

**VIRGINIA DEPARTMENT OF HEALTH  
DIVISION OF IMMUNIZATION  
VIRGINIA PERINATAL HEPATITIS B PREVENTION (VPHBP) PROGRAM**

Protocol for Hepatitis Serology Testing

**Introduction**

An account has been established with LabCorp for testing pregnant women seen in local health department maternity clinics. Testing (in accordance with ACIP and CDC recommendations) of sexual partners, household contacts and infants of HBsAg positive pregnant women (both health department and private maternity patients) will also be done by LabCorp at no charge to the client or the local health department. Testing is limited to the following four tests:

- Hepatitis B Surface Antigen - (HBsAg)
- Hepatitis B Surface Antibody – (anti-HBs)
- Hepatitis B Core Antibody – (anti-HBc)
  
- IgM class anti-HBc – (IgM anti-HBc) determines if a person has acute or chronic hepatitis B and should only be requested if **both** HBsAg and anti-HBc are positive.

When ordering tests, use the LabCorp form pre-printed with the Division of Immunization mailing and account information. The “Account Bill” box should be checked and Perinatal Case # should be recorded in the Patient’s ID # box.

Please order tests in accordance with the following recommendations:

**Pregnant Women – Hepatitis B Surface Antigen (HBsAg) – only.**

When a pregnant woman is identified as being HBsAg positive, an IgM anti-HBc can be done to determine acute or chronic infection. ***Please do not run anti-HBs or anti-HBc on these women.***

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***The following protocol applies to sexual partners, household contacts and infants of all HBsAg positive pregnant women (both public and private):***

**Current Sexual Partners –**

**Pre-vaccination testing -**

- ✓ HBsAg
- ✓ Anti-HBc
- ✓ Anti-HBs

All three tests must be negative to qualify for vaccine; **except:**

- If HBsAg and anti-HBc are **both negative** and the index value of anti-HBs is <1, give one dose of vaccine and retest for anti-HBs only in 1-2 months.
- If HBsAg and anti-HBc are **both positive** and acute or chronic status is desired (for counseling purposes), order:
  - ✓ IgM anti-HBc
- Post-vaccination testing** - (all sexual partners should receive post-vaccination testing 1-2 months after completion of the vaccine series. **(This is new protocol of the VPHBP Program.)**
  - ✓ HBsAg
  - ✓ Anti-HBs

If both HBsAg and anti-HBs are negative, give a second series of hepatitis B vaccine and re-test 1-2 months after completion. If still negative, partner should be considered susceptible to hepatitis B and counseled regarding precautions to prevent HBV infection.

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**Household Contacts** – defined as a person who currently lives (eats and sleeps) in the same household as the pregnant woman:

- ✓ HBsAg
- ✓ Anti-HBc
- ✓ Anti-HBs

All three tests must be negative to qualify for vaccine; **except:**

- If HBsAg and anti-HBc are **both negative** and the index value of anti-HBs is <1, give one dose of vaccine and retest for anti-HBs only in 1-2 months.
- If HBsAg and anti-HBc are **both positive** and acute or chronic status is desired (for counseling purposes), order:
  - ✓ IgM anti-HBc

(Post-vaccination testing is not recommended for household contacts)

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## **Infants –**

**Post-vaccination testing** – should be performed on all infants born to HBsAg positive mothers after completion of the vaccine series.

1. Do not order before 9 months of age to avoid detection of anti-HBs from HBIG administered during infancy and to maximize the likelihood of detecting late hepatitis B infection.
2. Testing should be ordered between 9 and 18 months of age (generally at the next well-child visit).
3. Anti-HBc testing is not recommended because passively acquired maternal anti-HBc might be detected (up to 24 months of age) in these infants.

Tests ordered should be:

- ✓ HBsAg
- ✓ Anti-HBs

## **Results**

If the HBsAg test result is negative and the anti-HBs test result is adequate ( $>10$  mIU/mL) or (Index Value  $>1.0$ ), the infant is immune and no further medical management for hepatitis B is needed.

If both the HBsAg and anti-HBs test results are negative, re-vaccinate with a second series on a 0-1-6 month schedule and retest 1-2 months after completion of the second series.

If the HBsAg test result is positive, refer infant for appropriate followup.

.If you have questions or need forms, please call the Division of Immunization at 804-864-8055.

## \*\*Hepatitis B serology

<b>HBsAg:</b>	<i>Hepatitis B surface antigen</i> is a marker of infectivity. Its presence indicates either acute or chronic HBV infection.
<b>anti-HBs:</b>	<i>Antibody to hepatitis B surface antigen</i> is a marker of immunity. Its presence indicates an immune response to HBV infection, an immune response to vaccination, or the presence of passively acquired antibody. (It is also known as <b>HBsAb</b> , but this abbreviation is best avoided since it is often confused with abbreviations such as HBsAg.)
<b>anti-HBc (total):</b>	<i>Antibody to hepatitis B core antigen</i> is a nonspecific marker of acute, chronic, or resolved HBV infection. It is not a marker of vaccine-induced immunity. It may be used in prevaccination testing to determine previous exposure to HBV infection. (It is also known as <b>HBcAb</b> , but this abbreviation is best avoided since it is often confused with other abbreviations.)
<b>IgM anti-HBc:</b>	<i>IgM antibody subclass of anti-HBc</i> . Positivity indicates recent infection with HBV ( $\leq 6$ mos). Its presence indicates acute infection.
<b>HBeAg:</b>	<i>Hepatitis B "e" antigen</i> is a marker of a high degree of HBV infectivity, and it correlates with a high level of HBV replication. It is primarily used to help determine the clinical management of patients with chronic HBV infection.
<b>Anti-HBe:</b>	<i>Antibody to hepatitis B "e" antigen</i> may be present in an infected or immune person. In persons with chronic HBV infection, its presence suggests a low viral titer and a low degree of infectivity.
<b>HBV-DNA:</b>	<i>HBV Deoxyribonucleic acid</i> is a marker of viral replication. It correlates well with infectivity. It is used to assess and monitor the treatment of patients with chronic HBV infection.

**Table 2: How do I interpret some of the common hepatitis B panel results?**

Tests	Results	Interpretation	Vaccinate?
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible	vaccinate if indicated
HBsAg anti-HBc anti-HBs	negative negative positive with $\geq 10$ mIU/mL*	immune due to vaccination	no vaccination necessary
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	acutely infected	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected	no vaccination necessary (may need treatment)
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible†	use clinical judgment

\* Postvaccination testing, when it is recommended, should be performed 1-2 months after the last dose of vaccine. Infants born to HBsAg-positive mothers should be tested for HBsAg and anti-HBs after completion of at least 3 doses of a licensed hepatitis B vaccination series, at age 9-18 months (generally at the next well child visit).

- †1. May be recovering from acute HBV infection  
 2. May be distantly immune, but the test may not be sensitive enough to detect a very low level of anti-HBs in serum  
 3. May be susceptible with a false positive anti-HBc  
 4. May be chronically infected and have an undetectable level of HBsAg present in the serum