






# A Pediatric Guide: Caring for Infants Born to Hepatitis B-Infected Women



## Immunize On Time to Save Lives

Without postexposure immunoprophylaxis, approximately 40% of infants born to hepatitis B virus (HBV)-infected women in the United States will develop chronic HBV infection, approximately one-fourth of whom will eventually die from chronic liver disease.

	AGE	Single-antigen hepatitis B vaccine (Engerix-B® or Recombivax HB®)	Combination hepatitis B vaccine (Pediatrix®)
	<b>Birth</b> <sup>1</sup> (Within 12 hours)	hepatitis B immune globulin (HBIG) AND hepatitis B vaccine dose #1	
	<b>1- 2 Months</b> <sup>2</sup>	hepatitis B vaccine dose #2	hepatitis B vaccine dose #2
	<b>4 Months</b>		hepatitis B vaccine dose #3
	<b>6 months</b>	hepatitis B vaccine dose #3	hepatitis B vaccine dose #4
	<b>9 - 12 Months</b> <sup>3</sup>	postvaccination serologic testing hepatitis B surface antigen (HBsAg) and hepatitis B surface antibody (anti-HBs Quant) <sup>4</sup>	postvaccination serologic testing hepatitis B surface antigen (HBsAg) and hepatitis B surface antibody (anti-HBs Quant) <sup>4</sup>

<sup>1</sup> HBIG should be administered within 12 hours of birth; however it can be administered up to 7 days after birth if the mother's HBsAg laboratory result is unavailable at delivery.  
<sup>2</sup> Low birth weight infants (less than 2,000 grams or 4.4 lbs.) should receive 4 doses of hepatitis B vaccine. The schedule is: HBIG & hepatitis B vaccine within 12 hours of birth, hepatitis B vaccine at 1 month, 2 months and 6 months of age. The Pediatrix® schedule is HBIG & single-antigen hepatitis B vaccine within 12 hours of birth, followed by Pediatrix® doses at 2, 4 and 6 months of age.  
<sup>3</sup> Blood for the PVST should not be collected before 9 months of age AND must be drawn a minimum of 30 days after final hepatitis B vaccine dose, if infant is completing the hepatitis B series after the recommended intervals.  
<sup>4</sup> Quant= Quantitative

## Test On Time

**Postvaccination serologic testing (PVST)** identifies infants born to HBV-infected women and who did not have an adequate immune response to an initial hepatitis B vaccine series and therefore require additional vaccination. The Centers for Disease Control (CDC) recommends infants born to HBV-infected women receive PVST consisting of a hepatitis B surface antigen (HBsAg) test and an antibody to hepatitis B surface antigen (anti-HBs) test at age 9-12 months (or 1-2 months after the final dose of the vaccine series, if the series is delayed).

**Immune to HBV**  
Notify Public Health

**Susceptible to HBV**  
Additional hepatitis B vaccine needed  
Notify Public Health

**Infected with HBV**  
Notify Public Health

Test	HBsAg	anti-HBs
Result	Negative	Positive

Test	HBsAg	anti-HBs
Result	Negative	Negative

Test	HBsAg	anti-HBs
Result	Positive	Negative

Notify Public Health's Perinatal Hepatitis B Prevention Program about all PVST lab results for infants born to HBV- infected women  
**Phone (206) 296-4774 Fax (206) 296-4803**

# Common Questions about Perinatal Hepatitis B Prevention

## What is hepatitis B?

Hepatitis B is an infectious liver disease caused by the hepatitis B virus (HBV). HBV attacks the liver and can lead to cirrhosis, liver cancer and premature death.

## How is hepatitis B transmitted?

HBV is transmitted through contact with infectious blood or body fluids. HBV can be transmitted from infected women to their newborn infants during delivery.

## When is an infant at high-risk for hepatitis B?

Infants born to women who are hepatitis B surface antigen (HBsAg) positive are considered high-risk.

## How can hepatitis B be prevented at birth?

Administering hepatitis B immune globulin (HBIG) and the first dose of hepatitis B vaccine within 12 hours of birth is 90%-95% effective in preventing perinatal HBV infection. See immunization table on reverse side.

## Is there a specific immunization schedule that needs to be followed for infants who are exposed to HBV during birth?

Yes. See immunization table on reverse side.

## What if my practice identifies a newborn who was exposed to HBV at birth and did not receive HBIG before hospital discharge?

Call (206) 296-4774 to notify Public Health's Perinatal Hepatitis B Prevention Program.

HBIG should be administered within 12 hours of birth. However, it can be administered up to 7 days after birth. The infant should be referred urgently to a labor and delivery department or the emergency department of a hospital for immediate administration of HBIG. If more than 7 days have passed, it is too late to administer HBIG. Ensure that the hepatitis B birth dose of vaccine was given, and strictly adhere to the recommended intervals for subsequent doses.

## My patient was born to an HBV-infected woman and weighed less than 2,000 grams (4.4 lbs.) at birth. Why does this infant need 4 doses of hepatitis B vaccine?

The immune response to hepatitis B vaccine is less reliable in newborns weighing less than 2,000 grams. Infants exposed to HBV at birth must receive HBIG and hepatitis B vaccine within 12 hours of birth.

The birth dose of hepatitis B vaccine should not be counted as part of the series and the infant should receive three additional doses beginning at 1 month of age, followed by a third dose 1-2 months after the second and a fourth dose at 6 months of age. Infants receiving Pediarix® should receive HBIG and the single-antigen birth dose followed by Pediarix® doses at 2, 4 and 6 months of age.

## Why is postvaccination serologic testing (PVST) necessary?

PVST is recommended for infants and children born to hepatitis B-infected mothers or if the birth mother's status is unknown.<sup>4</sup> Serologic testing confirms whether the child has developed immunity or has been infected with HBV. PVST should include hepatitis B surface antigen (HBsAg) and hepatitis B surface antibody (anti-HBs) only. Testing should occur between 9 and 12 months of age.

## Why must providers wait until the infant is 9 months of age to collect the PVST?

Labs collected before 9 months of age can provide inaccurate anti-HBs results by detecting the antibody from HBIG administered at birth and not actual response to the hepatitis B vaccine. Also, for infants who receive HBIG at birth but still develop HBV infection, there can be a prolonged incubation period. Waiting until 9 months of age can maximize detection of late HBV infection.

## Can collection of the PVST be delayed until the infant is older?

After primary immunization with hepatitis B vaccine, anti-HBs concentrations decline rapidly within the first year. This decline might result in a negative/non-reactive anti-HBs result, making it difficult to determine if this child's immunity has waned or is a result of vaccine failure and might lead to unnecessary revaccination. For this reason, providers should test at 9-12 months of age (or 1-2 months after the final dose of the hepatitis B vaccine series, if doses were delayed).

## What if my patient's HBsAg and anti-HBs results are negative after completing the HepB series?

The Advisory Committee on Immunization Practices (ACIP) now recommends HBsAg-negative infants with anti-HBs < 10 mIU/mL should be revaccinated with a single dose of hepatitis B vaccine and receive postvaccination serologic testing 1-2 months later.<sup>5</sup>

Infants whose anti-HBs remains < 10 mIU/mL following single dose revaccination should receive two additional doses of hepatitis B vaccine to complete the second series followed by postvaccination serologic testing 1-2 months after the final dose.<sup>5</sup>

Infants with anti-HBs levels less than 10 mIU/mL after a second 3-dose series of hepatitis B vaccine are nonresponders, and available data do not suggest they will benefit from additional vaccinations.<sup>5</sup> Report PVST lab results to Public Health.

## What if my patient is infected with HBV?

Hepatitis B is a notifiable condition in Washington. Notify Public Health- Seattle & King County at (206) 296-4774. In addition, you should refer the child to a pediatric specialist for further evaluation. The child's family and caretakers should be educated about avoiding blood exposure.

## My patient who was exposed to HBV has other family members that I care for in my practice. Do they need follow-up?

Yes. Household contacts and family members should be tested and vaccinated against HBV, if found to be susceptible. If they test positive for HBV, please notify Public Health at (206) 296-4774.

## What if the infant was adopted or the mother's HBsAg-status is unknown?

Verify the child's immunization history beginning at birth. Administer any missing hepatitis B vaccine doses, followed by PVST at 9-12 months of age or 1-2 months following the final dose.

All Immunizations should be documented in the Washington State Immunization Information System (Waiis).

Visit  
[www.waiis.wa.gov](http://www.waiis.wa.gov)

To notify Public Health about lab results for your patients:

Phone (206) 296-4774  
Fax (206) 296-4803

**Public Health**  
Seattle & King County 



Guide adapted with permission from GA DPH 2017

<sup>5</sup>Centers for Disease Control and Prevention (CDC). (2018, January 12). Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. *MMWR. Morbidity and Mortality Weekly Reports*. 67 (1)