HEPATITIS B

Epidemiology

**Source:** Human only

**Anatomical source:** Blood
- Internal body fluid
- Other: semen, vaginal fluids, saliva

**Transmission:**
- Sexual
- Perinatal
- Percutaneous/permucosal exposure, needles

**Incubation:** 90 days (45-160 d)

**Clinical case definition**

- **Acute HBV:** Discrete onset of symptoms. Prodromal phase (malaise, weakness, anorexia, myalgia, arthralgia, macular rash, thrombocytopenia, papular maculopapulosis); then jaundice, liver enzyme abnormalities.

- **Chronic HBV:** asymptomatic or nonspecific symptoms (fatigue)

**Complication:**
- Fulminant hepatitis B,
- Primary hepatocellular carcinoma,
- Polyarteritis nodosa,
- Glomerular disease

**Death:** Fulminant hepatitis, primary hepatocellular carcinoma, cirrhosis

LA 2000:
- New: 1,300 New infections, 100-200 new reports, incidence 0.25/100K
- Carriers: 21,000 carriers, prevalence 0.5%
- Risk of chronic liver disease: 2,000, 5-10% of carriers

10% of persons with acute HBV become chronic carriers and are infectious for life.

Diagnosis

**Hepatitis B Virus:** DNA-containing, 42 nm Ø hepadnavirus with
- Outer lipoprotein envelope (ps1, ps2, HBsAg), serotypes adw, ayw, adr and ayr
- Inner nucleocapsid:
  - Hepatitis B core antigen HbcAg
  - Hepatitis e Antigen secreted by injured hepatocytes

- Lab Diagnosis:
  - demonstration of viral antigens & antibodies
    - **Hepatitis B surface antigen (HBsAg)** - detectable prior to onset (1 mo. after exposure), persists 3-4 mos. After onset. HBsAG positive indicates acute HBV, **or** chronic carrier of antigen without history of acute disease exposure
    - **e antigen of HBV (HBeAg)** - Indicates infectivity
    - **Anti-HBC IgM** - positive indicates acute or recent infection
    - **Nucleic acid tests** - hybridization assays & gene amplification techniques (PCR) detect & quantitate HBV DNA

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**Suspect:**
- HbsAg positive but no other confirmatory lab results

**Confirmed:**
- Acute: Clinically compatible,
  - + high ALT
  - + IgM anti-HAV negative
  - + IgM anti-HBe positive
  - or HBsAg positive

- Chronic: regardless of illness
  - - anti-HBc IgM negative
  - - anti HBe positive, anti HBc positive, or HBeAg positive, or HBV DNA positive; or HBsAg positive 2 times at 6 months interval

**Hepatitis e Antigen secreted by injured hepatocytes**

http://www.infectiousdisease.dhh.louisiana.gov

(800)256-2748
Control

**Standard precautions**

**Routine Immunization**
- 3 doses
- Given to all children at birth
- All unimmunized children/teens
- Any high-risk adults (health care workers, anyone with occupational exposure to blood, staff/residents of institutions for people with developmental disabilities, anyone undergoing hemodialysis, international travelers)
- Prevention of perinatal HBV infection (routine screening of all pregnant women; appropriate treatment of children born to HBsAg positive women)

**Vaccine is 90-95% effective at preventing HBV infection**

**Prophylaxis**
- Immunization is available and should be given to all infants at birth.
- Vaccine is given in 3 doses
- All household contacts should receive vaccine series
- Anyone exposed to an HBsAg-positive source (i.e., needle exposure, sexual contact, blood/body fluid exposure) should receive vaccine series in addition to Hepatitis B Immune Globulin (HBIG)

**Treatment, Prophylaxis**

**Treatment**
- No specific treatment is available for acute HBV
- Chronic HBV in adults can be treated with: interferon-alfa, lamivudine, adefovir, or entecavir
- 25-40% of adults with chronic HBV infection achieve long term remission (loss of detectable HBV DNA or loss of HBeAg) after treatment with interferon-alfa
- Halt progression of liver disease

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