

Guidelines for Pediatric Providers

BACKGROUND

Approximately 350 million people worldwide and 1.2 million Americans are chronically infected with the hepatitis B virus (HBV), but 65% are unaware of their infection^{1,2}. Chronic hepatitis B infection has a disproportionate impact on some populations. Hepatitis B infection acquired via perinatal transmission at birth is associated with a 90% risk for chronic infection. In addition, 25-50% of 1-5 year old children infected by household contacts will progress to chronic infection, compared to 5-10% of adults who become infected. Chronic hepatitis B infection carries a 25% risk of death from liver failure or hepatocellular carcinoma³. A heightened awareness of children at risk is needed among pediatricians because children with chronic hepatitis B are typically asymptomatic and may have normal liver enzyme blood tests. Appropriate screening and vaccination are the keys to prevention.

OBTAIN MATERNAL HISTORY

California Health and Safety Code, Section 125085 mandates that providers test pregnant women for hepatitis B surface antigen (HBsAg). Ensure that maternal HBsAg results are reviewed at the time of the infant's birth.

TREAT

POST-EXPOSURE PROPHYLAXIS AT BIRTH

- **For infants of HBsAg positive mothers:** Administer hepatitis B vaccine and hepatitis B immunoglobulin (HBIG) within 12 hours of birth.
- **For infants born to mothers with unknown HBsAg status:** For infants weighing less than 2 kgs (4.4 pounds) administer hepatitis B vaccine and HBIG within 12 hours of birth. For infants weighing more than 2 kgs, administer hepatitis B vaccine within 12 hours of birth. If mother's results are HBsAg positive, administer HBIG as soon as possible but no later than 7 days after birth and recall discharged infants to give HBIG.
- **For infants of HBsAg negative mothers:** Administer hepatitis B vaccine before discharge.
- **For additional information, please see:** www.cdc.gov/hepatitis/HBV/PerinatalXmtn.htm or www.cdph.ca.gov/HealthInfo/discond/Pages/PerinatalHepatitisBPrevention.aspx.

VACCINATION OF INFANTS BORN TO HBsAg POSITIVE MOTHERS

- Make sure that the infant completes the hepatitis B vaccine series on schedule. For additional information, please see: www.cdc.gov/mmwr/PDF/rr/rr5416.pdf.
- Document vaccine administration and provide the Hepatitis B Vaccine Information Statement (VIS). VISs are available in various languages at: www.immunize.org/vis/.

TEST

GENERAL SCREENING

- All persons born in geographic areas with an HBsAg prevalence of more than 2% should get a one-time test for HBsAg and anti-HBs to identify chronic infection or the need for vaccination.
 - These areas include all of Asia and Pacific Islands, Africa, the Middle East, the South American Amazon basin and most of Eastern Europe.
 - Screen all children born to immigrant parents from these endemic areas regardless of immunization history.
 - Screen all children living in a household with a known HBsAg positive person.



Complications

- Flu-like symptoms
- Yellow skin and eyes
- Dark urine
- Grey colored stools
- Liver scarring
- Liver failure
- Liver cancer
- Death

Resources

- Los Angeles County Department of Public Health Immunization Program Perinatal Hepatitis B Prevention Unit www.publichealth.lacounty.gov/ip/perinatalhepb/index.htm
- Centers for Disease Control and Prevention www.cdc.gov/hepatitis/HBV/PerinatalXmtn.htm
- California Department of Public Health www.cdph.ca.gov/HealthInfo/discond/Pages/PerinatalHepatitisBPrevention.aspx

POST VACCINATION SEROLOGY (PVS)

- Test the infant's HBsAg and HBsAg antibody (anti-HBs) levels 1-2 months after completing the vaccine series (9-18 months of age) to make sure they are protected against the HBV (anti-HBs >10 mIU/mL) and are not infected (HBsAg negative).
- Revaccinate non-immune (anti-HBs <10 mIU/mL) infants who are HBsAg-negative with a second three dose vaccine series and retest 1-2 months after the third dose.
- Ensure that HBsAg-positive infants receive appropriate medical follow-up and are reported to their local health department as perinatal hepatitis B cases.

REPORT

California Health and Safety Code 120250 & Title 17, California Code of Regulations mandates providers report positive HBsAg lab reports to the Los Angeles County's Perinatal Hepatitis B Prevention Unit (LAC PHBPU) as a perinatal hepatitis B case. Download report forms at www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf or call (213) 351-7400.

REFER

- Refer all HBsAg-positive patients to a physician experienced in the management of chronic liver disease.
- Contact the Los Angeles County Department of Public Health PHBPU to ensure follow-up.
- Refer close contacts and family members for HBsAg and anti-HBs testing to see if they are chronically infected with the HBV or are unprotected against the HBV and need vaccination.

EDUCATION FOR HBsAg POSITIVE PREGNANT WOMEN

- Advise HBsAg positive women that breastfeeding is safe if their infant receives HBIG and hepatitis B vaccine at birth.
- Discuss the importance of infant completing the full hepatitis B vaccine series on schedule.
- Inform the mother that the infant will need a HBsAg test and an antibody to HBsAg (anti-HBs) test after completion of the vaccine series at age 9-18 months to ensure the effectiveness of the vaccine.
- Describe the modes of hepatitis B virus transmission.
- Discuss the importance of vaccination of their susceptible household, sexual, and needle-sharing contacts.

MANAGEMENT OF CHILDREN WITH CHRONIC HEPATITIS B^{4,5}

- Perform a yearly physical exam on all children chronically infected with the HBV (HBsAg remains positive after 6 months).
- Determine if there is a family history of hepatocellular carcinoma (HCC) or liver disease.
- Refer to a physician experienced in the management of chronic liver disease and request the following tests:
 - Baseline labs: ALT, CBC, HBeAg, Anti-HBe, Anti-HBc, HBV DNA by PCR, AFP; and
 - Baseline abdominal ultrasound.
- Long-term monitoring:
 - ALT and AFP every 6-12 months
 - Abdominal ultrasound (usually every 1-2 years, but sooner if there is a family history of HCC, if ALT or AFP are elevated, or if cirrhosis is present).
- Treatment with antiviral medication, if indicated, under the guidance of a physician experienced in the management of chronic liver disease.

DEFINITIONS

- HBsAg (hepatitis B surface antigen): Detection of acutely or chronically infected people.
- Anti-HBs (hepatitis B surface antibody): For persons who test negative for HBsAg, anti-HBs levels over 10 mIU/mL indicate immunity to hepatitis B either from prior vaccination or resolved infection.
- HBeAg (hepatitis B e antigen): Identification of infected people at increased risk of transmitting HBV

REFERENCES

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4. Haber BA, Block JM, Jonas MM, et al. Recommendations for screening, monitoring, and referral of pediatric chronic hepatitis B. *Pediatrics*. 2009;124(5):e1007-1013.
5. Lok ASF, McMahon BJ. Chronic hepatitis B: update 2009. *Hepatology*. 2009;50(3):661-662.