



## HEPATITIS, TYPE B, PERINATAL (See also HEPATITIS, TYPE B)

1. **Agent:** Hepatitis B virus (HBV). A virus that is transmissible from the mother to the newborn during pregnancy or birth which can cause liver injury and liver failure.
  - a. **Symptoms:** While acute cases of hepatitis B can occur in the prenatal period, most HBsAg-positive prenatal patients are asymptomatic chronic carriers and identified by their laboratory test only. Infants infected are generally asymptomatic.
  - b. **Differential Diagnosis:** Including but not limited to other viral, chemical, immunologic and toxin associated causes of hepatitis.
  - c. **Diagnosis:** Positive confirmed HBsAg test. Infant's blood will contain maternal anti-HBc IgG, but does not indicate maternal-infant transmission.
2. **Identification:** California law (Health and Safety Code, Sections 125080-125085) requires healthcare providers test all pregnant women for hepatitis B surface antigen (HBsAg) before or at the time of delivery. All practitioners caring for pregnant women should use a standard prenatal panel that includes HBsAg testing. Repeat HBsAg testing on HBsAg-negative women at the time of delivery is indicated if the woman has clinical hepatitis or she was at risk for hepatitis B exposure during pregnancy. Risk factors include recent intravenous drug use, a HBsAg-positive sex partner, more than one sex partner in the past 6 months, or treatment for a sexually transmitted disease. Women with a positive HBsAg test should be tested for Hepatitis B e Antigen (HBeAg) to assist in determination of need for anti-viral treatment during pregnancy. Hospitals should accept only *original laboratory reports* as documentation of mothers HBsAg status. Title 42 of the Federal Code of Regulations, Public Health, Section 493.1291 requires the following on all lab reports: (1.) The name and address of the laboratory conducting HBsAg testing on every page (2.) Either the patient's name and identification number, or a unique patient identifier and identification number (3.) The test report date (4.) The test performed (5) Specimen source, when appropriate (6) Test result and, if applicable, the units of measurement or interpretation, or both (7) Any information regarding the condition and disposition of specimens that do not meet the laboratory's criteria for acceptability.
  3. **Incubation:** From 45-180 days.
  4. **Reservoir:** Human.
  5. **Source:** For infants, primarily maternal blood or body fluids.
  6. **Transmission:** By parenteral inoculation or mucosal membrane exposure of infant to maternal blood or body fluid. Exposure usually occurs during the birth process, but transmission can occur in utero. Vaginal or caesarean deliveries have similar transmission risks.
  7. **Communicability:** Maternal blood or body fluids are potentially infectious. Unless infected in utero, infants are usually non-infectious at birth since they are incubating the disease.
  8. **Specific Treatment:** Treatment for chronic hepatitis B infection is available for some patients who meet clinical criteria. Timely administration of hepatitis B vaccine and hepatitis B immune globulin (HBIG) to infant is stressed to prevent maternal-infant transmission of HBV.
    - a. **Infants of HBsAg-positive mothers:** Infants should receive an intramuscular injection (IM) of hepatitis B vaccine and HBIG at different sites within 12 hours of birth. The effectiveness of HBIG more than 7 days after birth exposure is unknown; delay will compromise effectiveness. Two subsequent hepatitis B vaccine doses are given, one at 1-2 months and one at 6 months of age, at a dosage appropriate for brand of vaccine. This initial hepatitis B vaccine does not count as part of the vaccine series for premature infants weighing less than 2,000 grams (4.4 pounds). Premature infants weighing less



than 2,000 grams will need three additional doses starting at 1-2 months of age.

- b. **Infants of Mothers with an Unknown HBsAg Status:** Administer single-antigen hepatitis B vaccine to infants within 12 hours of birth. Premature infants weighing less than 2000 grams should receive hepatitis B vaccine and HBIG within 12 hours of birth. Hospitals should record the date and time of hepatitis B vaccine administration on the infant's medication administration record and immunization record. The mother should have blood drawn as soon as possible to determine her HBsAg status. If the mother is found to be HBsAg-positive, administer HBIG to the infant as soon as possible, but within 7 days of birth. Notify the infant's pediatric healthcare provider of the need to provide follow up if the infant is discharged before the mother's HBsAg test result is available.
- c. **Infants of Mothers with a Negative HBsAg Status:** Administer a dose of single-antigen hepatitis B vaccine to all full-term infants who are medically stable and weigh at least 2,000 grams (4.4 pounds) prior to hospital discharge. Two subsequent doses of hepatitis B vaccine are given, one at 1-2 months and one at 6 months of age. Preterm infants weighing less than 2,000 grams should receive the first dose of hepatitis B vaccine 1 month after birth or at hospital discharge.

## REPORTING PROCEDURES

1. Title 17, California Code of Regulations (CCR), Section 2500 requires healthcare providers to report HBsAg-positive results to the local health department within 7 days.
2. CCR, Title 17, Section 2505 requires laboratories to report HBsAg-positive results (must specify gender, pregnancy status and expected date of delivery) to the local health department within one (1) working day from the time that the laboratory notifies the healthcare provider or other person authorized to receive the report. If the

laboratory that makes the positive finding received the specimen from another laboratory, the laboratory making the positive finding shall notify the local health officer of the jurisdiction in which the healthcare provider is located within the time specified above from the time the laboratory notifies the referring laboratory that submitted the specimen. If the laboratory is an out-of-state laboratory, the California laboratory that receives a report of such findings shall notify the local health officer in the same way as if the finding had been made by the California laboratory.

3. Hospitals should report all births to women with a positive or unknown HBsAg status to the Perinatal Hepatitis B Prevention Unit (PHBPU) at the Los Angeles County Department of Public Health Immunization Program within 24 hours of birth. Fax the **HOSPITAL REPORT**, Perinatal Hepatitis B form to (213) 351-2781. This form is available at [www.publichealth.lacounty.gov/ip/perinatalhepb/hospreport.pdf](http://www.publichealth.lacounty.gov/ip/perinatalhepb/hospreport.pdf) (PDF version);
  4. Hospitals should refer all HBsAg-positive women that delivered a baby to the PHBPU by instructing patients to call (213) 351-7400 within one week after discharge; document the referral to the PHBPU in the Discharge Summary.
    - a. The PHBPU of the Immunization Program will case manage infants born to HBsAg-positive mothers, and sexual and household contacts of the women.
    - b. Private and public providers will provide appropriate testing and hepatitis B vaccination.
2. **Report Form:**
    - a. PHBPU staff will complete the **CONFIDENTIAL HBsAg+ CASE/HOUSEHOLD MANAGEMENT REPORT (CDPH 8546)**.
    - b. If the patient is identified as an acute case of hepatitis B, the health district will



conduct additional follow up as described in the Hepatitis B section.

### 3. Epidemiologic Data:

The majority of women identified as HBsAg-positive on their routine prenatal laboratory work-up are hepatitis B carriers. Obtain information to evaluate risk of transmission to infant and sexual and household contacts:

- a. Estimated delivery date and anticipated hospital of delivery.
- b. Anticipated provider of pediatric care.
- c. Evaluate line list of contacts (sexual and/or household) for susceptibility and need for vaccination.
- d. Obtain laboratory tests:
  - Household contact(s) - test for susceptibility to hepatitis B infection; obtain total hepatitis B core antibody (anti-HBc) and HBsAg.

### CONTROL OF CASE, CONTACTS & CARRIERS

Investigate infant immediately to ensure receipt of HBIG and HBV vaccine.

#### CASE:

No restrictions. Follow-up of newborn is a public health priority. Without appropriate protection, up to 90% of newborns will be infected; if infected, 90% become carriers.

**Post-Vaccination Serology Testing:** Test all infants of HBsAg-positive mothers for both HBsAg and antibodies to HBsAg (anti-HBs) 1-2 months after vaccine series completion, between 9-12 months of age. Revaccinate HBsAg-negative infants with anti-HBs levels less than 10 mIU/mL with a second three-dose vaccine series and retest 1-2 months after the last vaccine dose.

#### CONTACTS:

Investigate remaining contacts within 2 weeks (persons exposed to blood or body fluid of an infected person, regular sexual partners, and long-term household contacts to a carrier of

hepatitis B). "Long-term" contacts are defined as individuals with anticipated continuous household exposure for greater than one year (often limited to nuclear family only).

1. No restrictions.
2. Regular sexual partners are at increased risk. Obtain HBsAg and anti-HBc to evaluate susceptibility. If susceptible, administer hepatitis B vaccine to the contact.
3. Long-term household contacts of all ages are at increased risk. Obtain history of hepatitis B vaccination; if can't document vaccination, obtain serologic screening (anti-HBc and HBsAg) on all contacts, including children, to evaluate status and susceptibility. If susceptible, administer hepatitis B vaccine to the contact.
4. Vaccinate without screening regular sexual partners and long-term household contacts who firmly refuse screening for susceptibility
5. Vaccine dosage depends on the age and vaccine manufacturer. Refer to the vaccine package insert or B 71 ("Recommendations for Use and Storage of Common Immunobiologics and Other Prophylactic Agents").

#### PREVENTION-EDUCATION

1. Instruct HBsAg-positive prenatal patients on the importance of their newborns receiving hepatitis B vaccine and HBIG within 12 hours of birth for protection against the hepatitis B virus. Infant will need 2 subsequent doses of hepatitis B vaccine.
2. Instruct HBsAg-positive prenatal patients that the hepatitis B vaccine is a routine childhood immunization and that it is very important for infant to complete the full hepatitis B vaccination series.
3. The infant will need a HBsAg test and an anti-HBs test after completion of the vaccine series at age 9-12 months of age to ensure the effectiveness of the vaccine.
4. Breast-feeding is not contraindicated for infants receiving hepatitis B vaccine.



5. Advise HBsAg-positive patients and contacts to get an evaluation by a liver specialist as soon as infection is identified for possible liver disease and treatment.
6. Instruct HBsAg-positive patients on the sanitary disposal of blood and other body secretions. Advise the patient that shared articles contaminated with blood (e.g., needles, syringes, razors, toothbrushes and pedicure equipment) may transmit the disease.
7. Advise the patient that all sexual partners are at increased risk of infection; condoms may reduce their risk. Regular sexual contacts should be evaluated for susceptibility and vaccinated if susceptible.
8. Advise that long-term household contacts are at increased risk of infection. Contacts should be evaluated for susceptibility and vaccinated if susceptible.
9. Advise that a history of any viral hepatitis excludes participation in blood donor programs, under current State regulations.

3. **For post-vaccination of infants:** Clearly label the laboratory slip "Hepatitis B Post-Vaccination of Infant." Perform the following tests: quantitative Anti-HBs; HBsAg

**Material:** Whole clotted blood.

**Amount:** 5-7 ml.

**Storage:** Refrigerate.

## DIAGNOSTIC PROCEDURES

Clinical and epidemiological history required to aid laboratory in test(s) selection.

### Serology:

Container: VR serology contains a serum separator tube (SST, a red-gray top vacutainer tube) and a **VIRAL, RICKETTSIAL AND CHLAMYDIAL DISEASE EXAMINATION FORM (H-789)**.

### Examination Requested:

1. **For prenatal patients:** Clearly label the laboratory slip as a prenatal specimen. Test required: HBsAg.
2. **For sexual or household contacts:** Clearly label the laboratory slip "Hepatitis B Contact-Prenatal." Perform the following tests on contacts: Anti HBc. If anti-HBc is positive, test for HBsAg