Commentary

Eliminating the Threat of Chronic Hepatitis B in the Asian and Pacific Islander Community: A Call to Action

Stephanie D Chao1*, Ellen T Chang2, Samuel K So1

Abstract

Chronic hepatitis B in the Asian and Pacific Islander (API) population is among our nation’s greatest ethnic and racial health disparities. Despite comprising 4.3% of the population, API make up a disproportionate half of the 1.2-2 million Americans living with chronic hepatitis B. As many as two-thirds of API are not aware of their infection because they have not been tested. This lack of knowledge prevents them from undergoing life-saving liver cancer screening and potential treatment. Likewise, those not protected are unaware that they should be vaccinated. Instead, there is a pervasive lack of awareness among API and healthcare providers. New concerted public health actions are needed to eliminate this major health disparity.

Key Words: Liver cancer - hepatitis B - Asian and Pacific Islander - health disparity

Introduction

Chronic hepatitis B, a serious liver disease caused by lifelong infection with the hepatitis B virus, is one of the most prevalent yet most neglected health problems in the world. It affects nearly 1 in 20 (approximately 350 million) people worldwide and causes 60-80% of the global burden of hepatocellular carcinoma (primary liver cancer) (Hwang et al., 1996; Parkin, 2006), a disease that has only 10% 5-year relative survival in the US (American Cancer Society, 2008). If left untreated, chronic hepatitis B confers a 25% risk of death from liver cancer or liver failure (World Health Organization (WHO), October 2000), resulting in 500,000-700,000 deaths annually. Hepatitis B is among the top three causes of cancer death worldwide, together with tobacco and Helicobacter pylori infection (Parkin, 2006; Parkin et al., 2005). However, despite the availability of a safe and effective vaccine against hepatitis B since 1982 (Krugman, 1982), vaccination programs have been poorly implemented in many hepatitis-B-endemic nations, allowing millions of people to become chronically infected, and leaving millions more susceptible to infection.

Although over three-quarters of those with chronic hepatitis B reside in Asia (World Health Organization (WHO), 2007), it is not a problem of only the developing world. Rather, chronic hepatitis B in the Asian and Pacific Islander (API) population is among the greatest racial/ethnic health disparities in the US. While API comprise only 4.3% of the population (United States Census Bureau, 2008), they constitute over half of the nation’s 1.2-2 million people with chronic hepatitis B (Office of Minority Health, 2008a). API are also one of our nation’s fastest growing populations (United States Census Bureau), due primarily to immigration from countries with high chronic hepatitis B endemicity. The Centers for Disease Control and Prevention (CDC) estimates that over 40,000 persons with chronic hepatitis B legally immigrate to the US each year (United States Department of Homeland Security, 2009). About one-tenth of foreign-born API have chronic hepatitis B, compared with fewer than 1:500 to 1:1000 non-Hispanic whites – greater than a 50 fold difference (Chao et al., 2004; Guane et al., 2004; Centers for Disease Control and Prevention, 2006; Shepard et al., 2006; Lin et al., 2007).

Yet despite the statistics that underscore this profound health disparity, resources and national attention to address chronic hepatitis B are limited. The inextricable image of API as a “model minority” has deterred attention away from API health problems. A superficial assessment of API by median income, education, or employment – common predictors of health – seemingly supports the model minority assumption. However, API are the only racial/ethnic group for which cancer is the leading cause of death, in part because cancer screening rates among API are relatively low (Chen Jr, 2005). In assessments of national health disparities, API disparities are often overlooked. Chronic hepatitis B was not even mentioned in a study of the “ten greatest US health disparities” (Keppel, 2007) despite the fact that the more than 50-fold difference in the prevalence of chronic hepatitis B between API and non-Hispanic whites far exceeds other health disparities.

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Table 1. Top Racial/Ethnic Health Disparities in the US*

<table>
<thead>
<tr>
<th>Disease state</th>
<th>Racial/ethnic groups compared</th>
<th>Fold difference in prevalence</th>
</tr>
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<tbody>
<tr>
<td>1. Chronic HBV</td>
<td>Foreign-born Asians &amp; Whites§</td>
<td>68</td>
</tr>
<tr>
<td>2. Gonorrhea</td>
<td>Blacks &amp; Whites</td>
<td>28</td>
</tr>
<tr>
<td>3. Congenital syphilis</td>
<td>Blacks &amp; Whites</td>
<td>22</td>
</tr>
<tr>
<td>4. Tuberculosis</td>
<td>Asians &amp; Whites</td>
<td>20</td>
</tr>
<tr>
<td>5. Fetal alcohol syndrome</td>
<td>AI/AN &amp; Whites</td>
<td>15</td>
</tr>
<tr>
<td>6. AIDS</td>
<td>Blacks &amp; Whites</td>
<td>15</td>
</tr>
<tr>
<td>7. Smoking during pregnancy</td>
<td>AI/AN &amp; Whites</td>
<td>12</td>
</tr>
<tr>
<td>8. Congenital syphilis</td>
<td>Hispanics &amp; Whites</td>
<td>12</td>
</tr>
<tr>
<td>10. HIV-related deaths</td>
<td>Blacks &amp; Whites</td>
<td>10</td>
</tr>
<tr>
<td>11. Smoking during pregnancy</td>
<td>Blacks &amp; Whites</td>
<td>9</td>
</tr>
<tr>
<td>12. Non-fatal firearm injuries</td>
<td>Blacks &amp; Whites</td>
<td>9</td>
</tr>
</tbody>
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*Based on data from Keppel et al. (2007) and Euler et al., 2003b § Whites=Non-Hispanic Whites; Blacks=Non-Hispanic Blacks; AI= American Indian; AN=Alaskan Native

disparities listed among the top ten (Chang and So, 2007) (Table 1).

This disparity persists because there is a widespread lack of awareness and misconception about chronic hepatitis B not only in the general API population, but also among health care providers, lawmakers, and health-policy makers. Systemic gaps exist and require new concerted public health efforts to eliminate this health disparity.

**GAP: Perinatal Transmission has not been Eliminated**

The persistently high rates of chronic hepatitis B among API reflect, in part, a failure to recognize the racial/ethnic differences in primary modes of transmission. Among API, vertical transmission from mother to newborn accounts for up to 40% of cases among API (World Health Organization (WHO) Regional Office for the Western Pacific, January 2003), whereas, horizontal adulthood transmission is most common route in non-Hispanic whites (Custer et al., 2004). Each year, there are close to 24,000 births to mothers with chronic hepatitis B and over two-thirds of these are API (Centers for Disease Control and Prevention (CDC), January 28, 2005). Despite the progress of US immunization programs in reducing new hepatitis B infection, approximately 1,000 to 1,500 infants annually – most of whom are API – still develop chronic hepatitis B through vertical transmission (California Perinatal Hepatitis B Prevention Program).

Part of the gap in preventing vertical transmission is the persistent failure in prenatal case identification of infected pregnant women to ensure appropriate immunoprophylaxis for susceptible newborns. Although more than 95% of pregnant women in the US are tested for hepatitis B surface antigen (HBsAg), the marker that indicates chronic hepatitis B (Centers for Disease Control and Prevention (CDC), 2005), there is limited adherence to other CDC recommendations aimed at reducing vertical transmission. Fewer than half of pregnant women with chronic hepatitis B are identified for timely prenatal care management by county perinatal hepatitis B prevention programs (Din, . Euler et al., 2003a), despite regulations for mandatory case reporting in many states. Even after eligible women are enrolled in case management programs, fewer than three-quarters of their infants complete the three-dose hepatitis B vaccination series and undergo post-vaccination confirmatory testing (Euler, et al., 2003a) - measures that are necessary to ensure protection from perinatal hepatitis B infection.

These failures to comply with CDC recommendations may be due, in part, to a pervasive lack of awareness and knowledge among first-line health care providers. In a survey of obstetricians and nurses serving Santa Clara County, California, which has the nation’s highest proportion of births to HBsAg-positive women (California Department of Finance, December 2008, Yue, June 2008), there was poor knowledge about chronic hepatitis B. Only 10-37% of providers were able to correctly identify the disproportionately high prevalence of chronic hepatitis B among API, the lack of symptoms of chronic hepatitis B, and the risk for liver disease (Chao et al., 2009).

Public health departments play important and necessary roles in accurate surveillance and education. However, they often lack the funding and staff support necessary to provide culturally and linguistically appropriate management of all cases identified, or education for cases and their health care providers. Increased resources are greatly needed to improve antenatal identification and education about the medical management and prevention of chronic hepatitis B. These measures confer the potential to save lives and reduce future health care costs.

**GAP: Misconceptions Undermine Early detection**

Despite their increased risk for chronic hepatitis B and liver cancer, many API remain uninformed, untested, and unprotected (Taylor et al., 2000; 2002; 2005a; 2005b; 2006; Thompson et al., 2002; Choe et al., 2005; 2006; Chen et al., 2006; Ma et al., 2007a; 2007b; 2008; Wu et al., 2007; Hwang et al., 2008; Juon et al., 2008). Among API in the San Francisco Bay Area, over half falsely believed that hepatitis B could be transmitted through contaminated or improperly cooked food, and fewer than one-third were able to correctly identify the actual modes of transmission (Wu, et al., 2007). Consequently, many API are afraid to share meals with chronically infected individuals.

While labor laws generally protect persons with chronic diseases against workplace discrimination in the US, pre-employment blood tests are common in some countries and often serve as the basis for discrimination abroad. Approximately 30% of the global burden of chronic hepatitis B lies in China alone, yet a 2006 survey of 113 multinational companies in China revealed that 77% would not hire persons with chronic hepatitis B (March 5, 2009). In fact, hepatitis B was among the top three most common perceived causes of discrimination.
in China, along with physical disability and HIV infection (June 14, 2007). Even companies that hire infected individuals often perpetuate misconceptions about hepatitis B transmission by forbidding infected individuals from sharing tableware or eating with other employees (Ho, February 25, 2009). Since over two-thirds of API are foreign-born (United States Census Bureau, 2008), many carry these widespread misconceptions and concerns about discrimination to the US, thus hindering their willingness to undergo testing for HBsAg. Because chronic hepatitis B is usually asymptomatic, the HBsAg test is the only way to identify those who are chronically infected. Prompt identification is necessary for chronically infected persons to receive long-term medical management to reduce the risk of dying from liver cancer (Zhang et al., 2004).

GAP: Public awareness and knowledge are lacking

The widespread misconceptions reflect systemically poor knowledge about hepatitis B (Taylor et al., 2000; 2002; 2005a; 2005b; 2006; Thompson et al., 2002; Choe et al., 2005; 2006; Chen et al., 2006; Ma et al., 2007a; 2007b; 2008; Wu et al., 2007; Hwang et al., 2008; Juon et al., 2008). In a survey of API in the San Francisco Bay Area, most were unaware that chronic hepatitis B is usually asymptomatic (Wu, et al., 2007). One-quarter were unaware that hepatitis B is preventable through immunization and below one-third of this high-prevalence population reported having been vaccinated. More alarmingly, only 44% reported having their children vaccinated. Those with better hepatitis B-related knowledge were more likely to have been tested or vaccinated (Wu et al., 2007). In a separate study, one year after testing and educating nearly 500 API adults, over two-thirds of those found to be infected had visited a physician for follow-up and liver cancer screening (Chao et al., 2007). More than three-quarters of all those tested had advised their family members to be tested as well. Thus, promoting hepatitis B awareness and improving knowledge can improve preventative action.

GAP: Liver cancer disproportionately affects API

Because API have the highest rates of chronic hepatitis B, they bear a disproportionately high burden of liver cancer. Incidence rates are up to three times higher among API than among White non-Hispanics, and up to eight times higher among Vietnamese men (Chang et al., 2007). Liver cancer is the second leading cause of death in API men in the US, whereas it is not among the top ten causes of cancer death in White men (April 2008, based on the November 2007 submission).

Individuals with chronic hepatitis B should undergo regular liver cancer screening through liver ultrasound and a serologic test for alpha-fetoprotein, since early detection can significantly reduce liver cancer mortality (Zhang et al., 2004). Antiviral therapy may also be indicated in some cases to reduce the risk of liver disease progression (Belongia et al., 2009). However, there is no consensus for national guidelines for liver cancer screening, and many physicians do not routinely perform liver cancer screening in patients with chronic hepatitis B (Nguyen and Keeffe, 2002). Some physicians simply do not know how to screen for liver cancer (Ferrante et al., 2008). Consequently, liver cancer mortality rates remain dismal, as the overall five-year relative survival rate hovers around 10%, and that with distant-stage disease is below 3% (American Cancer Society, 2008). Among API, the incidence rate of liver cancer rises rapidly around age 35 (April 2008, based on the November 2007 submission), striking many young adults in the prime of life.

Moving forward: An assessment of current efforts and future directions

Elimination of the health disparity due to chronic hepatitis B requires collaborations among healthcare providers, public health professionals, community leaders, legislators, and the general public. One such model of a successful public-private partnership is the Jade Ribbon Campaign, the first large-scale, culturally and linguistically targeted, community outreach campaign to promote hepatitis B and liver cancer screening, prevention, and education among API. Launched in 2001, this effort includes widespread media-based public awareness campaigns, local community screenings and education, healthcare provider education, and broad-based community partnerships to disseminate educational resources. A library of culturally and linguistically appropriate multimedia informational resources has been developed to specifically address chronic hepatitis B and liver cancer in the API community, and has been widely distributed throughout numerous organizations, including state health departments and the CDC.

As a part of the Jade Ribbon Campaign, a partnership was developed with the San Francisco Public Health Department and the AsianWeek Foundation to create “3 For Life,” a program designed to provide free serological testing for HBsAg along with low-cost hepatitis B vaccination targeting the high-risk API community. Over the course of 12 months, 1,206 participants were tested and 85% of those who were unprotected against hepatitis B were vaccinated (Chang et al., 2009). 3 For Life was successfully adapted and replicated in Hawaii (Tsai et al., 2008) and served as a model program for expansion into the larger “SF Hep B Free Campaign,” a collaboration of more than 100 San Francisco community groups, including health care, media, private industry, local politicians, and community-based organizations, with the common goal of making San Francisco the first city to screen all API for hepatitis B, vaccinated the unprotected, and provide care for those who are infected. The SF Hep B Free Campaign has garnered state and national attention as a model public-private partnership to reduce the burden of hepatitis B in the community. Such examples of culturally targeted, community-based collaborations are integral in improving awareness about chronic hepatitis B and reducing the health disparity.

The US Office of Minority Health recently released
new strategies to reduce the incidence of chronic hepatitis B and its long-term complications among API (Office of Minority Health, 2008b). These strategies include 1) improving hepatitis B-related public health prevention infrastructure, 2) increasing hepatitis B-related health education and awareness, 3) increasing screening for chronic hepatitis B, 4) improving access to care and treatment for chronic hepatitis B, and 5) increasing research for chronic hepatitis B and liver cancer. The formulation of these strategies is an important step in raising national awareness, but they must be supported with increased government funding and resources.

Attempts at legislative change have met with limited success. In 2005 and 2006, the National Hepatitis B Act with bipartisan support was introduced in the US Congress calling for a national plan to support chronic hepatitis B prevention, screening, education, research and treatment (H.R. 4550, S. 3558) (Dec. 15, 2005, June 22, 2006). In 2007, a bill was introduced in the California State Assembly (A.B. 158) to make chronic hepatitis B infection a qualifying disease for state public health insurance (January 18, 2007). Yet, in each case, the proposals have stalled.

Routine hepatitis B screening of all API and timely post-exposure prophylaxis of newborns born to infected mothers are important issues for adoption as national healthcare quality measures.

We cannot allow this health disparity to persist when we possess all the tools for prevention: a safe and effective vaccine, an available post-exposure prophylaxis treatment, a variety of effective antiviral treatments, and life-saving liver cancer screening tools. API are among the fastest growing sectors of the US population and the toll of chronic hepatitis B on API health, well-being, and productivity is mounting. The gaps in chronic hepatitis B prevention and management are many, but so, too, are the opportunities for improvement. New, concerted public health efforts to unite community, private, and public organizations must continue to be developed to address these gaps. Only in such united efforts can we raise the awareness to institute fundamental infrastructure change to finally close these gaps and eliminate this profound health disparity.

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