 was surpassed at 11.2 and considered the target for educational materials for grades 16 and above, college graduate.

This tool/pamphlet will be distributed to primary healthcare providers throughout Salt Lake City, Utah. By utilizing these two items, healthcare providers will be better prepared to identify and treat those in this population in relationship to HBV. By doing this, the long-term sequelae experienced by this population will be lessened with early screening and treatment, and the use of vaccinations will prevent others from acquiring the disease.

The DNP essentials met for this capstone project are the following:

- Essential I: Scientific underpinnings for practice. A Literature review was completed.

- Essential II: Organization and systems leadership for quality improvements and systems thinking. An educational pamphlet to improve HBV screening and vaccination in AAPIs was developed.
- Essential III: Clinical scholarship and analytical methods for evidence-based practice. Discovery of new knowledge was obtained from a thorough literature review and translated into evidence based practice.
- Essential V: Health care policy for advocacy in healthcare. An educational tool focused on barriers to screening, surveillance, and vaccination for hepatitis B was developed and will be a resource for healthcare providers.
- Essential VI: Interprofessional collaboration for improving patient and population health outcomes. This educational pamphlet will better prepare healthcare providers to identify and treat those in the APPI population in relationship to HBV.
- Essential VIII: Advanced nursing practice. Decreasing the healthcare burden in AAPIs.

### **Recommendations**

Future research needs to include the implementation of screening programs that would directly involve the use of electronic medical records and smart set reminders programmed into these programs. Embracing technological advances and improving efficacy can help promote screening, surveillance, vaccination and treatment.

By the year 2020, the Association of American Medical Colleges (2011) projects a shortfall of approximately 1,050 gastroenterologists. The demand for care will increase as screening for HBV in AAPIs increases leading to the need for additional providers with expertise in this field. A solution for this need could be with more continuing education for family

practice providers regarding treatment, surveillance, and vaccination. The expanding implementation of Project ECHO (Extension for Community Healthcare Outcomes), which is an outreach program geared to further reach other healthcare providers who might not have the knowledge or skills to treat complex, common diseases (Quinn, 2011). Project ECHO uses video communication technology to conduct real-time, case-based learning between specialist at a university medical center and local primary care teams. The continued growth of Project ECHO expands the capacity of healthcare workforce to provide high-quality care in local communities (Quinn, 2011).

The University of Utah implemented Project ECHO in October 2011. Project ECHO is participating with clinics in Montana, Utah, Colorado, Wyoming, and Idaho and is growing rapidly. It currently is encouraging primary care providers throughout these rural communities to safely and effectively treat and manage patients with Hepatitis C. Project ECHO is one of the new technological advances in healthcare that is continuously growing and any specialty can be provided at a distance level, especially Hepatitis B management and treatment.

### **Conclusion**

Chronic HBV is an important global and national concern, especially for Asian American and Pacific Island populations. As a vaccine-preventable disease, reducing the burden of HBV and associated hepatitis and liver cancer is a priority for U.S. public health authorities and healthcare providers. Although goals have been set to reduce the incidence of HBV infection and increase immunization rates, our healthcare system does not fully utilize available resources to support prevention efforts. Several barriers to prevention and treatment of HBV within the AAPI population have been identified through research.

Healthcare providers and public health officials stand at the forefront of efforts to prevent and control hepatitis. Action is needed to remedy this situation - action that will remove cultural



and community barriers and directly reduce the health burden in Asian Americans and Pacific Islanders. Evidence-based research recommendations include improved education of healthcare providers and members of the AAPIs population, improved availability and integration of screening, testing, and healthcare management resources, and provision of culturally competent healthcare.

## References

- Agency for Healthcare Research and Quality. Department of Health and Human Resources (2005, December). *2005 National healthcare disparities report*. Retrieved March 2, 2012, from <http://www.ahrq.gov/qual/nhdr05/nhdr05/pdf>
- Association of American Medical Colleges (2011). Recent studies and reports on physician shortages in the US. *Association of American Medical Colleges*, 1-21.
- Asian American Health Initiative (2005). *Health disparities among Asian Americans*. Retrieved March 18, 2012, from <http://www.aahiinfo.org/english/asianAmericans.php#disparities>
- Badarudeen, S., & Sabharwal, S. (2010). Assessing readability of patient education materials: Current role in orthopaedics. *Clinical Orthopaedic*, 468(10), 2572-2580.
- Brucker, C. (2008). *How to compute Gunning's Fog Index*. Retrieved July 27, 2012, from <http://faculty.atu.edu/cbrucker/Fog.html>
- Center for Disease Control and Prevention (2008). *Recommendations for identification and public health management of persons with chronic hepatitis B virus infection*. Retrieved March 2, 2012, from <http://www.cdc.gov/hepatitis/HBV/PDFs/ChronicHepBTestingFlwUp.pdf>
- Chang, E. T., Keegan, T. H., Gomez, S., Le, G. M., Clarke, C. A., So, S. K., & Glaser, S. L. (2007). The burden of liver cancer in Asians and Pacific Islanders in the greater San Francisco Bay area, 1990-2004. *American Cancer Society*, 109(10), 2100-2108.
- Cohen, C., Holmberg, S. D., McMahon, J. B., Block, J. M., Brosgart, C. L., Gish, R. G., Block, T. M. (2010). Is chronic hepatitis B being undertreated in the United States? *Journal of Viral Hepatitis*, 18(6) 377-381.
- Daley, M. F., Hennessey, K. A., Wienbaum, C. M., Stokley, S., Hurley, L. P., Crane, L. A.,

- Kempe, A. (2009). Physician practices regarding adult hepatitis B vaccination: A national survey. *American Journal of Preventive Medicine*, 36(6), 491-496.
- Department of Health and Human Services (2012, May). *The Affordable Care Act and Asian Americans and Pacific Islanders*. Retrieved June 8, 2012, from <http://www.healthcare.gov/news/factsheets/2012/05/asian-americans05012012a.html>
- Foster, T., Hom, H., Fasiha, K., Han, S., & Spiegel, B. (2011). Screening high risk individuals for hepatitis B: Physicians knowledge, attitudes and beliefs. *Digestive Disease Science*, 56, 3471-3487.
- Guirgis, M., Nusair, F., Bu, Y. M., Yan, K., & Zekry, A. T. (2011). Barriers faced by migrants in accessing healthcare for viral hepatitis infection. *Internal Medicine Journal*, 42(5), 491-496.
- Guirgis, M., Yan, K., Bu, Y. M., & Zekry, A. (2010). General practitioners' knowledge and management of viral hepatitis in the migrant population. *Internal Medicine Journal*, 42(5), 497-504.
- Healthy People 2020 (2012, February 8). *Immunizations and infectious diseases*. Retrieved March 1, 2012, from <http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicId=23>
- Heck, J. E., Sell, R. L., & Gorin, S. S. (2006). Healthcare access among individuals involved in same-sex relationships. *American Journal of Public Health*, 96(6), 1111-1118.
- Hep B United (2012). *Hep B united - We can stop hepatitis B*. Retrieved June 6, 2012, from <http://hepbunited.org/about-us>
- Hepatitis B Foundation (2009). *Hepatitis B vaccine history*. Retrieved June 10, 2012, from [http://www.hepb.org/professionals/hepatitis\\_b\\_vaccine.htm](http://www.hepb.org/professionals/hepatitis_b_vaccine.htm)

- Hu, K. Q., Pan, C. Q., & Goodwin, D. (2011). Barriers to screening for hepatitis B virus infection in Asian Americans. *Digestive Disease and Science*, *56*, 3163-3171.
- Hu, K. Q. (2008). Hepatitis B virus (HBV) infection in Asian and Pacific Islander Americans (APIAs): How can we do better for this special population? *American Journal of Gastroenterology*, *103*, 1824-1833.
- Hwang, J. P., Mohseni, M., Gor, B. J., Wen, S., Guerrero, H., & Vierling, H. M. (2010). Hepatitis B and hepatitis C prevalence and treatment referral among Asian Americans undergoing community-based hepatitis screening. *American Journal of Public Health*, *100*(S1), S118-S124.
- Institute of Medicine of the National Academies (2010). Hepatitis and liver cancer a national strategy for prevention and control of hepatitis B and C. *Institute Of Medicine Of the National Academies, January*. doi/s10903-011-9523-0
- Jung, C. W., Tan, J., Kuo, M. N., Ashok, A., Eells, S. J., & Miller, L. G. (2010). Evidence for the insufficient evaluation and undertreatment of chronic hepatitis B infection in a predominantly low-income and immigrant population. *Gastroenterology and Hepatology*, *25*(2), 369-375.
- Keeffe, E. B., Dieterich, D. T., Han, S. H., Jacobson, I. M., Martin, P., Schiff, E. R., & Tobias, H. (2008). A treatment algorithm for the management of chronic hepatitis B virus infection in the United States: 2008 update. *Clinical Gastroenterology and Hepatology*, *6*, 1315-1341.
- Khalili, M., Guy, J., Yu, A., Li, A., Diamond-Smith, N., Stewart, S., Nguyen, T. (2011). Hepatitis B and hepatocellular carcinoma screening among Asian Americans: Survey of safety net healthcare providers. *Digestive Disease Science*, *56*, 1516-1523.

- Lee, H., Hontz, I., Warner, A., & Park, S. J. (2005). Hepatitis B infection among Asian American and Pacific Islanders in the Rocky Mountain area. *Applied Nursing Research, 18*, 2-6.
- Lin, S. Y., Chang, E. T., & So, S. K. (2007). Why we should routinely screen Asian American adults for hepatitis B: A cross-sectional study of Asians in California. *Hepatology, 46*(7), 1034-1040.
- Lok, A. S., & McMahon, B. J. (2009). Chronic hepatitis B: Update 2009. *Hepatology, 50*(3), 1-28.
- Ly, K. N., Klevens, R. M., Jiles, R. B., Ward, J. W., & Holmberg, S. D. (2012). The increasing burden of mortality from viral hepatitis in the United States between 1999 and 2007. *Annual of Internal Medicine, 156*(4), 271-8.
- Ma, G. X., Fang, C. Y., Shive, S. E., Toubbeh, J., Tan, Y., & Siu, P. (2007). Risk perceptions and barriers to hepatitis B screening and vaccination among Vietnamese immigrants. *Journal of Immigrant Minority Health, 9*, 213-220.
- Mayo Clinic (2011). *Hepatitis B*. Retrieved June 2, 2012, from <http://www.mayoclinic.com/health/hepatitis-b/DS00398>
- Merriam-Webster (n.d.). *Pamphlet*. Retrieved October 23, 2012, from <http://www.merriam-webster.com/dictionary/pamphlet>
- Mitchell, A. E., Colvin, H. M., & Beasley, R. P. (2010). Institute of Medicine recommendations for the prevention and control of hepatitis B and C. *Hepatology, 51*(3), 729-733.
- Murray, R. B. (2006, November). *The Gunning Fog Index: A useful tool for targeting an article to an audience*. Retrieved July 27, 2012, from <http://www.rxcomms.com/archives/the-gunning-fog-index-a-useful-tool-for-targeting-an-article-to-an-audience/>

Nishimura, A., Shiono, P., Stier, D., Shallow, S., Sanchez, M., & Huang, S. (2012).

Knowledge of hepatitis B risk factors and prevention practices among individuals chronically infected with hepatitis B in San Francisco, California. *Journal of Community Health, 37*, 153-158.

Obama, B. (2011, July 27). *World Hepatitis Day, 2011 -- By the President of the United States of American a Proclamation.*

Office of Minority Health and Bureau of Primary Health Care (n.d.). *Reducing Health*

*Disparities in Asian Americans and Pacific Islander Populations: A Providers Guide to Quality & Culture Seminar.* Retrieved March 20, 2012, from <http://erc.msh.org/quality&culture>

Paul, C. L., Redman, S., & Sanson-Fisher, R. W. (2003). Print material content and design: is it relevant to effectiveness? *Oxford Journals, 18*(2), 181-190.

Pollack, H., Wang, S., Wyatt, L., Peng, C. H., Wan, K., Trinh-Shevrin, C., Kwon, S. (2011). A comprehensive screening and treatment model for reducing disparities in Hepatitis B. *Health Affairs, 30*(10), 1974-1983.

Quinn, B. C. (2011, June). *Project ECHO.* Retrieved September 29, 2012, from

<http://www.rwjf.org/content/rwjf/en/research-publications/find-rwjf-research/2011/06/project-echo-.html>

Rein, D. B., Lesesne, S. B., O'Fallon, A., & Weinbaum, C. M. (2009). Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008.

*Hepatology, 51*, 431-434.

Spinks, N., & Wells, B. (1993). Readability: A textbook selection criterion. *Journal of Education for Business, 69*(2), 84-88.

- Stevens, K. R. (2004). *ACE Star Model of EBP: Knowledge Transformation*. Academic Center for Evidence-based Practice. The University of Texas Health Science Center at San Antonio. Retrieved June 12, 2012, from [www.acestar.uthscsa.edu](http://www.acestar.uthscsa.edu)
- Takahashi, L. M., Kim, A. J., Sablan-Santos, L., Quitugua, L. F., Aromin, J., Lepule, J., Young, S. (2011). Hepatitis B among Pacific Islanders in Southern California: How is health information associated with screening and vaccination? *Journal of Community Health, 36*, 47-55.
- Tong, M. J., Pan, C. Q., Hann, H. W., Kowdley, K. V., Han, S. B., Min, A. D., & Leduc, T. S. (2011). The management of chronic hepatitis B in Asian Americans. *Digestive Disease and Science, 56*(11), 3143-3162.
- Tran, T. T. (2009). Understanding cultural barriers in hepatitis B virus infection. *Cleveland Clinic Journal of Medicine, 76*(3), S10-S13.
- U.S. Census Bureau (2010, April). *Language Use in the United States: 2007*. Retrieved June 13, 2012, from <http://www.census.gov/hhes/socdemo/language/data/acs/ACS-12.pdf>
- U.S. Census Bureau (2011, March). *Overview of Race and Hispanic Origin: 2010*. Retrieved March 1, 2012, from <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>
- U.S. Department of Health & Human Services Office of Minority Health (2012, February 22). *Chronic Liver Disease and Asian Americans/Pacific Islanders*. Retrieved March 2, 2012, from <http://minorityhealth.hhs.gov/templates/content.aspx?lvl=3&lvlID=534&ID=6206>
- United Nations Educational, Scientific And Cultural Organization (1964). *Recommendation concerning the international standardization of statistics relating to book production and periodicals*. Retrieved October 23, 2012, from <http://portal.unesco.org/en/ev.php->

URL\_ID=13068&URL\_DO=DO\_TOPIC&URL\_SECTION=201.html

United States Department of Health and Human Services (2011). *Combating The Silent Epidemic of Viral Hepatitis. Action Plan For The Prevention, Care & Treatment of Viral Hepatitis*. Retrieved March 1, 2012, from [http://www.hhs.gov/ash/initiatives/hepatitis/actionplan\\_viralhepatitis2011.pdf](http://www.hhs.gov/ash/initiatives/hepatitis/actionplan_viralhepatitis2011.pdf)

Wergowske, G., & Blanchette, P. L. (2011). *Healthcare of Pacific Islander elders*. Retrieved July 2, 2012, from <https://health.utah.gov/disparities/healthcare/PacificIslander.pdf>

World Health Organization (2008, August). *Hepatitis B*. Retrieved April 2, 2012, from <http://www.who.int/mediacentre/factsheets/fs204/en/>



Appendix A  
Educational Tool

Screening for  
Hepatitis B in  
Asian American  
and Pacific  
Islanders,  
(AAPIs): An  
Educational Tool  
for Healthcare  
Providers

Hepatitis B virus (HBV) infection is a major public health problem. The World Health Organization (2008) estimates that up to two billion people have been infected with the virus and approximately 350 million people globally are infected with chronic HBV. An estimated 600,000 people die annually from consequences of HBV. Worldwide, seventy five percent of those infected are Asian American and Pacific Islanders (AAPIs). It is estimated that one third of the world's population have been infected with HBV and 5% of the population will develop chronic hepatitis B (CHB), cirrhosis, end stage liver failure and hepatocellular carcinoma (HCC) (Hu, 2008). The prevalence of HBV amongst AAPIs is higher than any other ethnic or racial group in the United States. In the United States, 1.25 million people are chronically infected with HBV. AAPIs account for 50% of those infected and 50% of deaths caused by HBV-induced liver failure (Pollack et al., 2011). Clearly, the infection rate of HBV in AAPIs is an important public health problem that needs to be addressed and there are several barriers to prevention and control efforts.

Knowledge of barriers to screening for HBV and increasing awareness of AAPIs public health disparities by professionals is necessary to curb the incidence of HBV and its consequences in this population. There are several barriers to screening for HBV including access to care for many AAPIs and other immigrant groups due to lack of knowledge about the disease, as well as cultural, linguistic and financial challenges. The lack of knowledge and awareness by healthcare providers is also another barrier to screening for HBV in AAPIs. This lack of knowledge and awareness of HBV can contribute to continued transmission, missed opportunities for early diagnosis and medical care, and poor health outcomes in infected persons.

## Barriers to Screening for HBV in AAPIs

The Asian American Health Initiative (2005) reports that chronic HBV is the largest health threat for Asian Americans, and Pacific Islanders (AAPIs) and the general US population. In 2010, The U.S. Centers for Disease Control and Prevention (CDC) estimated that up to 1.4 million persons in the U.S., roughly 1-2% of the populations are living with chronic HBV. It is estimated that 10 percent of Asian Americans and Pacific Islanders are infected with this chronic viral infection, compared to 0.2 percent in Caucasians. Therefore, a safe conclusion can be made that chronic HBV is a major health disparity amongst AAPIs (CDC, 2008).

Health disparities and barriers to healthcare place AAPIs as a high-risk population. Specifically, barriers to HBV treatment include language limitations, cultural and health belief differences, lack of health insurance, lack of healthcare provider knowledge regarding need for HBV testing and screening of the AAPI population, and lack of AAPI education and understanding of risks association with HBV infection.

The most common confounding factors noted to be a major obstacle in receiving care is lack of fluency in English, and not understanding medical terminology (Tran, 2009). The U.S. Census Bureau (2010) reports that the population speaking a language other than English at home has increased steadily for the last three decades. AAPIs accounted for 8.3 million of the

total people surveyed and only 4.2 million reported that they spoke English “very well” which is a term used by the Census Bureau.

Identifying traditional health beliefs is critical for adequate health promotion and prevention in all minorities (Ma et al., 2007). The first step of health belief identification is building trust with each patient. Critical screening and prevention relies on this ability. Identification of health beliefs is additionally important because health-related behaviors deviate significantly based on these beliefs. Some minorities do not understand that certain disease can be prevented.

The religious beliefs and cultural attitudes of AAPIS toward healthcare providers can contribute to barriers to access of healthcare. AAPIs typically view holistic healthcare joining the mind, body, and soul and focusing on establishing and maintaining balance between these domains (Tran, 2009). Pacific Islanders believe that the ideal concept of health has four components: the spiritual, the psychological, the physical, and the relationship with the family (Office of Minority Health and Bureau of Primary Health Care, 2012).

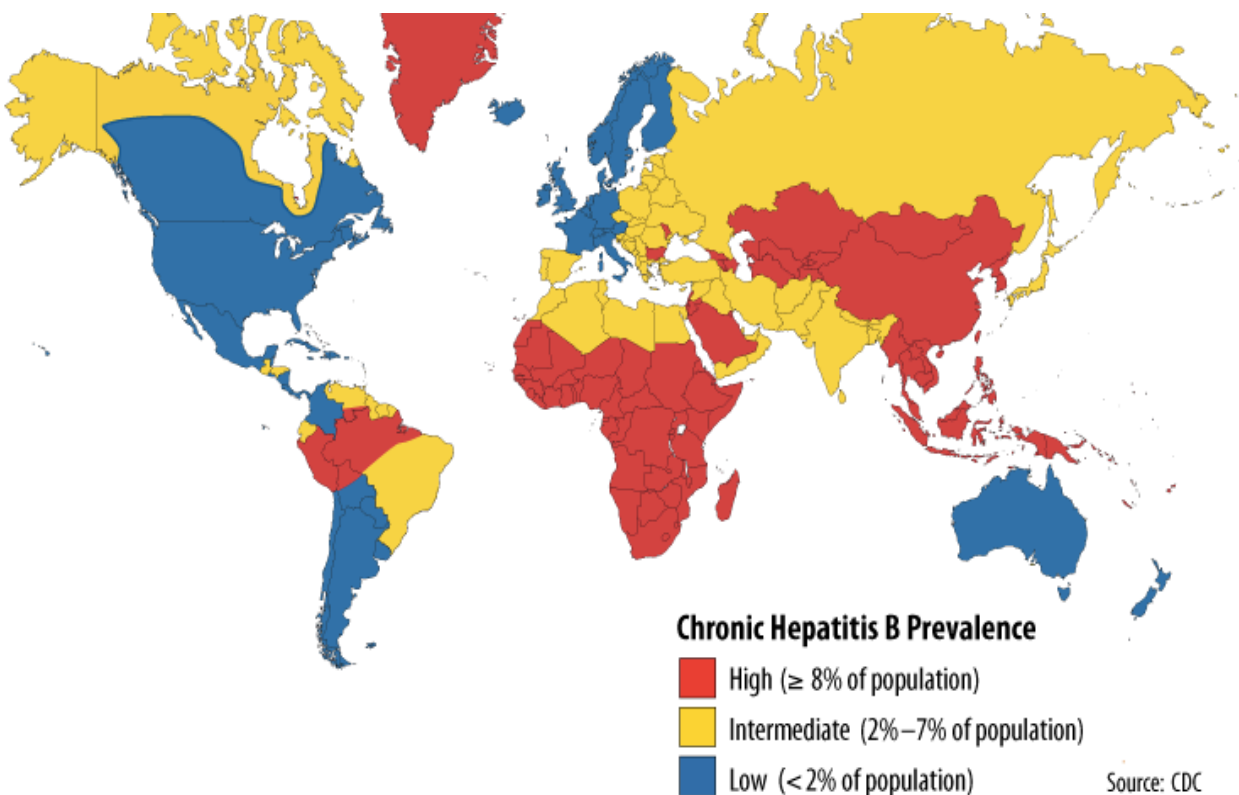
Another barrier to access of health care is lack of health insurance coverage. According to Heck, Sell, and Gorin (2006) health insurance is an important factor in U.S. residents’ receipt of timely and appropriate health care. The Agency for Healthcare Research and Quality (2005) reported that uninsured individuals are more likely to die early and have poor health status. The US Census (2011) reports that 18% of Asian Americans and 17% of Pacific Islanders are without health insurance coverage. This is above the national average of 15 % and well above the percentage of uninsured, non- Hispanic whites (10%) (U.S. Census Bureau, 2011).

Lack of knowledge and awareness by healthcare providers is another barrier to screening and treatment of HBV in AAPIs. Mainstreaming hepatitis B screening, adequate early diagnosis and treatment is essential to provide culturally competent care to this diverse population.

Healthcare providers play a significant role in helping to decrease this healthcare disparity seen in AAPIs.

The AAPI populations also lack knowledge and awareness of chronic HBV. Mitchell, Colvin, and Beasley (2010) indicate that nearly two-thirds of persons infected with HBV are unaware of their status. Unfortunately stigmatization is still a significant barrier to access of healthcare for AAPIs. Guirgis, Nusair, Bu, Yan, and Zekry (2011) state that 54% of participants surveyed reported fear of discrimination/stigma. Infection with HBV carries a stigma about the mode of transmission that can make people feel isolated.

## *Screening and Vaccination Guidelines*



Source: Center for Disease Control and Prevention (2008). *Recommendations for identification and public health management of persons with chronic hepatitis B virus infection*. Retrieved from <http://www.cdc.gov/hepatitis/HBV/PDFs/ChronicHepBTestingFlwUp.pdf>

Population	Recommendations	
	Testing	Vaccination
Persons born in regions of high and intermediate HBV endemicity (HBsAg prevalence $\geq 2\%$ )	Test for HBsAg, regardless of vaccination status in their country of origin, including <ul style="list-style-type: none"> <li>- immigrants</li> <li>- refugees</li> <li>- asylum seekers</li> <li>- internationally adopted children</li> </ul>	If HBsAg- <b>positive</b> , refer for medical treatment  If <b>negative</b> , assess for on-going risk for HBV and vaccinate.
US born persons not vaccinated as infants whose parents were born in regions with high HBV endemicity ( $\geq 8\%$ )	Test for HBsAg regardless of maternal HBsAg status if not vaccinated as infants in the United States.	If HBsAg- <b>positive</b> , refer for medical management.  If <b>negative</b> , assess for on-going risk for HBV and vaccinate.

Source: Center for Disease Control and Prevention (2008). *Recommendations for identification and public health management of persons with chronic hepatitis B virus infection*. Retrieved from <http://www.cdc.gov/hepatitis/HBV/PDFs/ChronicHepBTestingFlwUp.pdf>

The CDC (2008) previously provided recommendations for testing for hepatitis B in pregnant women, infants born to HBsAg-positive mothers, household contacts and sex partners of HBV-infected persons, persons born in countries with HBsAg prevalence of greater than or equal to 8%, persons who are in contact with blood or body fluid exposures that might warrant post-exposure prophylaxis and persons infected with human immunodeficiency virus. Then in September 2008, the CDC along with the Advisory Committee on Immunization Practices updated and expanded their previous guidelines for HBsAg testing. Along with the above listed individuals, HBsAg is now recommended for additional populations with HBsAg prevalence of greater than or equal to 2%: persons born in geographic regions with HBsAg prevalence of greater than or equal to 2%, men who have sex with men, sexually active people (greater than two partners per year), persons seeking treatment or evaluation for a sexually transmitted infection, and past or present injection-drug users (Rein, Lesesne, O'Fallon, & Weinbaum, 2009).

## *Screening Algorithm*

In addition to following CDC guidelines Foster et al. (2011) reports that practitioners should obtain a history that emphasizes risks for sexual transmission and percutaneous or mucosal exposure to blood in all adults. Vaccination is recommended for all adults who are negative for HBV and at risk, as well as all adults who inquire about vaccinations without admitting to a specific risk factor (Foster et al., 2011).

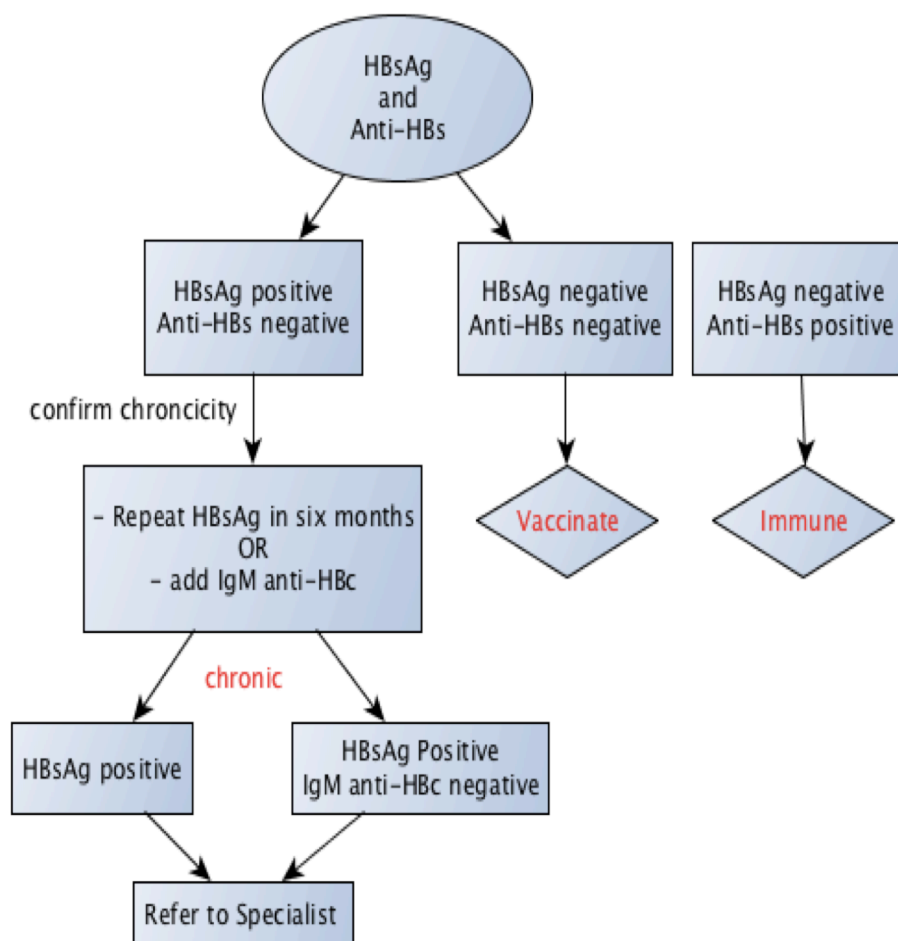
Since the introduction of universal vaccine guidelines for hepatitis B in the 1990s the overall incidence of HBV infection in the United States has declined by almost 80%, but high-risk groups still remain elevated. This universal vaccination strategy was implemented for infants, adolescents and healthcare workers. In May 2012, the Asian Pacific Community Health Organizations (AAPCHO) and the Hepatitis B Foundation, with the help of the U.S. Department of Health and Human Services' Office of Minority Health have launched a new campaign to bring attention and action to end HBV in high-risk populations such as AAPIs. This monumental national campaign is known as "Hep B United" and the goal is to support community-based groups across the U.S. working to increase hepatitis B awareness screening, vaccination, and access to care and treatment for all Americans, particularly AAPIs who are disproportionately impacted by this disease (Hep B United, 2012).

Despite the updated CDC vaccination guideline recommendations, vaccination rates remain sub-optimal with only 22% of susceptible individuals with a regular source of healthcare receiving vaccinations (Foster et al., 2011). Daley et al. (2009) report that less than 50% of adults with risk factors for HBV have been vaccinated.



The American Association for the Study of Liver Diseases (AASLD) advises that serological testing to screen individuals for HBV should include hepatitis B surface antigen (HBsAg) and Hepatitis B surface antibody (anti-HBs) (Lok & McMahon, 2009). They alternatively discuss the use of hepatitis B core antibody (anti-HBc) but suggest that if the individual tests positive for anti-HBc, further testing with HBsAg and anti-HBs needs to be drawn to differentiate between active infection and immunity. Seronegative persons of HBsAg and anti-HBs should be vaccinated (Lok & McMahon, 2009).

The following screening algorithm should be used to determine the course of action when screening a person for hepatitis B.



<i>Surveillance of Individuals with Chronic HBV</i>	
Monitor labs every 6-12 months: <ul style="list-style-type: none"> <li>- HBsAg</li> <li>- HBeAg</li> <li>- HBeAb</li> <li>- HBV DNA Quant</li> <li>- Hepatic Function panel</li> </ul>	Surveillance for Hepatocellular Carcinoma (HCC) every 6-12 months <ul style="list-style-type: none"> <li>- Abdominal Ultrasound</li> <li>- AFP tumor marker</li> </ul>

With approximately two million people infected with HBV in the U.S. population, HBV infection has become one of our nation's leading causes of chronic liver disease and liver cancer (Hu, 2008). It also ranks as the number 15<sup>th</sup> leading cause of death in the United States (CDC, 2008). In all actuality, Ly, Klevens, Jiles, Ward, and Holmberg (2012) report that between 1999-2007, HBV deaths increased significantly and surpassed human immunodeficiency virus (HIV) related deaths. The Institute of Medicine (IOM) reports that HBV infections are 3-5 times more frequent than HIV (2010). Between 1999 and 2007, recorded deaths from HBV increased significantly to 15,106 whereas deaths from HIV declined to 12,734 by 2007. Factors that increase the odds of HBV-related deaths include chronic liver disease, Hepatitis C virus (HCV) co-infection, Asian or Pacific Islander descent, HIV co-infection, and alcohol-related conditions. Most deaths from HBV and HCV occurred in middle-aged persons (Ly et al., 2012).

Carriers of chronic hepatitis B are at increased risk of developing cirrhosis, hepatic decompensation, and hepatocellular carcinoma (HCC). Lok and McMahon (2009) report that 15-40% of chronic hepatitis B carriers will develop sequelae during their lifetime. Chronic

hepatitis B is a major etiology of primary cancer of the liver, or HCC. Chang et al. (2007)

concluded that over 90% of primary liver cancers in men and over 85% of primary liver cancers in women were due to HBV. Individuals who are chronically infected with HBV have a lifetime risk of death from end-stage liver disease or HCC of between 15-25% (Cohen et al., 2010). It is estimated by Hu, Pan, and Goodwin (2011) that 30% of cirrhosis cases worldwide are attributed to Chronic HBV. Liver cancer is the sixth most common newly diagnosed cancer and the third most common of cancer mortality in the world. Statistics show that greater than 80% of liver cancers occur in developing countries, particularly Asia, Melanesia, the Pacific and Africa (Chang et al., 2007).

Hu et al. (2011) state that individuals with a higher HBV DNA viral load have been associated with a higher risk for cirrhosis and HCC. Before effective treatment for HBV became available, the five-year survival rate in patients with chronic HBV and compensated cirrhosis was 55% and 14% with decompensated cirrhosis. HCC may develop in HBV infected individuals without cirrhosis and in individuals below the age at which HCC screening is recommended (Hu et al., 2011). Cirrhosis is a risk factor for the development of HCC, although 30-50% of HCC in individuals infected with HBV occur in the absence of cirrhosis (Lok & McMahon, 2009).

The gold standard for screening for HCC recommended by the American Association for the Study of Liver Disease (AASLD) includes alpha-fetoprotein (AFP) testing and ultrasound (Lok & McMahon, 2009). Screening should be performed every 6-12 months, particularly in Asian men older than 40 years of age and Asian women older than 50 years of old, persons with a family history of HCC, and any individual with fluctuating liver enzymes (ALT, AST), high HBV DNA levels or both. It is also recommended to screen all AAPIs earlier (at age 30-35

years of age) with presumed infection at the time of birth or in early childhood because of their extremely high risk for HCC (Keeffe et al., 2008).

Hepatitis B is endemic in many parts of Asia, and the WHO (2008) estimates that 8-10% of adult persons in this region are chronically infected with HBV. Lee, Hontz, Warner, and Park (2005) report around 50% of adult AAPIs are thought to be immune. Liver cancer caused by HBV is among the leading cause of death in AAPIs. Without timely care, one fourth of chronically infected HBV individuals will die of liver cancer or cirrhosis (Lee et al., 2005). AAPIs are 2.7 times more likely to develop liver cancer, and 2.4 times more likely to die from liver cancer than their Caucasian counterparts. (Lok & McMahon, 2009).

In conclusion, chronic HBV is an important global and national concern, especially for Asian American and Pacific Island populations. Chronic Hepatitis B virus infection is a common cause of death associated with cirrhosis, liver failure and liver cancer. This viral infection is the most common serious liver infection in the world. As a vaccine-preventable disease, reducing the burden of HBV and associated hepatitis and liver cancer is a priority for U.S. public health authorities and healthcare providers. Although goals have been set to reduce the incidence of HBV infection and increase immunization rates, our healthcare system does not fully utilize available resources to support prevention efforts. Several barriers to prevention and treatment of HBV within the AAPI population have been identified through research.

Healthcare providers and public health officials stand at the forefront of efforts to prevent and control hepatitis. Action is needed to remedy this situation - action that will remove cultural and community barriers and directly reduce the health burden in Asian Americans and Pacific Islanders. Evidence-based research recommendations include improved education of healthcare providers and members of the AAPIs population, improved availability and integration of

screening, testing, and healthcare management resources, and provision of culturally competent healthcare.

In addition to this educational tool a pamphlet was developed for healthcare providers' that is easy to read, skim through and available for a quick resource. By utilizing this educational tool and pamphlet, health-care providers will have a resource that will (a) introduce barriers to screening for HBV in AAPIs, (b) increase awareness of Asian Americans and Pacific Islanders health disparity in regards to hepatitis B, (c) provide screening recommendations, (d) assist in surveillance of disease and it's sequelae, and (e) review vaccination guidelines. By utilizing this educational tool, healthcare providers will be better prepared to identify and treat those in this population in relationship to HBV. By doing this, the long-term sequelae experienced by this population will be lessened with early screening and treatment, and the use of vaccinations will prevent others from acquiring the disease.

## References

- Agency for Healthcare Research and Quality. Department of Health and Human Resources (2005, December). *2005 National healthcare disparities report*. Retrieved March 2, 2012, from <http://www.ahrq.gov/qual/nhdr05/nhdr05/pdf>
- Asian American Health Initiative (2005). *Health disparities among Asian Americans*. Retrieved March 18, 2012, from <http://www.aahiinfo.org/english/asianAmericans.php#disparities>
- Center for Disease Control and Prevention (2008). *Recommendations for identification and public health management of persons with chronic hepatitis B virus infection*. Retrieved March 2, 2012, from <http://www.cdc.gov/hepatitis/HBV/PDFs/ChronicHepBTestingFlwUp.pdf>
- Chang, E. T., Keegan, T. H., Gomez, S., Le, G. M., Clarke, C. A., So, S. K., & Glaser, S. L. (2007). The burden of liver cancer in Asians and Pacific Islanders in the greater San Francisco Bay area, 1990-2004. *American Cancer Society, 109(10)*, 2100-2108.
- Cohen, C., Holmberg, S. D., McMahon, J. B., Block, J. M., Brosgart, C. L., Gish, R. G., Block, T. M. (2010). Is chronic hepatitis B being undertreated in the United States. *Journal of Viral Hepatitis, 18(6)* 377-381.
- Foster, T., Hom, H., Fasiha, K., Han, S., & Spiegel, B. (2011). Screening high risk individuals for hepatitis B: Physicians knowledge, attitudes and beliefs. *Digestive Disease Science, 56*, 3471-3487.
- Guirgis, M., Nusair, F., Bu, Y. M., Yan, K., & Zekry, A. T. (2011). Barriers faced by migrants in accessing healthcare for viral hepatitis infection. *Internal Medicine Journal, 491-496*.
- Heck, J. E., Sell, R. L., & Gorin, S. S. (2006). Healthcare access among individuals involved in same-sex relationships. *American Journal of Public Health, 96(6)*, 1111-1118.

- Hu, K. Q., Pan, C. Q., & Goodwin, D. (2011). Barriers to screening for hepatitis B virus infection in Asian Americans. *Digestive Disease and Science, 56*, 3163-3171.
- Hu, K. Q. (2008). Hepatitis B virus (HBV) infection in Asian and Pacific Islander Americans (APIAs): How can we do better for this population. *American Journal of Gastroenterology, 103*, 1824-1833.
- Lee, H., Hontz, I., Warner, A., & Park, S. J. (2005). Hepatitis B infection among Asian American Pacific Islanders in the Rocky Mountain area. *Applied Nursing Research, 18*, 2-6.
- Lok, A. S., & McMahon, B. J. (2009). Chronic hepatitis B: Update 2009. *Hepatology, 50*(3), 1-28.
- Ly, K. N., Klevens, R. M., Jiles, R. B., Ward, J. W., & Holmberg, S. D. (2012). The increasing burden of mortality from viral hepatitis in the United States between 1999 and 2007. *Annual of Internal Medicine, 156*(4), 271-8.
- Ma, G. X., Fang, C. Y., Shive, S. E., Toubbeh, J., Tan, Y., & Siu, P. (2007). Risk perceptions and barriers to hepatitis B screening and vaccination among Vietnamese immigrants. *Journal of Immigrant Minority Health, 9*, 213-220.
- Mitchell, A. E., Colvin, H. M., & Beasley, R. P. (2010). Institute of Medicine recommendations for the prevention and control of hepatitis B and C. *Hepatology, 51*(3), 729-733.
- Office of Minority Health and Bureau of Primary Health Care (n.d.). *Reducing Health Disparities in Asian Americans and Pacific Islander Populations: A Providers Guide to Quality & Culture Seminar*. Retrieved March 20, 2012, from <http://erc.msh.org/quality&culture>
- Pollack, H., Wang, S., Wyatt, L., Peng, C. H., Wan, K., Trinh-Shevrin, C., Kwon, S. (2011). A

comprehensive screening and treatment model for reducing disparities in Hepatitis B.

*Health Affairs*, 30(10), 1974-1983.

Rein, D. B., Lesesne, S. B., O'Fallon, A., & Weinbaum, C. M. (2009). Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008.

*Hepatology*, 1-4.

Tran, T. T. (2009). Understanding Cultural Barriers in Hepatitis B Virus Infection. *Cleveland Clinic Journal of Medicine*, 76(3), S10-S13.

U.S. Census Bureau (2010, April). *Language use in the United States: 2007*. Retrieved June 13, 2012, from <http://www.census.gov/hhes/socdemo/language/data/acs/ACS-12.pdf>

U.S. Census Bureau (2011, March). *Overview of Race and Hispanic Origin: 2010*. Retrieved March 1, 2012, from <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>

World Health Organization (2008, August). *Hepatitis B*. Retrieved April 2, 2012, from <http://www.who.int/mediacentre/factsheets/fs204/en/>



Appendix B  
Hepatitis B Pamphlet





Appendix C  
Article for Publication

Barriers to Screening for Hepatitis B in Asian American and Pacific Islanders: What Providers

Need to Know and Do.

Keisa M Lynch, MSN, APRN, FNP-BC

University of Utah

50 North Medical Drive, Salt Lake City Utah, 84132

[Keisa.lynch@hsc.utah.edu](mailto:Keisa.lynch@hsc.utah.edu)

Hepatitis B virus (HBV) infection is a major public health problem. The World Health Organization (2008) estimates that up to two billion people have been infected with the virus and approximately 350 million people globally are infected with chronic HBV. An estimated 600,000 people die annually from consequences of HBV. Worldwide, seventy five percent of those infected are Asian American and Pacific Islanders (AAPIs). It is estimated that one third of the world's population have been infected with HBV and 5% of the population will develop chronic hepatitis B (CHB), cirrhosis, end stage liver failure and hepatocellular carcinoma (HCC) (Hu, 2008). The prevalence of HBV amongst AAPIs is higher than any other ethnic or racial group in the United States. In the United States, 1.25 million people are chronically infected with HBV. AAPIs account for 50% of those infected and 50% of deaths caused by HBV-induced liver failure (Pollack et al., 2011). Clearly, the infection rate of HBV in AAPIs is an important public health problem that needs to be addressed and there are several barriers to prevention and control efforts.

The Asian American Health Initiative (2005) reports that chronic HBV is the largest health threat for Asian Americans, and Pacific Islanders (AAPIs) and the general US population. In 2010, The U.S. Centers for Disease Control and Prevention (CDC) estimated that up to 1.4 million persons in the U.S., roughly 1-2% of the populations are living with chronic HBV. It is estimated that 10 percent of Asian Americans and Pacific Islanders are infected with this chronic viral infection, compared to 0.2 percent in Caucasians. Therefore, a safe conclusion can be made that chronic HBV is a major health disparity amongst AAPIs (CDC, 2008).

Knowledge of barriers to screening for HBV and increasing awareness of AAPIs public health disparities by professionals is necessary to curb the incidence of HBV and its consequences in this population. There are several barriers to screening for HBV including access to care for many AAPIs and other immigrant groups due to lack of knowledge about the

disease, as well as cultural, linguistic and financial challenges. The lack of knowledge and awareness by healthcare providers is also another barrier to screening for HBV in AAPIs. This lack of knowledge and awareness of HBV can contribute to continued transmission, missed opportunities for early diagnosis and medical care, and poor health outcomes in infected persons.

The most common confounding factors noted to be a major obstacle in receiving care is lack of fluency in English, and not understanding medical terminology (Tran, 2009). The U.S. Census Bureau (2010) reports that the population speaking a language other than English at home has increased steadily for the last three decades.

Identifying traditional health beliefs is critical for adequate health promotion and prevention in all minorities (Ma et al., 2007). The religious beliefs and cultural attitudes of AAPIs toward healthcare providers can contribute to barriers to access of healthcare. AAPIs typically view holistic healthcare joining the mind, body, and soul and focusing on establishing and maintaining balance between these domains (Tran, 2009). Pacific Islanders believe that the ideal concept of health has four components: the spiritual, the psychological, the physical, and the relationship with the family (Office of Minority Health and Bureau of Primary Health Care, 2012).

Another barrier to access of health care is lack of health insurance coverage. The Agency for Healthcare Research and Quality (2005) reported that uninsured individuals are more likely to die early and have poor health status. The US Census (2011) reports that 18% of Asian Americans and 17% of Pacific Islanders are without health insurance coverage. This is above the national average of 15 % and well above the percentage of uninsured, non- Hispanic whites (10%) (U.S. Census Bureau, 2011).

Lack of knowledge and awareness by healthcare providers is another barrier to screening and treatment of HBV in AAPIs. Mainstreaming hepatitis B screening, adequate early diagnosis

and treatment is essential to provide culturally competent care to this diverse population.

Healthcare providers play a significant role in helping to decrease this healthcare disparity seen in AAPIs.

The AAPI populations also lack knowledge and awareness of chronic HBV. Mitchell, Colvin, and Beasley (2010) indicate that nearly two-thirds of persons infected with HBV are unaware of their status. Unfortunately stigmatization is still a significant barrier to access of healthcare for AAPIs. Guirgis, Nusair, Bu, Yan, and Zekry (2011) state that 54% of participants surveyed reported fear of discrimination/stigma. Infection with HBV carries a stigma about the mode of transmission that can make people feel isolated.

The CDC (2008) previously provided recommendations for testing for hepatitis B in pregnant women, infants born to HBsAg-positive mothers, household contacts and sex partners of HBV-infected persons, persons born in countries with HBsAg prevalence of greater than or equal to 8%, persons who are in contact with blood or body fluid exposures that might warrant post-exposure prophylaxis and persons infected with human immunodeficiency virus.(HIV). Then in September 2008, the CDC along with the Advisory Committee on Immunization Practices updated and expanded their previous guidelines for HBsAg testing. Along with the above listed individuals, HBsAg is now recommended for additional populations with HBsAg prevalence of greater than or equal to 2%: persons born in geographic regions with HBsAg prevalence of greater than or equal to 2%, men who have sex with men(MSM), sexually active people (greater than two partners per year), persons seeking treatment or evaluation for a sexually transmitted infection, and past or present injection-drug users (IVDUs) (Rein, Lesesne, O'Fallon, & Weinbaum, 2009).

The American Association for the Study of Liver Diseases (AASLD) advises that serological testing to screen individuals for HBV should include hepatitis B surface antigen



(HBsAg) and Hepatitis B surface antibody (anti-HBs) (Lok & McMahon, 2009). They alternatively discuss the use of hepatitis B core antibody (anti-HBc) but suggest that if the individual tests positive for anti-HBc, further testing with HBsAg and anti-HBs needs to be drawn to differentiate between active infection and immunity. Seronegative persons of HBsAg and anti-HBs should be vaccinated (Lok & McMahon, 2009).

With approximately two million people infected with HBV in the U.S. population, HBV infection has become one of our nation's leading causes of chronic liver disease and liver cancer (Hu, 2008). It also ranks as the number 15<sup>th</sup> leading cause of death in the United States (CDC, 2008). Ly, Klevens, Jiles, Ward, and Holmberg (2012) report that from 1999 to 2007, HBV deaths increased significantly and surpassed human immunodeficiency virus (HIV) related deaths. The IOM reports that HBV infections are 3-5 times more frequent than HIV (2010).

Carriers of chronic hepatitis B are at increased risk of developing cirrhosis, hepatic decompensation, and hepatocellular carcinoma (HCC). Lok and McMahon (2009) report that 15-40% of chronic hepatitis B carriers will develop sequelae during their lifetime. Chronic hepatitis B is a major etiology of primary cancer of the liver, or HCC. Chang et al. (2007) concluded that over 90% of primary liver cancers in men and over 85% of primary liver cancers in women were due to HBV. Individuals who are chronically infected with HBV have a lifetime risk of death from end-stage liver disease or HCC of between 15-25% (Cohen et al., 2010). It is estimated by Hu, Pan, and Goodwin (2011) that 30% of cirrhosis cases worldwide are attributed to Chronic HBV.

Liver cancer is the sixth most common newly diagnosed cancer and the third most common of cancer mortality in the world. Statistics show that greater than 80% of liver cancers occur in developing countries, particularly Asia, Melanesia, the Pacific and Africa (Chang et al., 2007). HCC may develop in HBV infected individuals without cirrhosis and in individuals

below the age at which HCC screening is recommended (Hu et al., 2011). Cirrhosis is a risk factor for the development of HCC, although 30-50% of HCC in individuals infected with HBV occur in the absence of cirrhosis (Lok & McMahon, 2009). Liver cancer caused by HBV is among the leading cause of death in AAPIs. Without timely care, one fourth of chronically infected HBV individuals will die of liver cancer or cirrhosis (Lee et al., 2005). AAPIs are 2.7 times more likely to develop liver cancer, and 2.4 times more likely to die from liver cancer than their Caucasian counterparts. (Lok & McMahon, 2009).

The gold standard for screening for HCC recommended by the American Association for the Study of Liver Disease (AASLD) includes alpha-fetoprotein (AFP) testing and ultrasound (Lok & McMahon, 2009). Screening should be performed every 6-12 months, particularly in Asian men older than 40 years of age and Asian women older than 50 years of old, persons with a family history of HCC, and any individual with fluctuating liver enzymes (ALT, AST), high HBV DNA levels or both. It is also recommended to screen all AAPIs earlier (at age 30-35 years of age) with presumed infection at the time of birth or in early childhood because of their extremely high risk for HCC (Keeffe et al., 2008).

Vaccination is seen as a primary prevention measure that should be incorporated into the care of all AAPI's. Since the introduction of universal vaccine guidelines for hepatitis B in the 1990s the overall incidence of HBV infection in the United States has declined by almost 80%, but high-risk groups still remain elevated.

Healthcare providers and public health officials stand at the forefront of efforts to prevent and control hepatitis. Action is needed to remedy this situation - action that will remove cultural and community barriers and directly reduce the health burden in Asian Americans and Pacific Islanders. Evidence-based research recommendations include improved education of healthcare

providers and members of the AAPIs population, improved availability and integration of screening, testing, and healthcare management resources.

To accomplish the goal of educating healthcare providers an educational pamphlet was developed for healthcare providers that is easy to read, skim through and available for a quick resource. By utilizing this pamphlet, health-care providers will have a resource that will (a) introduce barriers to screening for HBV in AAPIs, (b) increase awareness of Asian Americans and Pacific Islanders health disparity in regards to hepatitis B, (c) provide screening recommendations, (d) assist in surveillance of disease and it's sequelae, and (e) review vaccination guidelines. By utilizing this educational tool, healthcare providers will be better prepared to identify and treat those in this population in relationship to HBV. By doing this, the long-term sequelae experienced by this population will be lessened with early screening and treatment, and the use of vaccinations will prevent others from acquiring the disease.

In conclusion, chronic HBV is an important global and national concern, especially for Asian American and Pacific Island populations. Chronic Hepatitis B virus infection is a common cause of death associated with cirrhosis, liver failure and liver cancer. This viral infection is the most common serious liver infection in the world. As a vaccine-preventable disease, reducing the burden of HBV and associated hepatitis and liver cancer is a priority for U.S. public health authorities and healthcare providers. Although goals have been set to reduce the incidence of HBV infection and increase immunization rates, our healthcare system does not fully utilize available resources to support prevention efforts. Several barriers to prevention and treatment of HBV within the AAPI population have been identified through research.

## References

- Agency for Healthcare Research and Quality. Department of Health and Human Resources (2005, December). *2005 National healthcare disparities report*. Retrieved March 2, 2012, from <http://www.ahrq.gov/qual/nhdr05/nhdr05/pdf>
- Asian American Health Initiative (2005). *Health disparities among Asian Americans*. Retrieved March 18, 2012, from <http://www.aahiinfo.org/english/asianAmericans.php#disparities>
- Center for Disease Control and Prevention (2008). *Recommendations for identification and public health management of persons with chronic hepatitis B virus infection*. Retrieved March 2, 2012, from <http://www.cdc.gov/hepatitis/HBV/PDFs/ChronicHepBTestingFlwUp.pdf>
- Chang, E. T., Keegan, T. H., Gomez, S., Le, G. M., Clarke, C. A., So, S. K., & Glaser, S. L. (2007). The burden of liver cancer in Asians and Pacific Islanders in the greater San Francisco Bay area, 1990-2004. *American Cancer Society, 109(10)*, 2100-2108.
- Cohen, C., Holmberg, S. D., McMahon, J. B., Block, J. M., Brosgart, C. L., Gish, R. G., Block, T. M. (2010). Is chronic hepatitis B being undertreated in the United States. *Journal of Viral Hepatitis, 18(6)* 377-381.
- Foster, T., Hom, H., Fasiha, K., Han, S., & Spiegel, B. (2011). Screening high risk individuals for hepatitis B: Physicians knowledge, attitudes and beliefs. *Digestive Disease Science, 56*, 3471-3487.
- Guirgis, M., Nusair, F., Bu, Y. M., Yan, K., & Zekry, A. T. (2011). Barriers faced by migrants in accessing healthcare for viral hepatitis infection. *Internal Medicine Journal, 491-496*.
- Heck, J. E., Sell, R. L., & Gorin, S. S. (2006). Healthcare access among individuals involved in same-sex relationships. *American Journal of Public Health, 96(6)*, 1111-1118.

- Hu, K. Q., Pan, C. Q., & Goodwin, D. (2011). Barriers to screening for hepatitis B virus infection in Asian Americans. *Digestive Disease and Science, 56*, 3163-3171.
- Hu, K. Q. (2008). Hepatitis B virus (HBV) infection in Asian and Pacific Islander Americans (APIAs): How can we do better for this population. *American Journal of Gastroenterology, 103*, 1824-1833.
- Lee, H., Hontz, I., Warner, A., & Park, S. J. (2005). Hepatitis B infection among Asian American Pacific Islanders in the Rocky Mountain area. *Applied Nursing Research, 18*, 2-6.
- Lok, A. S., & McMahon, B. J. (2009). Chronic hepatitis B: Update 2009. *Hepatology, 50*(3), 1-28.
- Ly, K. N., Klevens, R. M., Jiles, R. B., Ward, J. W., & Holmberg, S. D. (2012). The increasing burden of mortality from viral hepatitis in the United States between 1999 and 2007. *Annual of Internal Medicine, 156*(4), 271-8.
- Ma, G. X., Fang, C. Y., Shive, S. E., Toubbeh, J., Tan, Y., & Siu, P. (2007). Risk perceptions and barriers to hepatitis B screening and vaccination among Vietnamese immigrants. *Journal of Immigrant Minority Health, 9*, 213-220.
- Mitchell, A. E., Colvin, H. M., & Beasley, R. P. (2010). Institute of Medicine recommendations for the prevention and control of hepatitis B and C. *Hepatology, 51*(3), 729-733.
- Office of Minority Health and Bureau of Primary Health Care (n.d.). *Reducing Health Disparities in Asian Americans and Pacific Islander Populations: A Providers Guide to Quality & Culture Seminar*. Retrieved March 20, 2012, from <http://erc.msh.org/quality&culture>
- Pollack, H., Wang, S., Wyatt, L., Peng, C. H., Wan, K., Trinh-Shevrin, C., Kwon, S. (2011). A

comprehensive screening and treatment model for reducing disparities in Hepatitis B.

*Health Affairs*, 30(10), 1974-1983.

Rein, D. B., Lesesne, S. B., O'Fallon, A., & Weinbaum, C. M. (2009). Prevalence of hepatitis B surface antigen among refugees entering the United States between 2006 and 2008.

*Hepatology*, 1-4.

Tran, T. T. (2009). Understanding Cultural Barriers in Hepatitis B Virus Infection. *Cleveland Clinic Journal of Medicine*, 76(3), S10-S13.

U.S. Census Bureau (2010, April). *Language use in the United States: 2007*. Retrieved June 13, 2012, from <http://www.census.gov/hhes/socdemo/language/data/acs/ACS-12.pdf>

U.S. Census Bureau (2011, March). *Overview of Race and Hispanic Origin: 2010*. Retrieved March 1, 2012, from <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>

World Health Organization (2008, August). *Hepatitis B*. Retrieved April 2, 2012, from <http://www.who.int/mediacentre/factsheets/fs204/en/>