HBV Testing and Vaccinations among Asian and Pacific Islander Patients: Understanding the Impact of the San Francisco Hepatitis B Free Campaign on Physician Awareness

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Abstract

Background and Significance: One in 12 Asian and Pacific Islanders (APIs) are infected with hepatitis B (HBV). APIs represent one-third of the population in San Francisco. San Francisco Hep B Free (SFHBF), a citywide collaboration, works to educate physicians and the community on the importance of hepatitis B among APIs through increasing awareness, education and the availability of screening and vaccinations. The purpose of this paper was to qualitatively assess the perceived impact of SFHBF on the awareness and attitudes of physicians regarding screening and vaccination of APIs. **Methods**: Twenty physicians (n=20) participated in key informant interviews about HBV awareness and involvement with SFHBF. The questions focused on physician attitudes and practice towards HBV screening, vaccination and follow-up care, communication with patients about HBV, and awareness and effectiveness of the SFHBF outreach efforts. **Results**: Findings highlighted SFHBF's impact on physicians' sensitivity and awareness. Overall, physicians were increasing their HBV screening and vaccination rates among their API patients. Physicians noted the need for continual support to prioritize HBV screening and vaccination among their API patients. **Conclusion**: The findings of this study are important for understanding the impact of public health campaigns on physician attitudes and practices regarding HBV education, screening, and vaccinations among their API patients.

Keywords: Hepatitis B, Physician Behavior Change, Asian American and Pacific Islander, CME, Medical Training

Introduction

Chronic hepatitis B virus (HBV) infection and its sequelae – cirrhosis, liver failure, hepatocellular carcinoma (HCC), and death – disproportionately affect Asian/Pacific Islander (API) populations in San Francisco, as well as throughout the United States (CDC, 2009). Although APIs comprise only 4.5% of the U.S. population (US Census, 2010), they account for more than 50% of Americans who are living with chronic HBV infection (Altekruse, McGlynn, & Reichman, 2009) with the highest occurrence of HCC occurring in APIs who have immigrated to the U.S. (CDC, 2009). The city of San Francisco has a higher density of APIs than any other U.S. city. APIs represent 32% of the city's population of just over 800,000, many of whom are foreign-born, with the majority of foreign-born residents coming from areas with high (>8%) and intermediate (2-7%) prevalence levels for the hepatitis B surface antigen (HBsAg) (San Francisco Department of Public Health, 2010). APIs in San Francisco are disproportionately affected by HBV, as they represented an estimated 88% of newly reported cases to the SFDPH in 2010 (San Francisco Department of Public Health, 2010). Currently, San Francisco has the highest rate of liver cancer in the U.S. Given that APIs bear the largest burden of chronic HBV infection in San Francisco, there is a great need to provide culturally and linguistically appropriate education about HBV prevention throughout the

API community.

Although the Centers for Disease Control and Prevention (CDC) recommends that API patients born abroad and their children receive testing for HBV (CDC, 2014), studies have showed that screening and vaccinations among the API population are quite low (Lai et al., 2007; Nguyen, Gildengorin, Truong, & McPhee, 2007; Daley et al., 2009; Foster, Huiming, Kanwal, Han, & Speigel, 2011; Mukhtar et al., 2015). Physicians play an influential role in screening and vaccinating patients, yet studies have shown that many physicians fail to screen their patients for HBV (Daily et al., 2009; Foster, Huiming, Kanwal, Han, & Speigel, 2011; Mukhtar et al., 2015). A study of family physicians showed that less than half of physician respondents were likely to support standing orders for HBV guidelines/practices for vaccination (Daley, et al., 2009). In San Francisco, one study found that approximately 43% of physicians were unaware of HBV guidelines associated with screening and vaccination (Mukhtar et al., 2015). Another study of physician practice behavior at a San Francisco hospital found that only 61.5% of patients were tested and that 47.4% were vaccinated (Nguyen, Gildengorin, Truong, & McPhee, 2007). Another study found that 65% of Chinese-speaking patients in San Francisco had received HBV screening (Lai et al., 2007).

Studies on physician practice barriers to HBV screenings have noted the lack of disclosure by patients of high-risk activity, patient's lack of health care coverage for vaccination/treatment, and lack of time in assessing HBV risk factors (Daley et al., 2009). Other studies have shown that the absence of HBV screening for API patients has been due to provider barriers, including heavy caseloads and lack of prioritization (Mukhtar et al., 2015). Various studies have demonstrated the importance of comprehensive physician education to raise awareness of HBV risk among API patients and the need for HBV screening and vaccinations (Lai et al., 2007; Nguyen, Gildengorin,Truong, & McPhee, 2007; Daley et al., 2009; Foster, Huiming, Kanwal, Han, & Speigel, 2011; Mukhtar et al., 2015). Studies of physician attitudes on HBV and their API patients are necessary to bring attention to the need for increased training and continuing education on HBV prevention, the need for vaccination, and practices for morbidity and HBV-related liver cancer mortality in APIs.

San Francisco Hep B Free Campaign: SF Bay Area Clinician Honor Roll

In January 2007, the San Francisco Hep B Free (SFHBF) campaign, a citywide program, was founded as a partnership between Asian Week Foundation, the Asian Liver Center at Stanford University and the San Francisco Department of Public Health (SFDPH). The goal of the program was to create public and healthcare provider awareness about the importance of testing and vaccinating APIs and foreign-born individuals for HBV and to overcome gaps in knowledge and barriers to screening and care. An objective of this effort included encouraging clinicians to take a more active role in the API community in HBV screening and vaccinating (Bailey et al., 2011). The SFHBF campaign's Clinician Honor Roll began in 2008. Through the Honor Roll, clinicians pledged to screen at-risk patients per CDC guidelines (Bailey et al., 2011). In addition to the Clinician Honor Roll, the campaign conducted HBV education for providers through Grand Rounds at local medical centers, continuing medical education (CME), screening algorithms system for patient screenings, informational and educational sessions for physicians, and distribution of patient-initiated screening/vaccination pledge forms for physicians. One thousand five hundred (1,500) physicians were enrolled in the program (SF Hep B Free, 2011). Since 2009, clinicians on the Honor Roll have successfully screened over 10,000 San Francisco residents for chronic HBV (SF Hep B Free, 2013). This paper qualitatively assesses physician attitudes towards HBV vaccination and screening in API patient populations and whether physician education efforts conducted by SFHBF were considered effective.

Methods

Participants and Intervention

In 2013, a purposive sample of key informant primary care physicians in San Francisco was used to conduct this study. Recruitment and

selection were taken from a list of physicians from medical groups, centers, and practices within San Francisco. Eligibility and inclusion criteria of key informants included those with an MD working in primary care, those with at least seven years of practice, and those working with a high percentage (30% or higher) of API patients. Because the SFHBF campaign had started six years earlier, seven years in practice was used as a marker for physicians who may have been present in San Francisco to receive any intervention from the SFHBF campaign.

One of the goals of the campaign has been to educate health care providers on the importance of prioritizing HBV screenings and vaccination among their API patients (Table 1). The campaign to educate physicians included physician networking and seminars, peer-developed continuing education trainings and grand rounds, and targeted outreach through solicitation and engagement through mailed materials. Through Clinician Honor Roll, the campaign also worked to recognize physicians who pledged to screen at-risk patients (See Table 1).

Table 1.

SFHBF Campaign: Physician Education Efforts Timeline

Year	Education Efforts/Exposure Activity
2006	• SF Board of Supervisors pass Assemblywoman Fiona Ma's mandate to screen and vaccinate API residents for HBV. SFHBF is founded and commences operations
2007	• 150 local community health organizations pledge support for HBV screening and vaccinations • 32 health related organizations actively participate in the campaign • 230 physicians/health clinicians reached and become involved at 8 CME events
2008	• "B a Hero" media campaign officially commences and is advertised for 3 consecutive months citywide • Two physician/ health clinician working groups begin • Diagnostic flowchart developed & distributed to physicians/health clinicians • SFHBF sponsors CDC press conference on HBV screening recommendations for physicians • HBV training, seminars, and grand rounds begin for medical students and residency physicians • HBV research on APIs presented at National Immunization Conference, APHA, & B Free CEED
2009	• SFHBF Clinician Honor Roll established and 702 physicians/health clinicians are enrolled • HBV training, seminars and grand rounds begin for physicians/health clinicians • 483 physicians/health clinicians attend 26 educational events • 1200 physician/ health clinicians are solicited to enroll in the Clinician Honor Roll
2010	• "Which one Deserves to Die" media campaign begins, and features ten physicians • SFHBF-involved physicians establish an HBV surveillance tree to report and record cases • 100 physician and health clinician enrollees are added to the Clinician Honor Roll
2011	• SFHBF admitted as full member to the National Viral Hepatitis Roundtable • 967 physicians and health clinicians are solicited to sign up for the Clinician Honor Roll • 90 physicians and health clinician enrollees are added to the Clinician Honor Roll
2012	• DHHS endorses HBV awareness tools for the API community, for physicians, and health clinicians • 308 physicians and health clinician enrollees are added to the Clinician Honor Roll • Local API and HBV-related cancer disparities research initiated by SFHBF-involved physicians • First HBV CME webinar for Clinician Honor Roll physicians and health clinicians • Grand total of 1200 physician/health clinicians on Clinician Honor Roll
2013	• National Action Plan to End Hepatitis created and disseminated to physicians/health clinicians • Year-end total 1228 physicians and health clinicians on Clinician Honor Roll

Measures

The Henne Group and the SFHBF leadership contributed to the development of the questions to examine the effectiveness of the methods and strategies used by the SFHBF campaign. Questions about the following were included: 1) screening practices, 2) patient communication regarding HBV, and 3) awareness and perceived impact of SFHBF and physician outreach activities such as the Clinician Honor Roll.

Procedures

In total, twenty (n=20) primary care physicians participated in 30-minute in-depth interviews conducted by The Henne Group. Interviews were conducted by telephone and were audio-recorded and transcribed. Qualitative data analysis of interview transcripts was performed, and major themes were identified.

Results

Physicians who participated in the key informant interviews were those working in primary care. The ethnic background of the physicians varied with the majority being Chinese American (40%) and Caucasian (25%). Physicians who participated in these interviews had varying exposure and knowledge of the SFHBF campaign. Tier 1 physicians were those who were knowledgeable of SFHBF and active in physician education efforts. Tier 2 included those who were knowledgeable of SFHBF and not active in physician education efforts. Tier 3 were physicians who were not aware of SFHBF and not involved in the campaign.

The majority of physicians (60%, n=12) who were exposed to the campaign's advertisements or participated in SFHBF physician education efforts stated that they increased HBV screenings and vaccinations among their API patients (see Table 3). As an outcome of physician exposure to the campaign, 65% of physicians interviewed expressed the need to make continual HBV screening and vaccination a priority (see Table 3).

Table 2.
Background of Key Informant Physicians (n=20)

	N (%)
Ethnicity	
Chinese American	8 (40.0)
Caucasian	5 (25.0)
Asian Indian	2 (10.0)
Malaysian	1 (5.0)
Vietnamese American	1 (5.0)
Unknown	3 (15.0)
Level of Involvement in SFHBF	
Tier 1 (High Exposure/Active)	5 (25.0)
Tier 2 (Exposure, Low/non-Active)	5 (25.0)
Tier 3 (No exposure/activity)	10 (50.0)

Differences did exist though based on the level of exposure and involvement with SFHBF physician education efforts. Physicians who were more exposed (Tier 1 and Tier 2) to SFHBF physician education efforts were more likely to screen and vaccinate their API patients.

SFHBF Mass Media Campaign: Heightened Physician Awareness and Sensitivity

Fifteen of the interviewed physicians (75%) felt that SFHBF efforts raised awareness on the importance of screening and vaccinations among API patients (Table 3). Physicians mentioned that they communicated with more of their API patients who raised concerns regarding HBV as a result of the information that they had seen on buses or TV commercials.

Table 3.

Themes regarding Physician Attitudes and Practices towards HBV Vaccination and Screening in API Patient Populations (n=20)

Theme	Tier 1 (n=5)	Tier 2 (n=5)	Tier 3 (n=10)	Total N (%) (n=20)
SFHBF campaign heightened physician awareness and sensitivity	5 (100%)	4 (80%)	6 (60%)	15 (75%)
SFHBF physician education efforts contributed to increase in their HBV screening and vaccinations	5 (100%)	5 (100%)	2 (20%)	12 (60%)
Physician need: Need continual support for HBV screening prioritization	5 (100%)	5 (100%)	3 (30%)	13 (65%)

From 2008 to 2009, the "B a Hero" public awareness campaign used a playful awareness approach to engage individuals utilizing "Superman" like imagery of HBV screened/vaccinated API community members. In 2010, the "Which one deserves to die?" campaign commercials and visual advertisements featured every day, local Asian Americans including ten intramural basketball players, ten pageant contestants, ten family members, and ten practicing physicians and the statement that one in ten were at risk for HBV, liver cancer and death. The majority of interviewed physicians reacted positively and discussed seeing the advertisements and the televised public service announcements in both mainstream channels and Asian language television. Physicians felt the portrayals were realistic and showed that HBV was a real threat to the health of APIs.

Physicians felt that the campaign's efforts to target the API community contributed to an increase in their API patients seeking HBV screening and vaccinations. Some interviewed physicians discussed the importance of tailoring HBV awareness, screening, and vaccination efforts to APIs by being language specific and also targeting this messaging at API cultural festivals like the Asian Lunar New Year Celebrations and other festivities such as the Asian Heritage Street Festival; Major League Baseball home games with the San Francisco Giants/Oakland A's; National Basketball Association home games with the Golden State Warriors; culturally specific events such as Filipino Pistahan and Pista Sa Ngayon; and Chinese Harvest Moon Celebrations. Another physician discussed that her patients were provoked to take action through messaging in their native language with a focus on family and community vulnerability. Due to widespread advertising throughout San Francisco, one physician noted how this advertising has increased awareness:

> I have seen billboards with beauty pageants; I mean that was pretty eye-catching. So maybe since Asians have a higher prevalence of hepatitis B, maybe more advertisements in their native language would help too….and people are much more open to that when they clearly have read about it or seen the billboard and understand what you're talking about. So my guess is it tends to create a much more receptive patient for a test when it's offered.

In addition to patients being motivated to discuss HBV with their physicians as a result of the SFHBF mass media campaign, the majority of interviewed physicians also noted that patients were also requesting to be screened.

Tier 3 physicians who were not actively involved or exposed to the SFHBF campaign recall their patients asking to be screened and vaccinated against HBV subsequent to the advertising. Several physicians noted the effectiveness of the SFHBF campaign in raising

awareness among their API patients and noted patient requests being made for screening and vaccination. One physician stated:

> Well, it's pretty good in terms of increasing the awareness and making everybody in the City aware of hepatitis B. So everybody kind of wants to be treated and tested and screened. (sic)

Another physician stated:

> It's usually the Chinese patients who are bringing it up — I just say we have blood tests to find out whether —there are different kinds of hepatitis... We can test your blood for it to find out if you have it. (sic)

Physicians believed that the "Which one Deserves to Die?" campaign established the seriousness of HBV and a need for HBV dialogue within API communities. The widespread commercial messaging targeting APIs captured the attention of physicians who through this campaign became more aware of the seriousness of HBV and their own capabilities for prevention and treatment. Moreover, the SFHBF campaign also encouraged APIs to talk to their doctors with regard to HBV risk, screening and vaccination.

SFHBF Physician Education Efforts: Increased HBV Screening and Vaccinations

Twelve (60.0%) physicians mentioned that physician education efforts, whether it be the Clinician Honor Roll, working groups, community action collaborative, and various continuing education seminars and trainings, contributed to an increase in HBV screening and vaccinations in their patients(Table 1). In addition, several physicians formed a working group to produce a series of diagnostic flowcharts for HBV screening and vaccinations, to develop screening assessment definitions and interpretations, and to develop a reference guide for HBV/liver cancer misconceptions. Also, participating physicians were involved in a community action collaborative with non-healthcare organizations, aligning screening and vaccination programming into their activities. Several interviewed physicians worked with SFHBF in creating continuing education activities and trainings, as well as symposiums related to reducing HBV-related disparities, clinician guidelines for screening and diagnosing HBV/liver cancer, and public health/epidemiological insights. Differences did exist among physicians who were involved in SFHBF physician efforts and those who were not. Those involved (Tier 1 and Tier 2) were active in performing HBV screenings and vaccinations among APIs. Physicians unaware and not involved (Tier 3) in the SFHBF campaign tended not to prioritize HBV screenings and vaccinations among their API patients. Overall, all physicians moderately and actively involved with SFHBF were actively screening and vaccinating their API patients (Table 3).

Prior to the 2010 "Which one Deserves to Die?" Campaign, physicians who were involved in the SFHBF campaign estimated that they did one to two screenings per month, and after the campaign, they conducted screenings regularly, three to four times a week. An involved (Tier 1) physician credits the SFHBF campaign and describes how he is now more comfortable with screening and vaccinating his API patients:

> I have been attending more and more hepatitis B programs on a regular basis. And as I'm more familiar with this condition and also more familiar with the medication used to treat hep B, I'm becoming more comfortable following and treating patients with hepatitis B. (sic)

In addition to increased awareness, physicians involved in SFHBF activities discussed how the campaign enhanced patient-provider communications around HBV. All physicians who were involved with the campaign noted that they were more sensitive to initiating the topic in conversations with API patients who became aware of HBV through the "Which one Deserves to Die?" campaign and wanted to consider HBV screening and vaccination. These physicians responded by encouraging their patients to be

screened and vaccinated.

Interviewed physicians stated that the SFHBF campaign's advertisements and their own involvement with SFHBF contributed to an increase in screenings and vaccinations. As a result of the SFHBF physician education efforts and widespread targeting of APIs, these physicians noted heightened concern among their patients that allowed opportunities for physician-patient dialogue to discuss HBV transmission, screenings, and the need for vaccination. The Clinician Honor Roll and pledge form provided an opportunity for non-active physicians to become involved with SFHBF through a commitment to screen/vaccinate their API patients according to CDC Guidelines (SF Hep B Free, 2009). Upon receiving the pledge form, physicians were solicited offers of continuing/professional development incentives (e.g. CME credits) through attendance at trainings and participation in creating practice-based programming or evidence-based systems (e.g., flow charts, diagnostic tools, clarification guidelines). A physician moderately involved (Tier 2) with SFHBF stated how he has become more comfortable with screening:

> And I guess it's a bigger impact ["Which One Deserves to Die?" campaign] becoming more aware and understand this disease through fear; I am more comfortable screening and vaccinating patients at risk for hep B. [sic]

Another moderately involved (Tier 2) physician stated:

> I'm pretty comfortable, because I have been attending some conferences, and I read, you know, materials, and I try to keep myself updated with the recommendation and the treatment. And since becoming involved, I pretty much universally screen because I figure I could then prevent, you know, make sure they're vaccinated against hep B or refer them to treatment. [sic]

These responses reflect the success of SFHBF physician education efforts. In addition, physicians encouraged other physicians to attend such events. Physicians' involvement in these activities have meant that those working with API patients are much more aware of the need for dialogue with their patients regarding risk, screening, and vaccinations. Because of their involvement in SFHBF, many of the interviewed physicians felt a stake in their patients' lives through providing medically correct education about HBV and de-stigmatizing HBV through educating patients about the benefits of being screened and vaccinated.

Physician Need: Continual HBV Screening Prioritization

Sixty-five percent of physicians (65%, n=13) discussed the need to make HBV screening and vaccination a priority among their API patients (see Table 3). However, all of the interviewed physicians discussed the competing demands within their practice that sometimes prevented them from making this a priority. Moreover, physicians are overloaded with information so there is a tendency to address what needs their immediate attention. Among their API patients, co-morbidities such as cardiovascular disease, hypertension, and diabetes were health care issues that often took precedence. All of the physicians acknowledged the difficulties in their practice that prevent comprehensively screening their API patients for HBV. One physician stated:

> If they come in and tell you that they have for instance a history of heart attacks, then you'll be focusing more on other cardiovascular risk factors and stuff before you actually get to talking about hepatitis. But if they have a ton of other bigger problems, then you'll probably be dealing with all that before you deal with screening for hepatitis. (sic)

Physicians noted they were overwhelmed with competing health demands and that they are inundated with information regarding other diseases which makes prioritization difficult.

One physician noted:

> Every doctor gets probably a hundred things a week of guidelines and recommendations and latest update from the American Academy of Family Physicians or the American College of Physicians or this drug company or this hospital or this firm or this latest SFDPH guideline for the outbreak of Norwegian scabies or this or that. And it all just goes into the big circular file. Everybody is just overloaded with information, doing what they can to just keep up.

Because of other competing health concerns, physicians mention not prioritizing HBV as a risk in their API patients. Most of the physicians believed that in order for HBV to be a priority, education and awareness directed towards physicians needs to be consistent through continuing medical education (CME). One physician stated:

> Public campaigns intended to raise awareness of the community, of the public—that works. CME has—and there's tremendous data in the scientific literature about the effectiveness of CME anyway in raising provider knowledge from a standpoint of continuing medical education. We do it. It does contribute. It does add some value. But and again the data scientifically doesn't support that being an effective modality to change physician behavior. To some degree it does. (sic)

Despite being burdened by competing demands, physicians believe with the right information, tools, and reports to remind physicians of the susceptibility of HBV among their API patients that they could see an increase in HBV screenings and vaccinations. Several physicians recommended that a prompt to screen and vaccinate their API patients in their electronic medical records would be useful. They suggested that health record prompts in electronic medical records, especially with high-risk and under screened patients, would help with making HBV screenings and vaccinations a priority. One physician noted:

> If you have an electronic medical record and you get a prompt saying 'Oh, the Asian patient here Mr. Wong, you're going to see no record of hepatitis B screening. You want to order that today.' Or you get a quarterly report that says 'Here's your key quality statistics and you've only screened 20% of your at-risk patients for hepatitis B.' Or you have twelve patients with chronic hepatitis B and only six of them had liver tests checked in the last year. (sic)

Physicians pointed out that information and awareness is needed and must be sustainable and long-term. Thus, screening and vaccination must be built into the quality infrastructure of the practice.

Discussion

In response to SFHBF campaign efforts to educate the API community and physicians, this study has shown qualitatively how physicians' attitudes may have been impacted through awareness and involvement in this campaign. The three key findings include the following physician perceptions: 1) the SFHBF mass campaign contributed to a heightened sensitivity and awareness among these interviewed physicians in terms of HBV screenings and vaccinations for API patients 2) SFHBF physician education efforts contributed to increased screening and vaccination of API patients among these physicians and 3) there is the continual need to make HBV screening and vaccination a priority among their API patients. SFHBF provided a multi-faceted approach to educating physicians through such methods as the Clinician Honor Roll and continuing education, as well as educating the API community.

As demonstrated, the exposure and involvement of the interviewed physicians with SFHBF correlated with their sense of the importance to communicate the importance of HBV screening

and vaccination with their patients. Moreover, those actively and moderately involved with physician education efforts all had incorporated HBV screening and vaccination into their current practice. Past studies of physicians who take on new practice protocol are often known as "early physician adopters" who then share their education through professional networks (Coleman, Menzel, & Katz, 1959). In the SFHBF campaign, physicians involved with the campaign embraced the strategy that screening and vaccination among API patients could reduce morbidity and mortality for those at risk. Like other studies have suggested (Daley et al., 2009; Sheu, Toy, Kwahk, Yu, Adler, & Lai, 2010; Yoo, Dariotis, Fang, & Zola, 2011; Foster, Huiming, Kanwal, Han, & Spiegel, 2011; Mukhtar et al., 2015), results of this study indicate that participating in HBV continuing medical education and in other educational activities allowed for increased knowledge and greater sensitivity about the importance of HBV screening and vaccination for their API patients.

While participants discussed the competing demands on physicians' time and the need for prioritization of HBV screening and vaccination among their API patients, the physicians we interviewed concurred with the effectiveness of integrating HBV screening into electronic medical records (EMR). In previous studies, physicians alluded to the utilization of electronic medical records as an effective method to increase HBV screening among their high-risk patients (Coleman, Halas, Peeler, Casaclang, Williamson, & Katz, 2015). As mentioned in the interviews, physicians felt that EMRs could be used as a tool to inform physicians about a patient's prior HBV risk history and to identify the patient's HBV screening and vaccination history, and/or history of HBV infection/treatment. As physicians stated in the study, health care infrastructures could assist physicians, through EMRs, in prioritizing their patient's needs; especially their API patients.

Limitations

There are several limitations of this study, such as sampling and qualitative data collection methods that make this study non-generalizable to clinicians nationwide. First, the sample was a non-random, purposive sample of primary care physicians that did not include physician assistants (PAs) as well as nurse practitioners (NPs), who also interact with patients in a primary care setting and could benefit from similar clinician interventions to increase HBV awareness and the need for screening and vaccination among their patient population. Also, this was a cross-sectional study of physicians, and, thus, the study cannot conclude whether the physicians' attitudes and practices over time were due to SFHBF physician outreach efforts. Finally, this qualitative study solely relies on physicians' open-ended responses. In order to determine whether physician attitudes and practice behaviors changed as a result of the interventions, a medical record review of HBV-related interventions conducted on a cohort of API patients over time would be a useful follow-up project that could further shed light on the key findings identified from this purposive physician sample.

Implications

The SFHBF campaign and the involvement of local physicians appears to be a framework that can be useful in increasing physician awareness and sensitivity regarding HBV and API patients. A multi-faceted HBV campaign that outreaches to both the community and physicians with cultural relevance and thematic engagement can be beneficial for all involved. Public health campaigns should aim to increase conversations regarding HBV screening and vaccinations between physicians and patients. Additionally, with any campaign effort to increase screening, the campaign should be aware of the need to help physicians to prioritize HBV screening and vaccinations of their API patients through traditional physician education efforts, as well as technological solutions. Our findings indicate that primary care physicians would be very receptive to the idea of having electronic medical records notify the physician of the need to screen and vaccinate patients at high-risk for HBV. Similarly, continuing medical education efforts allow physicians to have the latest information and necessary public health tools and resources to support screening and vaccinating against HBV, as well as for follow-

up for those chronically infected. Behavior change among physicians and practice adaptation can occur but requires a constant continuum of education and promotion among physicians and within health care infrastructures. Ongoing, widespread public health campaigns such as "Which one Deserves to Die?" and joint physician education efforts to increase sensitivity and raise awareness of the importance of prioritizing HBV screening and vaccinations among their API patients will ultimately contribute to the reduction of morbidity and mortality for this population.

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