

Actual and Perceived HBV Status Among Asian Pacific Islander Americans in Rhode Island: A Cross-Sectional Study

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ABSTRACT

Chronic hepatitis B (HBV) in the Asian and Pacific Islander (API) American population is an under-recognized health issue in the United States. Among foreign-born API, the prevalence of HBV is approximately 10%. The prevalence in the general population is below 0.5%; among non-Hispanic whites it is below 0.2%. We examined beliefs held by the API populations in Rhode Island (RI) about personal HBV status and compared them with their actual HBV status. Of 59 total study participants, only 19 (32%) participants correctly knew their HBV status. Six (10%) participants were carriers of HBV; 18 (31%) lacked immunity to the virus. This pilot study suggests the RI API population is not knowledgeable about their own HBV status and are inadequately screened, vaccinated against, and treated for HBV. Increased statewide screening and education efforts, tailored to address this population, are needed to identify and inform those in need of medical attention or vaccination.

KEYWORDS: Hepatitis B, screening, vaccination, Asian American, Asian and Pacific Islander

INTRODUCTION

Chronic hepatitis B (HBV) in the Asian and Pacific Islander (API) American population is an important under-recognized health problem in the United States (US). Among foreign-born API in this country, the prevalence of HBV is approximately 10%. In contrast, the prevalence in the general US population is below 0.5%; among non-Hispanic whites it is below 0.2%.¹ In Rhode Island (RI), this health issue has not been addressed, although the state is home to 36,763 APIs.² Civil war, historical trauma, and genocide throughout Southeast Asia forced many to immigrate to the US in the 1970s and 1980s from Cambodia, Vietnam, and Laos. Immigrants from China, Taiwan, the Philippines, and Thailand also comprise a substantial part of the state's API population. HBV is endemic in these regions, where most infections are acquired perinatally from mother-to-child transmission during childbirth.³

Chronic HBV infection is a leading cause of liver cancer and one that is preventable by an affordable and widely available vaccine.⁴ Lack of coordinated national vaccination

programs in countries of origin, as well as vertical and sexual transmissions of the virus, contribute to the high prevalence of HBV among APIs.⁵ Current Centers for Disease Control and Prevention (CDC) guidelines recommend universal HBV screening in populations born in regions of endemicity greater than 2%, all pregnant women, and infants born to HBV surface antigen (HBsAg) positive mothers.⁶ However, due to many structural, cultural, and economic limitations, these guidelines are not being followed in high-risk communities.^{7,8}

The public health problem of HBV in API populations is often neglected because the majority of HBV cases are asymptomatic. In persons with persistent chronic infection, cirrhosis and hepatocellular carcinoma can develop decades after exposure, resulting in the death of 15% to 25% afflicted.^{9,10} Data indicate that the majority of API Americans are not aware of or protected against HBV.¹¹⁻¹⁷ Lack of awareness may lead to a false sense of security and disinterest in participating in HBV screenings even when they are available, leading to worse health outcomes. Culturally sensitive education initiatives have the potential to significantly increase HBV screening rates among API Americans and are cost effective.¹⁸

No studies have been done to quantify the prevalence of HBV in APIs in RI or to characterize their knowledge and attitudes about HBV. The purpose of this study was to (1) explore beliefs held by the Chinese, Cambodian, and Laotian populations in RI about their personal HBV status, (2) examine self-reports of HBV status and (3) compare self-report results with actual HBV status. In the current study, we report the relationship between perceived HBV status and actual HBV status in a cohort of API Americans in RI.

METHODS

Population studied

A convenience sample of participants of Chinese, Cambodian, or Laotian descent and of legal age was recruited. Recruitment took place face-to-face after ESL courses, community events, church services, and other outreach events at the Chinese Christian Church of Rhode Island (CCCRI) and Center for Southeast Asians (CSEA). This study was approved by the Institutional Review Board of Brown University. Written informed consent was obtained from each study subject.

Survey Administration

We administered an 18-question survey (Appendix A), which inquired about the subjects' perceived HBV status as well as socioeconomic and health-related variables such as insurance and employment status, and prior knowledge of HBV. The survey was an investigator-generated survey and was adapted from previous studies. Participation was voluntary; subjects were asked to complete as many questions as they felt comfortable answering. Participants were given the choice of responding to study items in English or their native language. Interpreter services were available to all participants who requested or required them.

Laboratory Data

Blood samples were obtained by licensed phlebotomists under the supervision of a licensed pathologist and tested for HBV surface antigen (HBsAg) and HBV surface antibody (HBsAb). HBsAg positive individuals are hereafter defined as *Carriers*, and HBsAb positive individuals are hereafter defined as *Immune*. *Susceptible* participants are defined as those who tested negative for both HBsAg and HBsAb. **Statistical Analysis.** Descriptive statistics (numbers and percentages) were calculated and cross-tabulated.

RESULTS

Of 59 subjects, 6 (10%) were carriers, 18 (31%) were susceptible, and 35 (59%) were immune to HBV (Table 1, rows). Data for 2 subjects were excluded from analysis because their laboratory test results were inconclusive. With regard to perceived status, only 3 (5%) thought they had active disease, 19 (32%) thought they were protected, 23 (39%) thought they were unprotected, and 14 (24%) did not know (Table 1, columns). Only 19 study subjects (32%) correctly predicted their HBV status (Table 1, cells with diagonal lines). 52 (88%) were foreign-born and 55 of 59 participants (93%) listed a primary language other than English.

DISCUSSION

In the first study to focus on HBV among API Americans in RI, our results suggest that the HBV prevalence in API American population in RI mirrors national prevalence data gathered from other cross-sectional studies: 10% were found to be carriers and ~30% were found to be susceptible to future HBV exposure and thus in need of immunization.¹⁹⁻²¹ Post-screening management in the patient serologically negative for both HBsAg and HBsAb would be aided by the detection of serum IgM antibodies against HBV core antigen (IgM anti-HBc). Uncommonly some individuals may have present, but undetectable levels of serum HBsAg or HBsAb. Future screening will incorporate anti-HBc testing in these potentially susceptible individuals.

Our findings underscore the value of HBV screening among API Americans because there exists effective, evidence-based treatment for active HBV infection and vaccines that confer immunity to future exposures. The CDC recommends universal HBV screening in populations born in regions of endemicity greater than 2%, all pregnant women, and infants born to HBsAg positive mothers.⁶ The United States Preventive Services Task Force recommendations for HBV vaccination also cover household contacts of persons with HBV infection.⁹

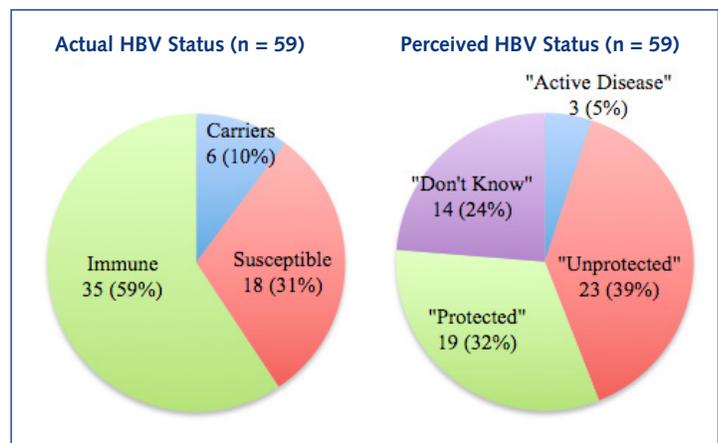
The HBV vaccine is safe and efficacious. Universal HBV vaccination is the current public health strategy to eliminate HBV transmission and prevent disease.^{9,10} Antiviral therapy with the goals of sustained suppression of HBV replication and remission of liver disease can reduce morbidity and mortality among those infected.²² HBV screenings are cost effective and, if done systematically and comprehensively, have the potential to lead to significant savings for the healthcare system as a whole.²³ However, screening rates remain low. Data suggest that even primary care physicians of API descent do not routinely screen their API American patients for HBV.²⁴

In a systematic review of factors contributing to HBV screening among Vietnamese Americans, Nguyen-Truong

Table 1. Summary of Actual vs. Perceived HBV Status (n = 59). Highlighted cells on the principal diagonal represent those participants with correct perception. One asterisk (*) denotes the one participant at risk for improper management of current active disease. Two asterisks (**) denote participants at risk for not receiving vaccination.

	"Active Disease"	"Protected"	"Unprotected"	"Don't Know"	Row Total
Carrier	2	0	3	1*	6
Immune	1	10	13	11	35
Susceptible	0	9**	7	2**	18
Column Total	3	19	23	14	59

Figure 1. Pie Chart Representation of Actual and Perceived HBV Status. Compare categories with corresponding colors for the correlation between actual and perceived HBV status.



and others identified male gender, age, knowledge about HBV vaccines, access to regular healthcare, and encouragement from a physician to be positively correlated with screening participation.⁸ They also noted “consistently low” screening rates in this community and recommended the use of public media education and a culturally tailored intervention using Vietnamese lay advisors. In the Baltimore-Washington metropolitan area, liver cancer education programs specific for the Chinese, Korean, and Vietnamese populations were shown to be successful in motivating participants to get screened for HBV. They included culturally-sensitive components such as bilingual staff, an ethnicity-specific photo-novel and all materials featuring Asian Americans.¹⁸ No culturally-specific public media or education programs exist in Rhode Island on the topic of HBV in the API population. Our study examined the effects of this lack of resources and public awareness.

A surprisingly high proportion of our study population thought that they were unprotected, contradicting our hypothesis that API Americans would underestimate their risk for HBV due to the disease’s long asymptomatic phase. It is worrisome that only 32% correctly perceived their HBV status; especially concerning are the 12 participants (20%) who either thought that they were protected or did not know but, in fact, needed medical attention or vaccination (**Table 1, asterisks**). These 12 people and others like them locally and nationally are at risk for improper management of active disease or inadequate protection from future HBV exposure.

There are several limitations to this study. Participants were recruited from a convenience sample of attendees at community and church-based events. Therefore, inferences about population-level frequencies cannot be made based upon this data alone. However, responses from convenience samples may be useful for identifying issues, defining ranges of alternatives, or collecting other types of non-inferential data. A larger sample, which will be achieved with planned future HBV screenings, might reinforce our findings or modify our tentative impressions. Lastly, self-report of HBV serologic testing and vaccination may be faulty due to inaccurate recall or confusion with other blood tests. To address this issue, participants can bring in immunization records in the future.

Increased statewide HBV screening and education efforts are needed to identify those in need of medical evaluation or vaccination and encourage at-risk populations to participate in screenings. Most importantly, we hope to engage API community leaders in this effort to spearhead these campaigns. It is valuable to have the opinions and support of the API community and have their input in creating HBV education and screening materials. Augmenting media attention, increasing educational opportunities and health insurance coverage, as well as provider education may have a positive impact on HBV awareness and improve health outcomes for this community. More than 90% of our subjects had a primary language other than English. Attention to possible

health illiteracy is a crucial component of community-wide efforts. Our findings provide a framework upon which the state of Rhode Island can base large-scale, culturally specific HBV interventions.

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