

Chapter 2: What Prenatal Care Providers Need to Know

Table of Contents Pages 30-47

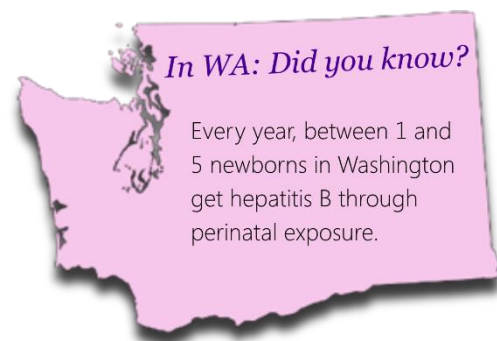
1. Perinatal Hepatitis B Prevention Program: Goal and Objectives
2. Hepatitis B Facts
3. Prenatal Tasks Overview
4. Case Management Snapshot
5. Prevention Procedures Detail
6. Required Notifications
7. Required Reportable Conditions
 - a. Reporting Matrix
 - b. Reporting LHJ Contact List
8. Notifiable Conditions
9. Vaccine Specifics
 - a. Administering Vaccine
 - b. Recommended Doses
 - c. Administering HBIG
 - d. Storage and Handling
 - e. Ages and Intervals
10. Laboratory Screening
 - a. Guidelines
 - b. Serologic Markers
 - c. Interpreting Test Results
11. References and Prenatal Resources
 - a. Manual References
 - b. Stickers for Medical Charts (Mothers, Newborns, Babies)
 - c. Order Hepatitis B Materials
 - d. Pregnancy and Chronic Hepatitis B
 - e. WAC: Notifiable Conditions and the Health Care Provider



Perinatal Hepatitis B Prevention Program: Goal and Objectives

Federal recommendations

The Washington State Department of Health (DOH) Office of Immunization and Child Profile (OICP) follows federal recommendations for hepatitis B immunization. These recommendations, made by the Advisory Committee on Immunization Practices (ACIP), include control of perinatal hepatitis B virus infection (HBV). The latest updated ACIP recommendations target delivery hospital policies, procedures, and case management programs.



To provide appropriate clinical care to a newborn, you must put the mother's data in the infant's medical record, as recommended by ACIP. This does **NOT** violate the Health Insurance Portability and Accountability Act (HIPAA). The HIPAA Privacy Rule allows the use of some health information:

"A covered entity is permitted, but not required, to use and disclose protected health information, without an individual's authorization, for the following purposes or situations: (1) To the Individual; (2) Treatment, Payment, and Health Care Operations..."

Find a summary document of the [HIPAA Privacy Rule here](#).

Goal

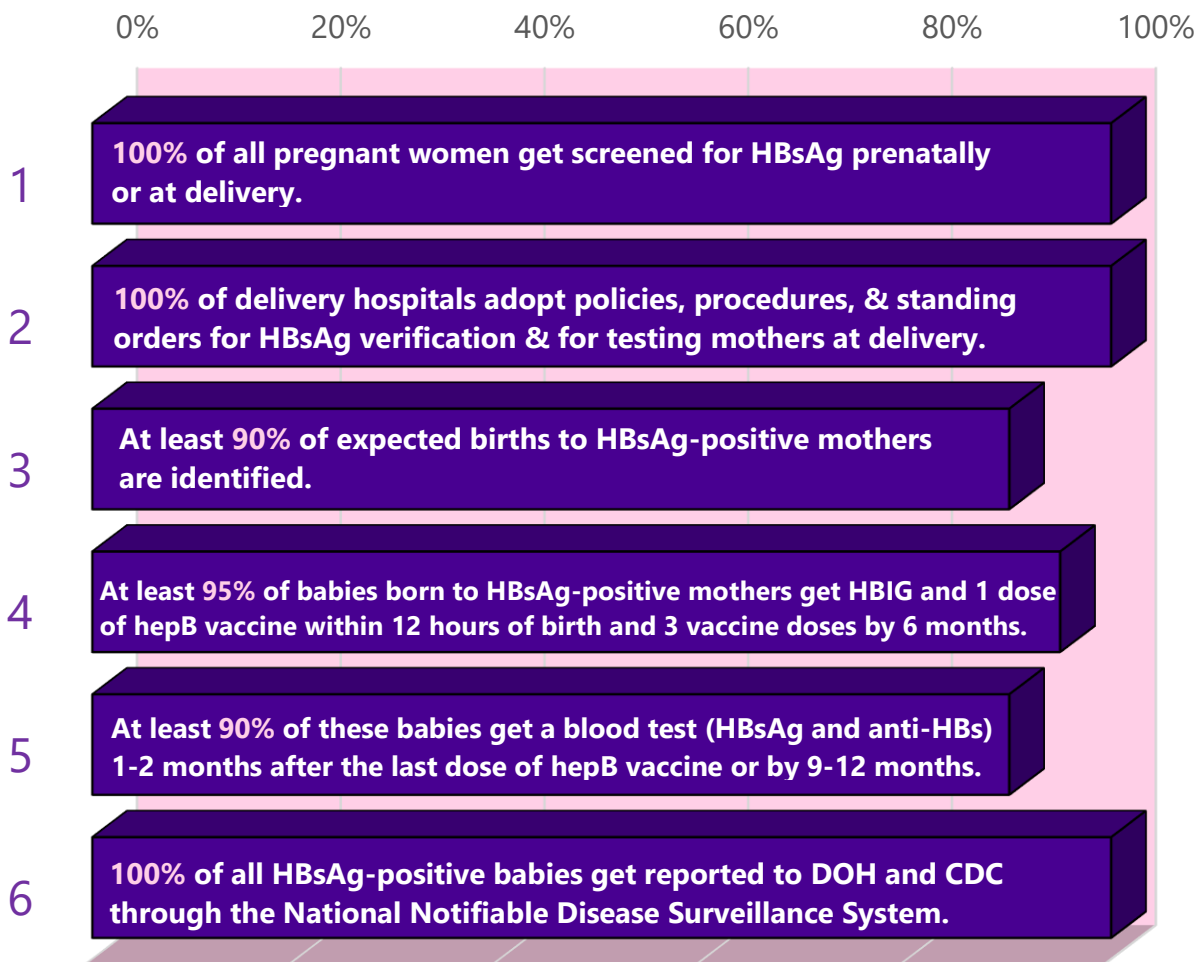
Washington State's Perinatal Hepatitis B Prevention Program (PHBPP) has an overall goal **to work with partners to assure coordination of activities to prevent perinatal hepatitis B transmission to newborns**. The program has several key elements.

- It is both a surveillance and case management program to help manage perinatal hepatitis B cases.
- It promotes universal birth dose.
- It relies on multiple reporting mechanisms.
- It works with partners to assure coordination of activities.

Local health jurisdictions in our state are key in completing these tasks, including supporting effective delivery hospital policies specifying birth dose vaccinations, standing orders, and case management to:

- Identify HBsAg-positive pregnant women.
- Ensure HBV DNA testing is done for all HBsAg-positive pregnant women to guide the use of maternal antiviral therapy during pregnancy for the prevention of perinatal HBV transmission.
- Make sure their babies get proper post-exposure prevention. Correct post-exposure prevention for babies includes hepatitis B immune globulin (HBIG) and hepatitis B vaccine within 12 hours of birth, followed by two more doses of vaccine (at 1-2 months and 6 months of age).
- Make sure post-vaccine testing is completed.
- Report all data on administration of follow-up doses of vaccine and post-testing of the infant to DOH.

Objectives



Hepatitis B Facts

Acute (short-term) and chronic (long-lasting) effects of hepatitis B virus (HBV) infection are a major health problem.

About 79,000 infections occur in the U.S. each year; 21,000 of those cases are acute (short-term) and symptomatic (showing symptoms) (Centers for Disease Control and Prevention).

As many as 1.6 million people in the U.S. have chronic HBV and can potentially spread the disease to others.

Hepatitis B is a leading cause of liver cancer in the U.S. HBV can be passed from mom to baby during birth (perinatal infection). About 25,000 HBV-infected moms give birth each year in the U.S. Infants infected at birth may later experience potentially deadly complications, like chronic liver disease and liver cancer. Each year, about 4,000 to 5,000 people die from chronic liver disease.

Hepatitis B infection in the Asian-Pacific Islander population is 10%. That's 60 times higher than the infection rate of the general population.

The number of foreign-born residents living with chronic hepatitis B will continue to increase with ongoing immigration from countries where hepatitis B is common.

Unless they get proper post-exposure prevention, up to 90% of babies born to mothers with hepatitis B get infected, and 85% to 95% of those will be chronically infected. Up to one in four chronically infected babies will die from primary hepatocellular carcinoma or cirrhosis of the liver later in life.

While screening rates are high, reporting rates of HBsAg-positive pregnant women remain a problem. Nationally, about 95% of pregnant women receive prenatal HBsAg serologic testing, yet only 47% of expected births to HBsAg-positive pregnant women are identified and reported to perinatal hepatitis B programs (CDC Peritable Outcomes, 2014)

Getting immunized with hepatitis B vaccine is the most effective way to prevent HBV infection. Pregnant women who are infected with HBV can prevent giving HBV to their babies at birth if the baby gets:

- Hepatitis B immune globulin (HBIG) **and** hepatitis B vaccine within 12 hours of birth
- Additional doses of vaccine at 1-2 months and 6 months of age.

CDC recommends testing all pregnant women for HBV early in each pregnancy even if they already had the vaccine or test. Women who test HBsAg-negative early in pregnancy but are in a high-risk category for HBV should be retested at the delivery hospital.

Pregnant women who test HBsAg positive should be referred to the local health jurisdiction's PHBPP and receive counseling, medical management, and information about HBV. [Emerging evidence](#) suggests HBV treatment during the third trimester is safe and reduces rates of transmission.

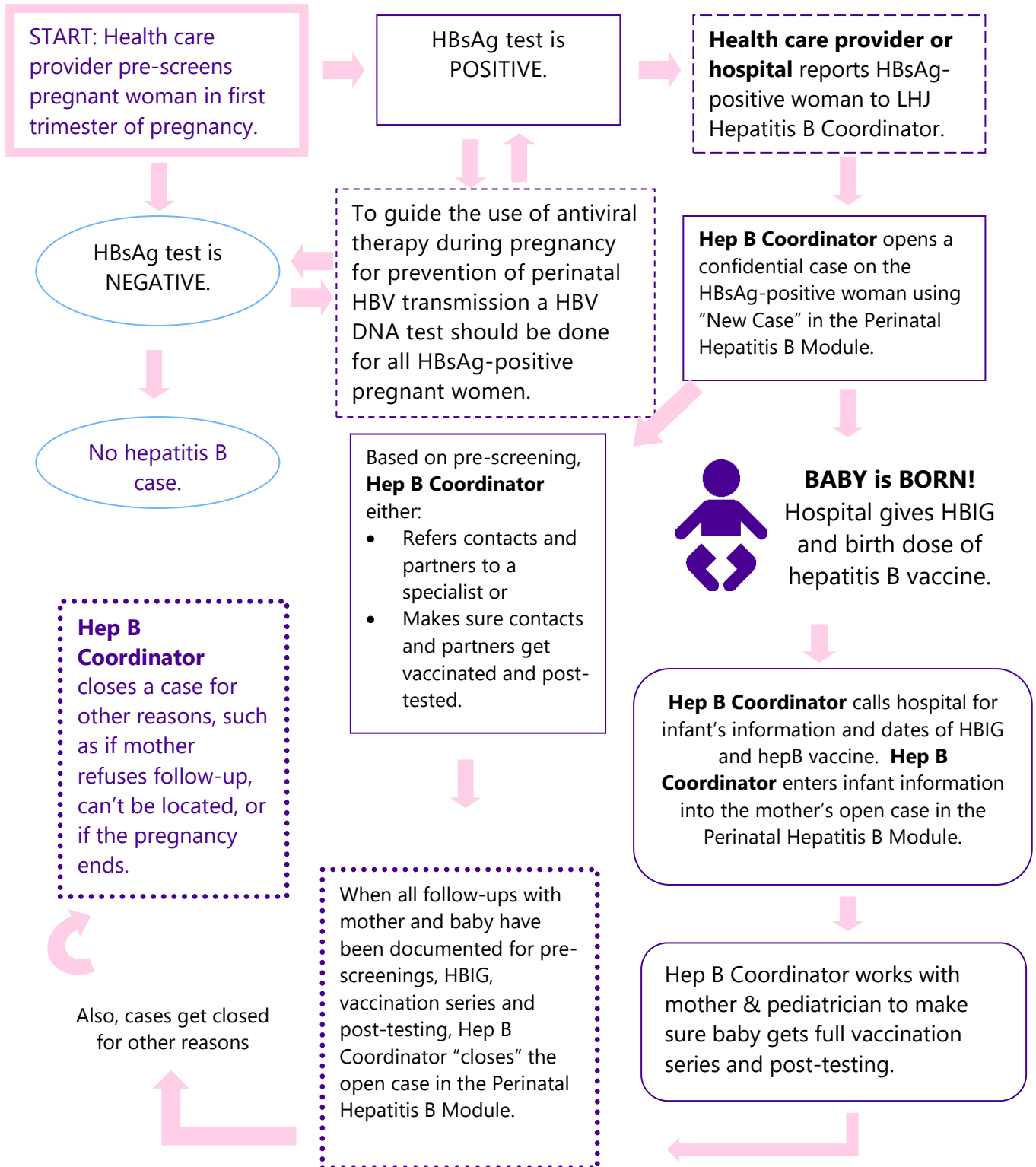
Prenatal Care Providers Tasks Overview

The following seven strategies can help guide you, as a prenatal care provider, to prevent perinatal hepatitis B transmission.

1. Develop and follow a written policy to screen **every** pregnant woman for HBsAg **early** in each pregnancy. Both the Centers for Disease Control and Prevention and the American College of Obstetricians and Gynecologists recommend this policy. **If the woman tests HBsAg negative but remains or becomes high-risk for hepatitis B infection, do the HBsAg testing again late in her pregnancy.** High-risk behaviors or markers include injection drug use, multiple sexual partners, and having other sexually transmitted infections. If it is not possible to determine the mother's HBsAg status (e.g. when a parent or person with lawful custody safely surrenders an infant confidentially shortly after birth), the vaccine series should be completed according to the recommended schedule for infants born to HBsAg-positive mothers.
2. Screen all pregnant women. HBV DNA testing should be done for all HBsAg-positive pregnant women to guide the use of maternal antiviral therapy during pregnancy for the prevention of perinatal HBV transmission.
3. Offer hepatitis B vaccine at any time during the pregnancy to HBsAg-negative and anti-HBs-negative pregnant women who are at high risk of infection. Women can get vaccinated during pregnancy (no contraindication exists). However, consult with the patient's provider before giving any vaccine to a pregnant woman. If you give hepatitis B vaccine during pregnancy, do HBsAg serologic testing 1-2 months later to avoid transient HBsAg positivity.
4. Report **every** HBsAg-positive pregnant woman to your local health jurisdiction (LHJ) within three working days. **State law requires that you report every case of perinatal hepatitis B** (see [WAC 246-101-101](#)). Your LHJ provides case management and follow-up services for infants, household contacts, and sexual partners. Use DOH's [perinatal hepatitis B program coordinators list](#).
5. Tell each HBsAg-positive pregnant woman about:
 - How hepatitis B spreads.
 - How to prevent hepatitis B.
 - The need for her to get medical follow-up with a liver specialist.
 - Her infant's need to get protection. The baby needs HBIG and hepatitis B vaccine within 12 hours of birth; two additional doses of hepatitis B vaccine at 1-2 and 6 months of age; and post-vaccine screening at 9-12 months of age.
 - The need for her household contacts and sexual partners to get pre-vaccination screening. If the household contacts and sexual partners are HBsAg-negative and anti-HBs negative, they need to get three doses of hepatitis B vaccine at intervals of 0, 1-2, and 4-6 months.
 - How her LHJ will contact her to follow up with necessary services for her family.
 - Referrals for infected household contacts and sexual partners.
6. Send all HBsAg-positive lab results to the hospital before the pregnant woman gets admitted for delivery to make sure her baby gets proper post-exposure prevention.
7. Provide educational materials about hepatitis B.

Case Management Snapshot

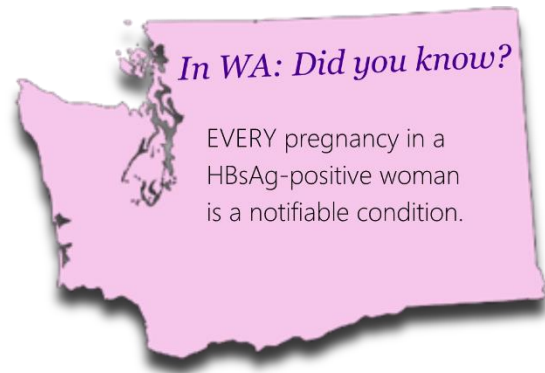
Managing a perinatal hepatitis B case always starts with the pregnant woman and involves pre-screening, opening a confidential case report in the module, tracking the woman's baby, following up with phone calls and mail, and closing a case when follow-up is finished. Cases may be open for as long as two years. Find a visual snapshot of this process below.



Required Notification

Washington State follows three levels of required notification for certain medical conditions to prevent and control communicable and noninfectious diseases. Different agencies take care of these different notification levels.

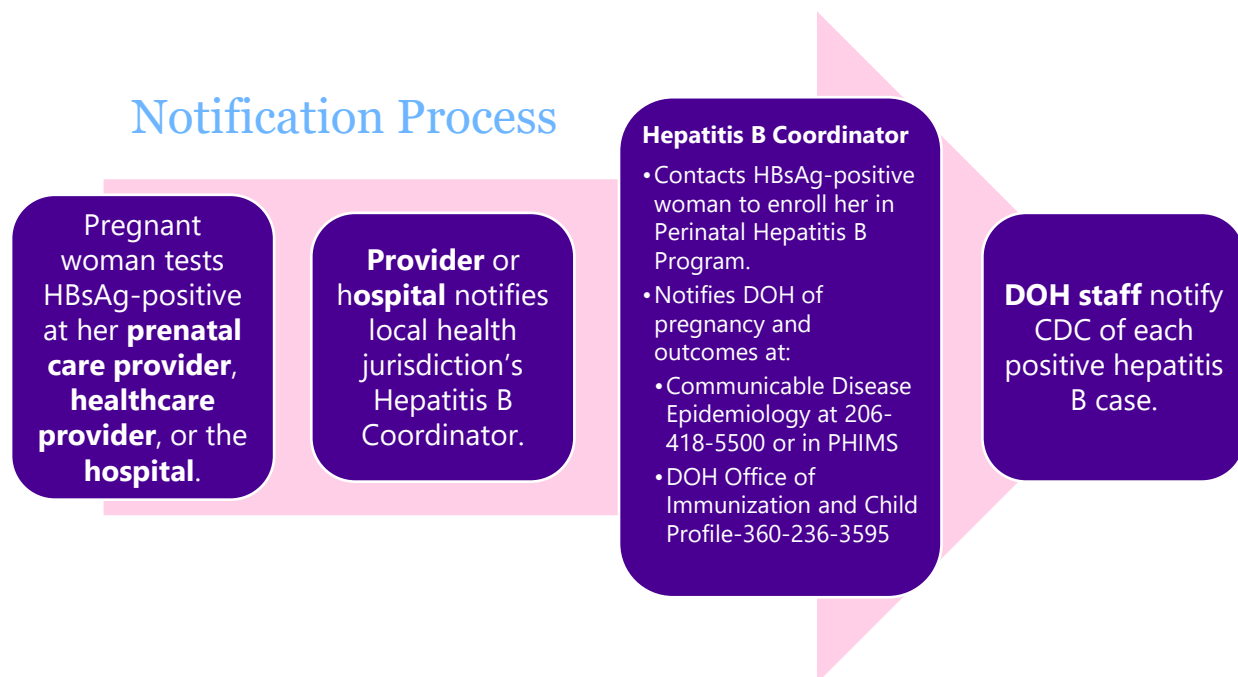
4. Notification to local health jurisdictions (LHJ): by **every prenatal health care provider or hospital**.
5. Notification to the Washington State Department of Health: by **every local health jurisdiction**.
6. Notification to the Centers for Disease Control and Prevention (CDC): by the Washington State Department of Health.



Washington considers **EACH** pregnancy in any HBsAg-positive woman a notifiable condition. This can increase the chance that babies born to HBsAg-positive mothers will get proper post-exposure prevention. Because of this, the notifications must happen correctly as explained and shown in the picture below.

4. Healthcare providers notify the LHJ Perinatal Hepatitis B Coordinator of the pregnant woman's status.
5. The Hepatitis B Coordinator then enrolls the woman in the Perinatal Hepatitis B Prevention Program, manages her case (including her baby, household contacts, and sexual partners), and notifies the correct agency programs.
6. DOH notifies CDC weekly about all hepatitis B-infected infants.

Notification Process



Required Reportable Conditions

Hepatitis B Surface Antigen (HBsAg) Positivity During Pregnancy

Since December 2000 in Washington State, HBsAg-positive status during pregnancy has been a required reportable condition per state law (Washington Administrative Code [[WAC 246-101-101](#)] and [WAC 246-101-301](#)). Healthcare providers and health care facilities, such as hospitals, must report this status to local health jurisdictions within three working days.

Why Report?

Identifying and reporting HBsAg-positive pregnant women during each pregnancy helps prevent the spread of hepatitis B virus to their babies. These babies have a very high risk of getting the infection and developing serious long-term medical conditions unless they get proper post-exposure prevention.

Local public health jurisdiction staff work with health care providers to make sure that:

- Mothers get counseled about preventing the spread of hepatitis B virus to their babies and their household contacts.
- Mothers get screened and, if appropriate, referred to a specialist during pregnancy ([see page 2 of this infographic](#)).
- Mother's sexual partner(s) get referred to a specialist for follow-up.
- Babies get hepatitis B immune globulin (HBIG) and 3 doses of hepatitis B vaccine (birth, 1-2 months, 6 months).
- Babies get post-vaccination testing (HBsAg and anti-HBs) between 9 and 12 months of age (at least 1 to 2 months after the third dose of hepatitis B vaccine) to check for infection and immune status.

When to Report

A report should be made at any time during **each** pregnancy in which the pregnant woman tests HBsAg positive. It is the prenatal care provider's responsibility to make sure the delivery hospital knows of an HBsAg-positive mother prior to the birth so the baby gets proper treatment.

Reporting Requirements

Per [WAC 246-101-101](#) and [WAC 246-101-301](#), healthcare providers and health care facilities who request the HBsAg test during prenatal care or at time of delivery must report all HBsAg-positive pregnant women to the [provider's LHJ within three working days](#).

Reporting Resources from DOH

- [How to report notifiable conditions](#)
- [Reporting posters](#)
- [Hepatitis B as a notifiable condition](#)
- If you have other questions, contact the Department of Health at 360-236-3595.

Vaccine Specifics: Administering Hepatitis B Vaccine

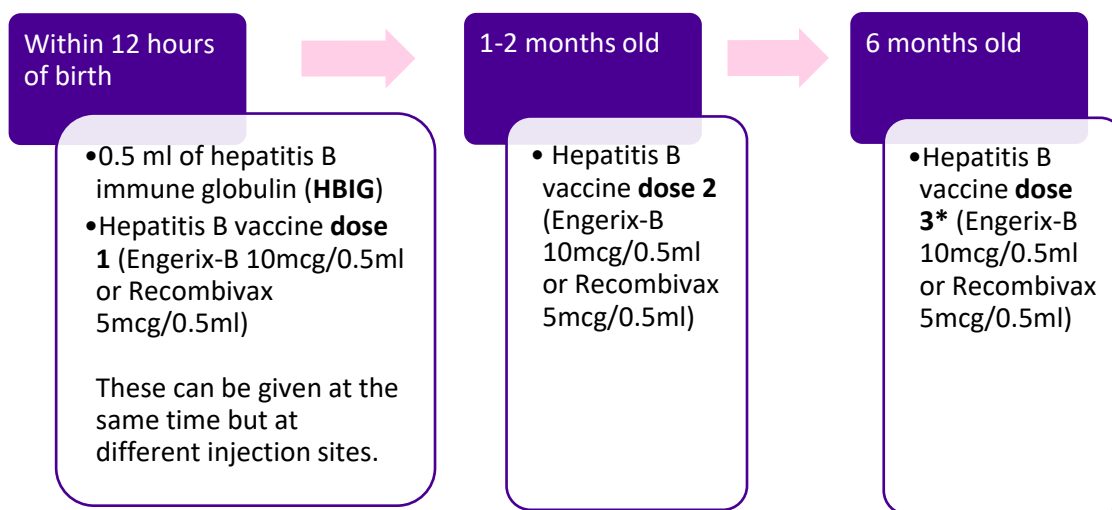
Route and Site

Give hepatitis B vaccine intramuscularly into the deltoid muscle of adults and children and into the anterolateral thigh muscle of newborns and babies. **Do not** give hepatitis B vaccine intradermally or into the buttock.

You can give hepatitis B vaccine at the same time as other vaccines, but use separate injection sites.

Dose and Schedule

Babies born to HBsAg-positive mothers should get the following. You can use different brands of the single-antigen vaccine for the vaccine doses.



Vaccination of Premature Babies

- Premature babies born to HBsAg-positive mothers or mothers with unknown status must get HBIG AND hepatitis B vaccine less than 12 hours after birth. If these babies weigh less than 2,000 grams at birth, do not count the first dose of hepatitis B vaccine as one of the doses in the series. The baby should get three additional doses of hepatitis B vaccine, starting when medically stable and at least 1 month of age. ([MMWR, 2018](#)). This will be a total of 4 doses.
- Premature babies born to HBsAg-negative mothers, regardless of birth weight, should get vaccinated at the same chronological age and with the same schedule and precautions as full-term babies. Use the full recommended dose of each vaccine, because divided or reduced doses cannot count as valid. Studies demonstrate that decreased seroconversion rates might occur among certain premature babies with low birth weight (less than 2,000 grams) after getting hepatitis B vaccine at birth. However, by chronological age 1 month, all premature babies regardless of initial birth weight or gestational age [can respond as adequately as older and larger babies](#).

Vaccine Specifics: Recommended Doses of Currently Licensed Monovalent Hepatitis B Vaccines

Recombivax and Engerix-B vaccines both have three doses in their series. Engerix-B also is licensed for a four-dose series given at 0, 1-2, and 6 months. Dialysis patients should get Engerix-B at 0, 1, 2, and 6 months.

Key:
HBsAg = Hepatitis B surface antigen
mcg = microgram
mL = milliliter
GSK: GlaxoSmithKline

Group	Merck Recombivax HB Dosage	GSK Engerix-B Dosage
Babies, ⁴ children & adolescents (0–19 years of age)	5 mcg (0.5 mL) ⁵ Pediatric/adolescent formulation. YELLOW cap and stripe on vial and cartons and orange banner on the vial labels and cartons stating “preservative free”	10 mcg (0.5 mL) ⁶ Pediatric formulation BLUE-top vial Single-dose vials and prefilled disposable TIP-LOK syringe
Adolescent (11–15 years of age) Merck (11–19 years of age) GSK A two-dose series for adolescents (11-15) is also acceptable	10mcg (1.0 mL) Adult formulation GREEN cap and stripe vial and orange banner on vial label	10mcg (0.5 mL) OLIVE GREEN top vial
Adults (20 years & older)	10 mcg (1.0 mL) Adult Formulation GREEN-top vial	20 mcg (1.0 mL) Adult Formulation ORANGE-top vial
Predialysis and dialysis patients	40 mcg (1.0 mL) Dialysis formulation BLUE cap and stripe vial with orange banner	40 mcg (2.0 mL) (Two 20 mcg doses) Adult formulation ORANGE-top vial

Sources:

- [MMWR, Centers for Disease Control, January 12, 2018](#)
- [Recombivax HB package insert](#), March 2014
- [Engerix B package insert](#), December 2015

⁴ Infants born to HBsAg-positive mothers should also receive hepatitis B immune globulin (HBIG) 0.5 mL intramuscularly at a site different from that used for the hepatitis B vaccine.

⁵ Change in dose, licensed in 1998. Infants born to HBsAg-negative mothers now receive the same dose as infants born to HBsAg-positive mothers. “If the suggested formulation is not available, the appropriate dosage can be achieved from another formulation provided that the total volume of vaccine administered does not exceed 1 mL.”

⁶ Change in adolescent dose, licensed in 1995.

Vaccine Specifics: Administering HBIG

Route and Site

For newborns and babies: Give HBIG intramuscularly into the anterolateral thigh muscle.

Dose and Schedule

Newborns and babies should get 0.5 ml of HBIG within 12 hours of birth. They should also get dose 1 of hepatitis B vaccine at the same time at a separate injection site.

For other exposed persons, the dose of HBIG is 0.06 mL per kilogram of body weight. To calculate the dose:

- Convert body weight to kilograms (kg)
- Multiply the number of kilograms by 0.06 mL

For example, if the person weighs 110 pounds, the number of kilograms = $110 \text{ lbs} \div 2.2$ (number of pounds per kilogram) = 50.0 kg. The correct dose of HBIG then would be 50.0 kg x 0.06 (the amount per kg), giving a dose of 3.0 mL.

HBIG Dosage at a Glance

Use the following table to identify dosage based on weight.

Body weight in pounds (lbs)	Body Weight in kilograms (kg)	Dose in milliliters (mL)
100	45.5	2.7
110	50.0	3.0
120	54.5	3.3
130	59.1	3.5
140	63.6	3.8
150	68.2	4.1
160	72.7	4.4
170	77.3	4.6
180	81.8	4.9
190	86.4	5.2
200	90.9	5.5
210	95.5	5.7
220	100.0	6.0
230	104.5	6.3
240	109.1	6.5
250	113.6	6.8

Dose = 0.06 mL per kg of body weight; 1 kg = 2.2 lbs

Vaccine Specifics: Storing and Handling Hepatitis B Vaccine and HBIG

Always read the package insert. Read the table below for storage and handling supplemental information, but this does **not** take the place of the package insert.

Shipping Requirements:	Use insulated container. Must ship with refrigerant.
Condition on Arrival:	Should not have been frozen. Refrigerate on arrival.
Storage Requirements:	Refrigerate immediately upon arrival. Store at 2°-8°C (35°-46°F). Do not freeze.
Shelf Life/Expiration:	Hepatitis B Vaccine - up to 3 years. Check date on container or vial. HBIG - up to 12 months. Check date on container or vial.
Instructions for Reconstitution or Use:	Inspect visually for particulate matter or discoloration. Shake vial or fill syringe well before use.
Shelf Life after Reconstituting or Opening:	Check expiration date on vial, or manufacturer-filled syringe. Give the vaccine shortly after withdrawal. If pre-filled syringe, administer after the needle is attached to the syringe.
Special Instructions:	Rotate stock so that you use the material with the earliest expiration date first.

Best Practices for Storing and Handling All Vaccines

- Have policies and procedures in place to rotate stock and check expiration date of vaccine weekly. Use vaccine with earliest expiration date so none become outdated.
- Do not use outdated vaccine.
- Never store vaccine in refrigerator door.
- When transporting vaccine, always use an insulated container with ice packs.
- [Vaccine storage and handling information from the Department of Health](#)
- [Vaccine storage and handling recommendations and guidelines from the CDC](#)

Vaccine Specifics: Ages and Intervals

The table below shows hepatitis B vaccine (hepB) doses, with recommended ages, intervals, and minimum ages for getting the vaccines.

*Recommended and Minimum Ages and Intervals between Doses**

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum interval to next dose
HepB-dose 1**	Birth	Birth	1-4 months	4 weeks
HepB-dose 2	1-2 months	4 weeks	2-17 months	8 weeks
HepB-dose 3***	6- months	24 weeks	—	—

* Source: [Epidemiology and Prevention of Vaccine-Preventable Diseases, CDC](#)

** Combination vaccines with a hepatitis B component are available (Comvax, Pediarix, and Twinrix). These vaccines **should not be administered to infants younger than 6 weeks** because other components in the vaccines are not suitable for this age group (i.e., Hib, DTaP, HepA, and IPV).

*** Hepatitis B-dose 3 should be administered at least 8 weeks after dose 2 and at least 16 weeks after dose 1.

Laboratory Reporting

According to [WAC 246-101-201](#), labs are required to report acute hepatitis B infection within 24 hours to the LHJ, and HBsAg, HBeAg, and HBV DNA positive results monthly. Pregnancy status is NOT currently a required field in these reports. However, to improve identification of HBsAg-positive women, 4 major commercial labs indicate pregnancy status of HBsAg-positive women on lab reports sent to LHJs. As more labs work to improve this identification, it is expected that the proportion of hepatitis B labs with pregnancy status will increase.

Lab indicators for probable pregnancy include:

- HBsAg test ordered as part of prenatal panel
- Individual prenatal HBsAg test
- Pregnancy-related diagnostic code (ICD-9/ICD-10) or pregnancy status indicated on requisition form
- "Pregnant" or "prenatal" is included in an HL7 messaging segment (for transferring data from one electronic system to another)

Laboratory Screening: Guidelines

This section identifies which screening test(s) to order for pregnant women and babies.

HBsAg: Pregnant Women

A positive HBsAg screening test identifies HBV-infected pregnant women. HBV DNA testing should be done for all HBsAg-positive pregnant women to guide the use of maternal

antiviral therapy during pregnancy for the prevention of perinatal HBV transmission. Babies born to HBsAg-positive mothers are at high risk of infection unless they receive the proper post-exposure prevention. The American Association for the Study of Liver Diseases (AASLD) suggests maternal antiviral therapy when the maternal HBV DNA is less than 200,000 IU/mL.

Women whose HBsAg lab results during pregnancy are not available but other evidence is suggestive of maternal HBV infection (e.g., presence of HBV DNA, HBeAg-positive, or mother known to be chronically infected with HBV) should have the infant managed as if born to an HBsAg-positive mother. In certain cases, HBsAg tests may be reported inconclusively as “indeterminate,” “borderline,” or “weakly positive.” Check with the lab to make sure a repeat HBsAg confirmatory assay was done. If the repeat HBsAg assay is still not conclusive, repeat the HBsAg test in the last trimester of pregnancy. If the mother’s HBsAg status is still unknown at the time of delivery, assume she is HBsAg-positive and treat her infant accordingly.

If it is not possible to determine the mother’s HBsAg status (e.g., when a parent or person with lawful custody safely surrenders an infant confidentially shortly after birth), the vaccine series should be completed according to the recommended schedule for infants born to HBsAg-positive mothers.

[HBsAg and Anti-HBs: Babies 9-12 months, or 1-2 months after the final dose](#)

For babies born to HBsAg-positive mothers, blood (or serologic) testing after proper post-exposure prevention shows whether the baby is infected with or fully protected against HBV. If the baby is on schedule with hepatitis B vaccine, testing should happen at 9-12 months of age or 1-2 months after the final. Testing should not be performed before age 9 months to avoid detection of anti-HBs from HBIG administered during infancy and to maximize the likelihood of detecting late HBV infection (MMWR, 2005). Testing for HBsAg identifies infected babies who need medical follow-up. Testing for anti-HBs identifies HBsAg-negative babies who still need to repeat the vaccine series for full protection.

Interpret results this way:

4. HBsAg (-) and anti-HBs (+) = infant is immune or fully protected against HBV.
5. HBsAg (+) and anti-HBs (-) = infant is infected and needs medical follow-up.
6. HBsAg (-) and anti-HBs (-) = infant is still *susceptible* and needs three additional doses of hepatitis B vaccine followed by re-testing.

[HBsAg and Anti-HBs OR Anti-HBc only: Household Contacts and Sexual Partners](#)

Household contacts and sexual partners of HBsAg-positive pregnant women are at high risk of becoming infected. Both should get pre-vaccination testing if possible and those who are *susceptible* should be immunized. **Sexual contacts of HBsAg-positive women should also get post-vaccination testing.** Health care providers make the decision about which test(s) to order. The following information may help in the decision-making process.

6. Testing for HBsAg identifies acute and chronic (carrier) HBV infections.

7. Testing for anti-HBs, a marker of immunity, identifies antibody to Hepatitis B Surface Antigen. Its presence indicates protective antibody from HBIG or hepatitis B vaccine.
8. Testing for anti-HBc identifies current and previous HBV infections but does not distinguish between the two.
9. A positive test for HBsAg or anti-HBs indicates the individual does not need vaccine.
10. A positive anti-HBc alone indicates the individual should be referred to his or her health care provider for further evaluation.

Sources:

- [MMWR, Centers for Disease Control, January 12, 2018.](#)
- Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases (Pink Book), 13th edition. [Hepatitis B chapter.](#)

Laboratory Screening: Serologic Markers

Use the table below* to find explanations of hepatitis B markers (antibodies) in blood serum.

Abbreviation	Full Name	Definition/Comments
HBsAg	Hepatitis B surface antigen	Detection of a large quantity of surface antigen(s) of HBV in serum indicates infection.
Anti-HBs	Antibody to Hepatitis B surface antigen	Detection of antibodies to HBsAg. Indicates past infection with immunity to HBV, passive antibody from HBIG, or immune response from hepatitis B vaccine.
HBcAg	Hepatitis B core antigen	A marker of current or past hepatitis B infection.
Anti-HBc	Antibody to Hepatitis B core antigen	Detection of antibodies to HBc indicates prior or recent infection with HBV.
IgM anti-HBc	IgM class antibody	Detection of IgM class antibodies indicates recent infection with HBV. IgM is detectable for 4 to 6 months after infection.
HBeAg	Hepatitis B e antigen	Detection of HBeAg correlates with higher levels of HBV in serum and increased infectivity.
Anti-HBe	Antibody to Hepatitis B e antigen	Presence of Anti-HBe in the serum of HBsAg carrier indicates lower titer of HBV.

* Source: [Immunization Action Coalition](#)

Laboratory Screening: Interpreting Test Results

Use this table* for help interpreting hepatitis B test results, also called the hepatitis B panel:

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 ≥ 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: 5. May be recovering from acute HBV infection. 6. May be distantly immune, but the test may not be sensitive enough to detect a very low level of anti-HBs in serum. 7. May be susceptible with a false positive anti-HBc. 8. May be chronically infected and have an undetectable level of HBsAg present in the serum.	Use clinical judgment

* Source: [Immunization Action Coalition](#)

** Post-vaccination testing, when recommended, should be done 1-2 months after the last dose of vaccine. Infants born to HBsAg-positive mothers should be tested for HBsAg and anti-HBs after they've had at least three doses of a licensed hepatitis B vaccination series. This means at 9-12 months, typically at the next well-child visit.

References and Prenatal Resources

This section contains references and helpful resources for prenatal care providers.

References

- CDC Perinatal Hepatitis B Prevention Program [Case Transfer Form](#)
- CDC Hepatitis B Vaccine: What You Need to Know – [Vaccine Information Sheet \(VIS\)](#)
- [Hepatitis B Facts: Testing and Vaccination](#)
- MMWR (Morbidity and Mortality Weekly Report) Recommendations and Reports – [Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices](#)
- MMWR (Morbidity and Mortality Weekly Report) Recommendations and Reports – [Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection](#)
- WAC 246-101-101 [Notifiable Conditions and the Health Care Provider](#)
- List of [Washington state local health jurisdiction perinatal hepatitis B coordinators](#)

Prenatal Resources

- Stickers for medical charts. *Print these stickers on Avery mailing labels 5163 to flag hospital medical charts of babies born to HBsAg-positive mothers. Print in color.*
 - Prenatal stickers: [Reporting HBsAg-Positive Mothers Required](#)
 - Hospital Sticker: ALERT: Give HBIG and Hepatitis B Vaccine: [available upon request](#)
 - Pediatric Sticker: baby requires hepatitis B immunization: [available upon request](#)
- Order [hepatitis B materials from DOH](#)
- [WAC 246-101-101](#), Notifiable Conditions and the Health Care Provider:
- [Pregnancy and Hepatitis B](#) (Hepatitis B Foundation)