

## LETTER TO THE EDITOR

**Underestimation of chronic hepatitis B virus infection in the United States of America**

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**Abbreviations:** HBF, Hepatitis B Foundation; HBV, hepatitis B virus; API, Asians and Pacific Islanders.

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Dear Sir,

In the December 2006 issue of *Journal of Viral Hepatitis*, Drs. Gish and Gadano made the important point that the current prevalence estimate of 1.25 million individuals in the USA with chronic hepatitis B virus (HBV) infection should be ‘corrected by taking into account HBV prevalence in immigrant populations and current estimates may be as high as 2 million’ [1]. The Hepatitis B Foundation (HBF) agrees with this statement, that the prevalence of chronic HBV infection in the United States is, in fact, significantly greater than the currently accepted estimate. We have performed our own calculation of the chronic hepatitis B prevalence estimate including the high prevalence rates of hepatitis B in immigrant populations. As a result, we estimate the current burden of chronic hepatitis B in the USA to be approximately 2 million people.

We reason that an underestimation of the true number of infected individuals in the USA has occurred mostly because the highest-risk populations are under-represented in surveillance studies, and a large percentage of chronically infected individuals remain undiagnosed. Estimates of the number of HBV infections in the USA have been based on serosurvey data from the National Health and Nutrition Examination Surveys for the years 1976–1994 (NHANES II, III), which did not include significant numbers of Asians and Pacific Islanders (API, the ethnic groups most affected by hepatitis B), making it difficult to obtain accurate prevalence estimates [2]. Also, the large influx of foreign born individuals from countries with moderate or high incidence

of hepatitis B increases the limitation of the NHANES estimate.

Using Census data (2005 American Community Survey) and current prevalence estimates for chronic hepatitis B, we calculate that in APIs alone, there are approximately 832 433 individuals chronically infected with hepatitis B (Table 1). This number was reached using hepatitis B prevalence estimates of 8.9% for foreign and 1.4% for US born APIs [3], based on HBV survey data of API pregnant women. These estimates are conservative in comparison with recent studies, which have found the prevalence among foreign-born APIs to be between 10–15% [4,5].

We calculated a chronic HBV burden of 1 157 137 individuals in the Caucasian, African American, and ‘other’ ethnicities, with a prevalence estimate of 0.42% in these groups (based on NHANES III data [6]) (Table 1). Adding our estimate for the API population (832 433) brings the total burden estimate to 1 989 570. This represents an increase of almost 800 000 individuals from the currently accepted HBV prevalence estimate, and it does not account for undocumented APIs, which could increase the number of chronically infected by another 100 000 (there are an estimated 1 500 000 undocumented APIs in the USA [7]). This calculation also does not include other high-risk groups, such as the incarcerated and homeless populations, which would increase the burden even further.

While these calculations have limitations, they are provocative, in that they highlight the strong likelihood that chronic hepatitis B remains an under-recognized disease in the USA, one that deserves greater priority from public health leaders, research institutions and clinicians. The nation needs to support public health surveillance systems that yield reliable state and local data and can be used to calculate more accurate estimates of chronic hepatitis B.

As the readers of *JVH* are aware, chronic hepatitis B infection leads to serious liver disease and early death in up to 25% of individuals [8], and the direct and indirect financial burden of chronic hepatitis B reaches \$1 billion each year [9]. It is a leading cause of primary liver cancer (hepatocellular carcinoma), which is rising in both incidence and mortality in the USA, and now ranks 8th among leading causes of cancer death for Americans [10]. In the API population, liver cancer ranks 3rd among causes of cancer death [11].

With the number of new infections remaining steady despite the availability of a vaccine, and the significant rise of primary liver cancer in the USA, it is imperative that hepatitis B be prioritized as an important public health concern. An accurate assessment of the true prevalence of

**Table 1** Estimate of hepatitis B prevalence in the USA, based on census data and prevalence estimates, by ethnicity

Ethnic group	Population size, USA*	Prevalence of chronic HBV†	Total chronic HBV infection
US born API	4 171 909	1.4%	58 406
Foreign-born API	8 696 936	8.9%	774 027
African-American	34 962 569	0.42%	146 842
Caucasian	215 333 394	0.42%	904 400
Other ethnicities	25 213 329	0.42%	105 895
Total:			1 989 570

\*Population sizes based on the US Census Bureau, 2005 American Community Survey [12].

†Hepatitis B prevalence for APIs is based on data from the Asian Liver Center at Stanford University [3]. Prevalence for all other ethnicities is based on NHANES III data [6].

chronic hepatitis B that includes updated estimates from high-risk, undercounted populations, is a crucial first step towards significantly reducing the burden of chronic hepatitis B in this country. The Hepatitis B Foundation calls for action to be taken to allow all individuals in the USA who are chronically infected with hepatitis B to be counted.

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