Suspect HBV infection? Use this algorithm to screen and intervene

Screening at-risk patients

An individual in your care is at possible risk for HBV infection. (See note A.) You order tests for serum HBsAg and anti-HBs. Is the patient HBsAg+?

Yes → Is the patient anti-HBs+?

No → The patient is immune to HBV; no follow-up is needed.

Yes → Vaccinate as appropriate, per patient’s risk factors.

No → If the patient is reported to have HB core antibody, it could indicate chronic infection, recovery from old infection, or a false-positive result. Confer with a specialist.

Evaluating and monitoring HBsAg+ patients

You collect baseline data for levels of ALT, HBeAg, anti-HBe, and HBV DNA. (See note B.) Is the patient HBeAg+?

Yes → The patient is HBeAg- and anti-HBe+.

Is ALT level elevated, with HBV DNA >2000 IU/mL?

No → Patient is in the inactive phase. Retest HBeAg, HBV DNA, and ALT every 6 months. (See note C.)

Yes → If ALT level is elevated to ≥19 IU/L (woman) or ≥30 IU/L (man), the patient is in the immune active phase.

No → Consult a specialist for advice on liver biopsy and treatment options. (See note D.)

Is ALT level normal, with HBV DNA >20,000 IU/mL?

Yes → Patient is in the immune tolerant phase. Retest HBeAg, HBV DNA, and ALT every 6 months. (See note C.)

No →

ALT, alanine aminotransferase; anti-HBe, antibody to HBeAg; anti-HBs, antibody to HBsAg; AST, aspartate aminotransferase; DNA, deoxyribonucleic acid; HBeAg, hepatitis B e-antigen (protein produced by HBV, indicating heightened viral activity); HBsAg, hepatitis B surface antigen; HBV, hepatitis B virus; HIV, human Immunodeficiency virus; HCC, hepatocellular carcinoma.

Source: Primary Care Provider Workshop on Hepatitis B, sponsored by the Hepatitis B Foundation in Doylestown, Pa (March 10-11, 2010).
Recommended approach to monitoring children with chronic hepatitis B infection

- **a** ALT and WBC/Plt are generally part of a hepatic function panel and CBC

- **b** Greater than the testing laboratory ULN, or >40 IU/L, whichever is lower

- **c** ALT and AFP q6-12 mos; HBeAg/Anti-HBe and HBV DNA q12 mos; Also consider ultrasound q1-2 yr, particularly with elevated ALT or AFP, or family history of HCC

Recommended approach to selection of children for HBV treatment

Child with chronic hepatitis B (≥1 yr of age; persistent HBsAg+ for > 6 mos)

- ALT persistently normal
  - HBeAg positive and HBV DNA ≥20,000 IU/mL (Immune Tolerant)
    - Benefit of treatment not established
      - Risk of drug resistance if treated
      - Continue to monitor regularly
  - HBeAg negative and HBV DNA <2,000 IU/mL (Inactive Carrier)
    - No indication for treatment
    - Continue to monitor regularly

- ALT persistently >1.5 x lab ULN or >60 IU/L
  - HBeAg positive (>6 mos) and HBV DNA ≥2,000 IU/mL (Immune Active)
    - Rule out other causes of liver disease
      - Consider liver biopsy
    - Minimal/mild inflammation and/or fibrosis
  - HBeAg negative (>12 mos) and HBV DNA ≥2,000 IU/mL (Reactivation)
    - Benefit of treatment not established
      - Family history of HCC may influence treatment decision
    - Treatment indicated

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a ALT ULN is the local testing lab ULN, or 40 IU/L, whichever is lower. For treatment consideration, ALT should be 1.5 x the lab ULN, or 60 IU/L (1.5 x 40 IU/L), whichever is lower, at least twice in 6 months for HBeAg-positive disease, and at least 3 times in 12 months for HBeAg-negative disease.