

China's efforts to shed its title of "Leader in liver disease"

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According to *Xinhua News*, Chen Zhu, China's Minister of Health, mentioned at the 2007 Annual Conference of the China Association for Science and Technology (CAST) that an action plan for the diagnosis and treatment of hepatitis B could control hepatitis B virus (HBV) infection to below 1% by 2050. This plan is one of the Health Ministry's goals for middle-long-term development planning in medical science and technology that China is endeavoring to reach (<http://hbv.39.net/079/18/127612.html>, available as of September 18, 2007).

The Ministry's strategy involves a series of action plans for other areas like HIV, tuberculosis, malignant tumor control, and mental health, but chronic HBV therapy is more important and more urgent. HBV infection is a leading cause of illness and death in China. Approximately 60% of the population has a history of HBV infection, and 9.8% of persons in China are chronically infected with HBV and at risk for premature death from liver disease. Each year, an estimated 263,000 persons in China die from HBV-related liver cancer or cirrhosis, accounting for 37~50% of HBV-related deaths worldwide (Available as a report from the Centers for Disease Control and Prevention (CDC), 2007;56:441-445. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5618a2.htm>,

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Besides China, HBV is highly prevalent in approximately 45% of the global population and is found in the Far East, parts of the Middle East, sub-Saharan Africa, parts of South America, and the Amazon basin, where at least 8% of the population are HBV chronic carriers (hepatitis B surface antigen [HBsAg] positivity rates > 8%) (Figure 1) (*Int J Med Sci* 2005;2:50-57).

China seems to have become a "Leader in liver disease." Annually, more than 1,000 billion RMB is spent on HBV therapy and prevention, while the resulting indirect economic losses are inestimable. The reasons for the high rates of chronic HBV infection in China are complex.

First, HBV infection has broad clinical manifestations, including asymptomatic carriers, acute hepatitis, and chronic (lifelong) hepatitis, due to different immune reactions by the host. However, little is currently known about the mechanisms for HBV's unremitting infection and long-term nonprogressive HBV infection of asymptomatic HBV carriers. Although a safe and effective vaccine against HBV has been available since 1982, there are still approximately 5~10% nonresponders to the hepatitis B vaccine. Moreover, little is known about the possible immunogenetic

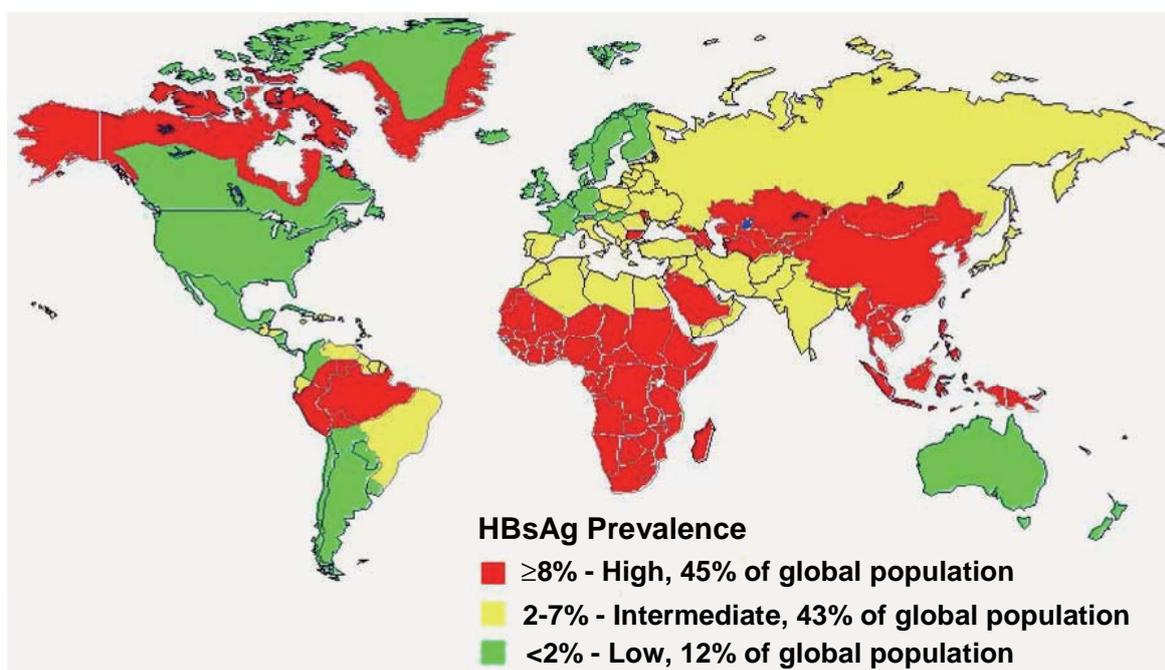


Figure 1. Geographic distribution of chronic HBV infection (*Int J Med Sci* 2005;2:50-57).

mechanisms of HBV-infected individuals developing cirrhosis and hepatocellular carcinoma, which are considered to be the biggest bottleneck for HBV therapy.

Second, some social factors may explain the high rates of HBV infection. The public often pales at the mention of HBV infection, but they have incorrect perceptions or little knowledge about how hepatitis B is transmitted, resulting in inadequate self-prevention, unfounded prejudices, or unfair treatment of the chronically infected. Worse, even many physicians are not aware of the risk, the association between hepatitis B and liver cancer, the importance of HBV vaccination to prevent infection, and the need for carriers to have regular liver cancer screening. The latter is important because a carrier is an infected individual who does not develop the disease but can transmit the virus to others. Research has proven that the hepatitis B virus is mainly transmitted through body fluids like blood, semen, vaginal or menstrual secretions, serum, and wound exudates, and the virus has also been found in saliva, amniotic fluid, tears, urine, feces, sweat, and mother's milk (*Int J Med Sci* 2005;2:50-57). Thus, people should actively acquire HBV-related knowledge, perform good hygiene, and heighten individual awareness of prevention to contain the transmission of HBV, which is of great importance to everyone.

Finally, poor living habits are another important factor. In most rural areas in China, and especially in the poverty-stricken areas inhabited by smaller ethnic groups, people still lead poor lifestyles and have poor health habits, leading to their decreased immunity to HBV. This, to a certain extent, may be attributed to the inadequate public health advertising and financial input of the Government. Except in some large general hospitals, the sanitary conditions of most hospitals and rural health clinics still need to be improved, including a system of social relief and assistance. Another important aspect is attributed to people's lack

of awareness concerning regular physical examinations. Many chronically infected individuals may not know that they have been infected because they feel perfectly healthy. By the time symptoms develop, however, action will be too late.

The public is glad to see that a series of measures have been taken by Chinese authorities to provide effective HBV treatment and prevention. For instance, the "Wang Bao-En hepatic fibrosis research fund" was established by the China Foundation for Hepatitis Prevention and Control (CFHPC) on January 30, 2007 for the financial support of HBV research (*Xinhua News*, http://news.xinhuanet.com/health/2007-02/02/content_5687887.htm, available as of February 2, 2007). Similarly, the "Vaccination against Hepatitis B & Health Education Program," supported by the CFHPC, the Asian Liver Center at Stanford University, and several philanthropic foundations in Hong Kong, was formally inaugurated on August 31, 2007 to provide students of Qinghai Province with free and full-range protection with hepatitis B vaccination (*CFHPC News*, <http://www.cfhpc.net/CN/News/Detail.asp?gCatalogID=3&SystemID=792>, available as of August 31, 2007).

The PRC is currently forming exceptional scientific teams, both from clinical and research institutes, to study the integrity, development, and natural history of HBV as well as mechanisms for unremitting HBV infection in terms of aspects such as the virus, host, and environment. In the meantime, researchers are endeavoring to develop novel anti-hepatitis virus drugs pursuant to the "Guideline for Prevention and Treatment of Chronic Hepatitis B" enacted at the end of 2004.

As Health Minister Chen Zhu said, "China must cast its title of 'Leader in liver disease' into the Pacific Ocean because," he added, "we already have an extremely effective vaccine against HBV." (Xun Li, Wen-Fang Xu: *Shandong University, Jinan, China*. e-mail: tjulx2004@sdu.edu.cn)