

# HOSPITAL PHYSICIAN®

## INFECTIOUS DISEASES BOARD REVIEW MANUAL

### STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Infectious Diseases Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in infectious diseases. Each manual reviews a topic essential to current practice in the subspecialty of infectious diseases.

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## Evaluation and Management of Hepatitis B Virus Infection

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## Preface

It is estimated that 1.25 million persons in the United States are chronically infected with hepatitis B virus (HBV). Worldwide, over 400 million persons are chronically infected. It is critical that patients at high risk for HBV infection, particularly those from endemic regions, receive the appropriate screening and follow-up. In recent years, the number of available treatment options for chronic HBV has increased considerably. Treatment has been shown to slow disease progression and reduce the risk of hepatocellular carcinoma.


Identifying patients who will respond to therapy, making the best treatment choices, and monitoring therapeutic endpoints are crucial for effective chronic HBV management. This manual will review screening strategies, how to identify candidates for therapy in the context of an understanding of the natural history of chronic HBV, and available options for treatment and appropriate endpoints for therapy.

# Evaluation and Management of Hepatitis B Virus Infection

Daniel S. Pratt, MD

## CASE STUDY

### INITIAL PRESENTATION

 A 46-year-old Asian male who came to the United States 2 years ago presents for primary care.

- **What is the role for screening for hepatitis B in this patient?**

It is estimated that there are 1.25 million patients in the United States chronically infected with hepatitis B virus (HBV), defined as testing positive for the hepatitis B surface antigen (HBsAg) for more than 6 months.<sup>1</sup> These patients are at increased risk for progressive liver disease and hepatocellular carcinoma.<sup>2</sup> Asian Americans shoulder a heavy burden of infection with HBV; they are 2.4 times more likely to die of hepatocellular carcinoma than are Caucasian Americans and are often unaware they are infected.<sup>3</sup> Furthermore, self-reporting of vaccine status is an unreliable measure of protection because a significant percentage of such patients are either chronically infected or lack protective antibody.<sup>3</sup>


Patients who should be screened for HBV include those born in high- and intermediate-prevalence areas as well as those with historical or other risk factors (Table 1).<sup>4</sup> For patients from endemic areas, a strategy of screening all patients, treating patients found to be chronically infected, and vaccinating contacts of infected patients was the most cost-effective strategy of those assessed.<sup>5</sup>

- **How is HBV transmitted?**

HBV is transmitted by exposure to infectious body fluids; it has been detected in every bodily fluid except stool. HBV is transmitted with greater efficiency than is either hepatitis C or HIV. It is transmissible through perinatal, sexual, or percutaneous exposure, close

person-to-person contact with open cuts and sores, and through shared household articles such as razors and toothbrushes. The risk of transmission increases with the level of HBV DNA in serum.<sup>6</sup> The likelihood of progression to chronicity is in large part determined by the age at exposure; neonates have a greater than 90% chance of progressing to chronicity, whereas this chance is less than 5% in adults.<sup>7</sup>

### CASE CONTINUED

 This patient relates that his mother had hepatitis B and passed away from hepatocellular carcinoma several years ago. His physical examination is unremarkable. Testing reveals the following:

- HBsAg, positive
  - Hepatitis B surface antibody (HBsAb), negative
  - Hepatitis B core antibody (HBcAb), positive
  - Alanine aminotransferase (ALT), 150 U/L
  - Aspartate aminotransferase (AST), 105 U/L
  - Total bilirubin, 0.6 mg/dL
  - Alkaline phosphatase, 66 U/L
- **What additional follow-up testing is indicated in patients found to be HBsAg-positive, and how is this testing used to determine whether or not a patient with chronic HBV is a candidate for treatment?**

Patients found to be HBsAg-positive should undergo testing to assess the status of their liver disease. Serum albumin and prothrombin time assess hepatic synthetic function. A complete blood count assesses for hypersplenism; both thrombocytopenia and leukopenia are potential indicators of hypersplenism. The viral replication status is assessed with hepatitis B e antigen (HBeAg) and HBV DNA. The viral replication data, in combination with the ALT and hepatitis B e antibody (HBeAb), allows the clinician to start the process of