

MISSOURI DEPARTMENT OF

HEALTH & SENIOR SERVICES

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SENIOR SERVICES

Perinatal Hepatitis B

Case Management & ShowMe WorldCare

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Perinatal Hepatitis B Transmission

- A Hepatitis B viral (HBV) infection in a pregnant woman poses a serious risk to her infant.
- An HBV infection in infants can lead to long-term serious health effects if left untreated.
- Perinatal transmission is preventable.
- Vaccination is the best way to prevent HBV infection.
- Without intervention, approximately ninety percent of infants born to HBsAg-positive women in the US will acquire chronic HBV infection, about one-fourth of whom will eventually die from chronic liver disease.

Content source: Clinical Overview of Perinatal Hepatitis B | Hepatitis B | CDC

Perinatal Hepatitis B Prevention

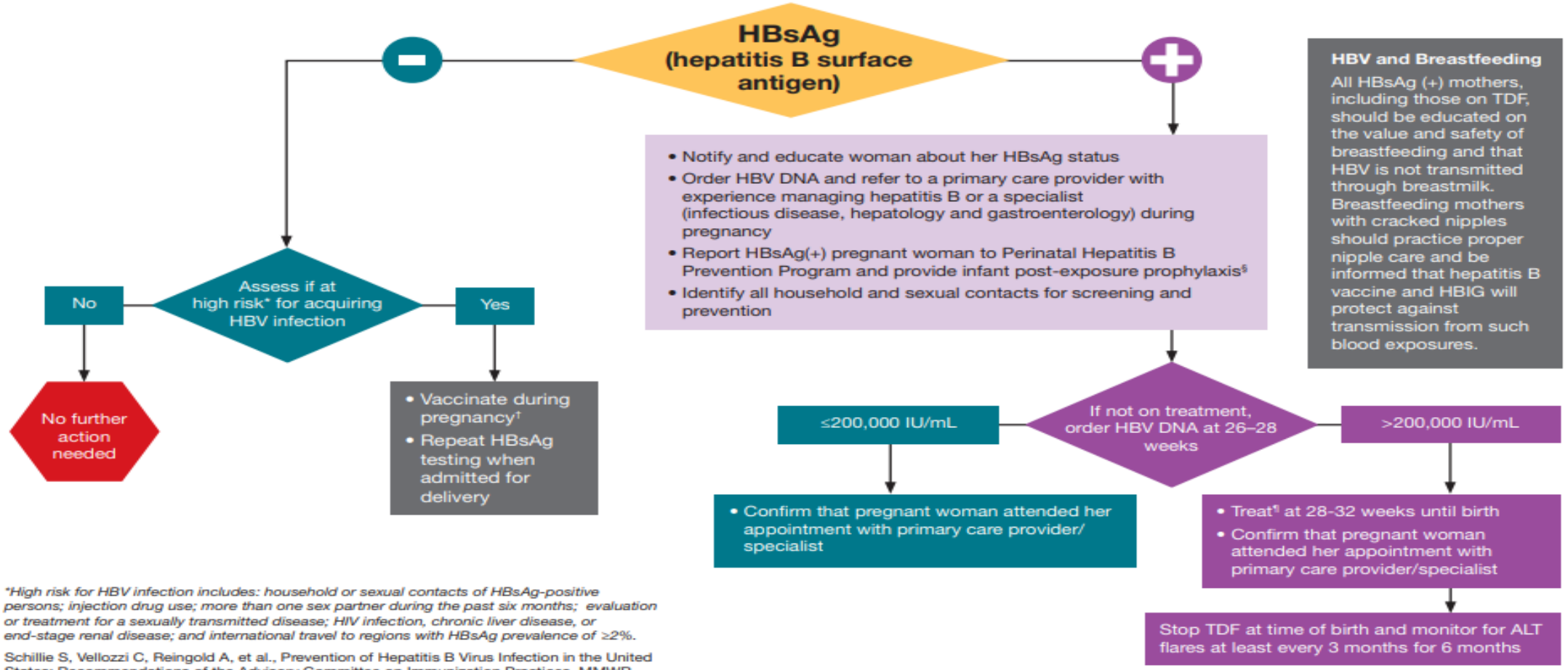
Transmission can be prevented by:

- Identifying an HBV-infected pregnant woman at their first prenatal visit by ordering HBsAg testing.
- Providing hepatitis B immune globulin and hepatitis B vaccine to their infants within 12 hours of birth.
- Completion of the hepatitis B vaccine series for the infant in a timely manner.
- Post vaccination serology testing to confirm immunity of the infant.



Prevent Hepatitis B

Screening and Referral Algorithm for Hepatitis B Virus (HBV) Infection Among Pregnant Women



HBV and Breastfeeding

All HBsAg (+) mothers, including those on TDF, should be educated on the value and safety of breastfeeding and that HBV is not transmitted through breastmilk. Breastfeeding mothers with cracked nipples should practice proper nipple care and be informed that hepatitis B vaccine and HBIG will protect against transmission from such blood exposures.

**High risk for HBV infection includes: household or sexual contacts of HBsAg-positive persons; injection drug use; more than one sex partner during the past six months; evaluation or treatment for a sexually transmitted disease; HIV infection, chronic liver disease, or end-stage renal disease; and international travel to regions with HBsAg prevalence of ≥2%.*

Schillie S, Vellozzi C, Reingold A, et al., Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. MMWR Recomm Rep 2018; 67(No.RR-1):1-34.

Originally adapted with permission from the Hepatitis B Foundation, from Apuzzio et. al, 2012. http://www.hepb.org/assets/Uploads/Final-OB-publications-The-Female-Patient.pdf

†Vaccinate if not previously vaccinated with a complete hepatitis B vaccine series (refer to Schillie et. al. for more information).

§Hepatitis B vaccine birth dose and Hepatitis B immune globulin (HBIG) (refer to Schillie et. al. for more information).

¶Tenofovir disoproxil fumarate (TDF) should be used for the treatment of pregnant women.

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The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

www.cdc.gov/hepatitis

Updated December 2021

Perinatal Hepatitis B Case Management



Initially, case management contacts the pregnant woman to inform her that she will be followed, provide Hepatitis B information and education as needed, and offer Hepatitis B testing and vaccination to household members or sexual contacts.

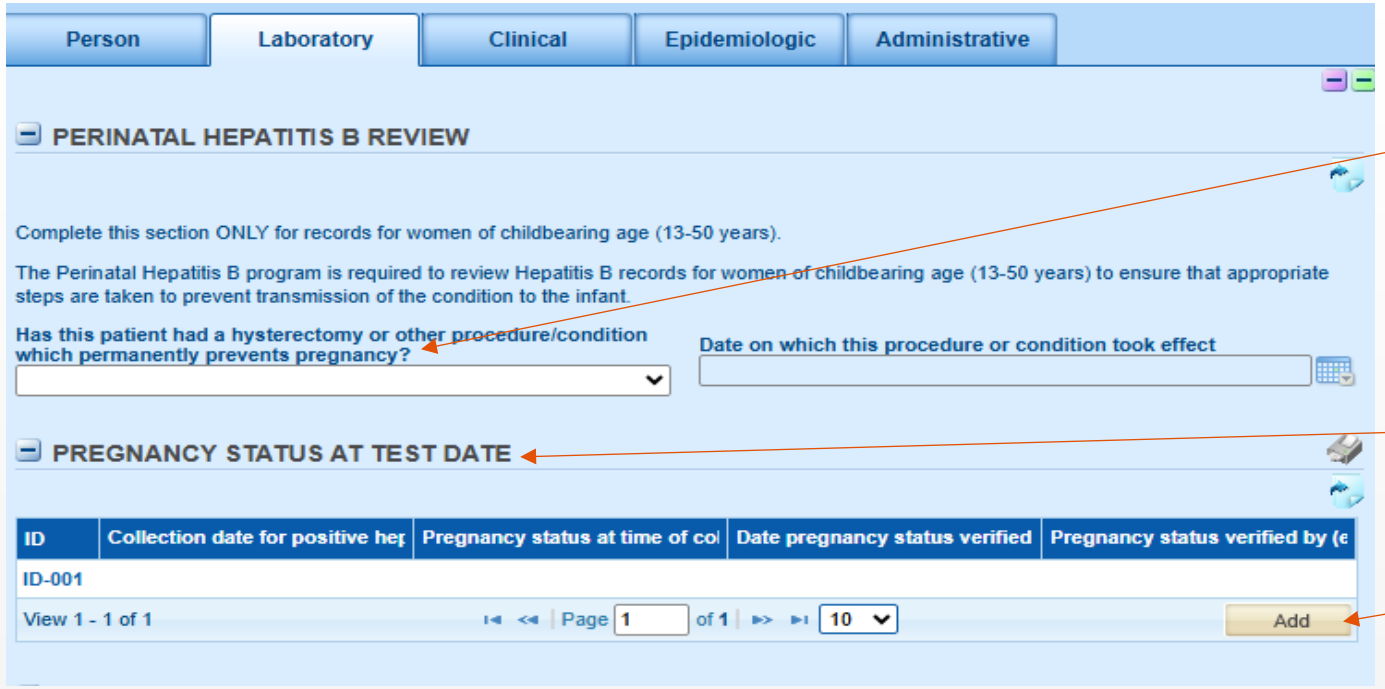
Case management follows the pregnant woman to verify that the infant receives HBIG (Hepatitis B Immunoglobulin - a solution of antibodies that help prevent infection) and the Hepatitis B vaccine birth dose within 12 hours of birth. Case management then continues to follow the infant to ensure they receive the rest of the Hepatitis B vaccine series within the correct time frame. This is followed by Post-Vaccine Serology Testing (PVST), which ensures the infant has developed immunity.

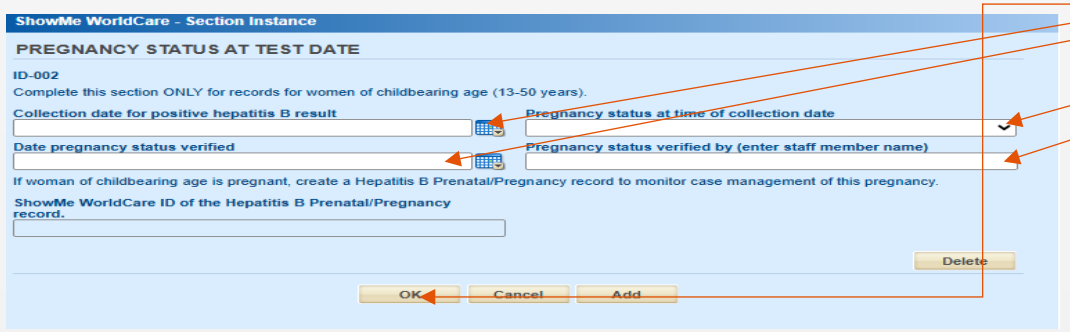
LPHA GUIDELINES FOR PREGNANCY FOLLOW UP

- All women aged 13-50 with lab results indicating a possible HBV infection are to be followed to determine pregnancy status.
- Tasks in ShowMe WorldCare (SMWC) will be assigned.
  - Contact the provider who ordered the test.
  - Contact the client directly.
  - If not pregnant, update SMWC indicating status, close out the task, and you are finished.
  - If the client is pregnant, enrollment in case management is required. Update SMWC with status, then create Hep B (Pregnancy) Prenatal Condition.

LPHA GUIDELINES cont.

Where to update pregnancy status in SMWC





*** If you can determine that a client has had a hysterectomy or tubal ligation, update the Perinatal Hepatitis B Review. This indicates that pregnancy status no longer needs to be checked.**

When you receive a task assignment for pregnancy status, you will update the Pregnancy Status At Test Date. Click on the Add button, fill out the four sections, using your name as the person verified by. Click OK, then go to the bottom of the page and click Save.

Close out the task assignment when done.

LPHA GUIDELINES FOR CASE MANAGEMENT

- Complete page one of the PHB-29 form for case management and upload to the file cabinet in SMWC. Enter this information on the Hep B (Pregnancy) Prenatal condition in SMWC.
  - Phone provider and client, so the form can be completed, to include:
    - ✓ Mother's full name and date of birth.
    - ✓ Mother's address and phone number.
    - ✓ Estimated due date.
    - ✓ OB/Gyn's name, address and phone number.
    - ✓ The delivering hospital's name, address and phone number.
    - ✓ Mother's insurance type. (Private, Medicaid, Military, Unk)

CASE MANAGEMENT GUIDELINES
(CONTINUED)

- When you contact the client, please educate them on Hep B and what case management entails. Congratulatory kits were mailed to each LPHA to send to mothers when pregnancy is identified. Mail out after you have contacted them regarding case management.
- When you contact the OB/Gyn provider, please remind them that the positive HBsAg status must be sent to the delivering hospital, for them to prepare to treat the infant at birth.
  - The mother should also be tested for HBV DNA viral load at ~ 28 weeks to determine if antivirals are needed.
- When you contact the pediatrician's office, please educate them on the requirements needed for infants born to Hep B-positive women.
- There are letters and educational information online. (see resources)

Congratulatory Kit

- To be mailed to the mother after speaking to them about case management.
- Includes card, brochure, and vaccination magnet, all held in a vinyl pouch.
- Contact the PHB Program Manager when you need more; these are not available through the warehouse.



Hepatitis B Screening, Testing, and Management of Pregnant Women

Screening with HBsAg should be performed in each pregnancy, regardless of previous HBV vaccination or previous negative HBsAg test results. Offer triple panel (HBsAg, anti-HBs) screening to all pregnant women ≥18 years who have not previously been screened with a triple panel.

	FIRST TRIMESTER	SECOND TRIMESTER	THIRD TRIMESTER	DELIVERY AND POSTPARTUM
SCREENING AND TESTING	- Screen all pregnant women for HBsAg* at first prenatal visit - All positive HBsAg results should be confirmed with a licensed HBsAg neutralizing test according to manufacturer labeling	- Screen those not previously tested during current pregnancy - Check HBV DNA for those who are HBsAg positive and not on treatment at 26-28 weeks	- Screen those not previously tested during current pregnancy - Check HBV DNA for those who are HBsAg positive if not previously done	- Screen those not previously tested during current pregnancy -Retest pregnant women with clinical hepatitis or risk exposures† during pregnancy at the time of admission to the hospital or birthing facility for delivery
INTERVENTIONS	- After serology is drawn, initiate vaccine series with Engerix-B, Recombivax-HB or Twinrix§ for those who have not previously been vaccinated - If HBsAg positive, check HBV DNA and refer to a provider with expertise in hepatitis B management during pregnancy - Report HBsAg positive to perinatal program -Perinatal Hepatitis B Coordinator List | CDC	If HBV DNA is ≥ 200,000 IU/mL, treat at 28-32 weeks until birth	If HBV DNA is ≥ 200,000 IU/mL, treat at 28-32 weeks until birth	- Post-exposure prophylaxis** for all infants born to HBsAg positive pregnant women and for infants weighing less than 2,000 grams born to pregnant women with unknown HBsAg status - Breastfeeding is safe - Engage with perinatal HB program - Refer mother to specialty care - Ensure infant receives timely vaccination and post-vaccination serologic testing

† Recent or current injection-drug use, having had more than one sex partner in the previous 6 months or an HBsAg-positive sex partner, having been evaluated or treated for an STI

§Heplisav and Prehevbrio are not recommended during pregnancy due to lack of safety data; Twinrix is a combination hepatitis A and hepatitis B vaccine that can be given during pregnancy when indicated (https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html)

**Post-exposure prophylaxis: administer HBIG and hepatitis B vaccine to the infant within 12 hours of birth

Adapted from:

Weng MK, Doshani M, Mohammed AK, et al. Universal Hepatitis B Vaccination in Adults Aged 19–59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022.

Conners EE, Panagiotakopoulos L, Hofmeister MG, et al. Screening and Testing for Hepatitis B Virus Infection: CDC Recommendations — United States, 2023.

Schillie S, Vellozzi C, Reingold A, et al. Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices.

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Management of Infants Born to Women with Hepatitis B Virus Infection for Pediatricians

Management of Perinatally Hepatitis B Virus (HBV)-Exposed Infants with Birth Weights ≥2,000 grams (≥4.4 lbs)

Administer hepatitis B immune globulin (HBIG) and single-antigen vaccine in separate limbs at birth (≤12 hours).
Complete vaccine series with 2 additional doses of single-antigen vaccine (3 total doses) OR with 3 additional doses of combination vaccine (4 total doses).

	≤12 hours of birth	1 mo	2 mos	4 mos	6 mos
Single-Antigen Vaccine Series*	1st dose	2nd dose			3rd dose
Single-Antigen and Combination Vaccine Series*	1st dose (*single-antigen vaccine*)		2nd dose	3rd dose	4th dose

Administer the final dose no earlier than 6 months of age (minimum age 164 days includes 4-day grace period). Complete postvaccination serologic testing (PVST) at 9–12 months of age (or 1–2 months after final dose, if series delayed) by testing for ONLY hepatitis B surface antigen (HBsAg) and antibodies to hepatitis B surface antigen (anti-HBs). Do NOT test for antibodies to hepatitis B core antigen (anti-HBc).

Management of Perinatally Hepatitis B Virus (HBV)-Exposed Infants with Birth Weights <2,000 grams (<4.4 lbs)

Administer HBIG and single antigen vaccine in separate limbs at birth (≤12 hours).
Complete vaccine series with 3 additional doses of single antigen or combination vaccine (4 total doses).

	≤12 hours of birth	1 mo	2 mos	3 mos	4 mos	6 mos
Single-Antigen Vaccine Series*	1st dose	2nd dose	3rd dose			4th dose
Single-Antigen and Combination Vaccine Series*	1st dose (*single-antigen vaccine*)		2nd dose		3rd dose	4th dose

Administer the final dose no earlier than 6 months of age (minimum age 164 days includes 4-day grace period). Complete postvaccination serologic testing (PVST) at 9–12 months of age (or 1–2 months after final dose, if series delayed) by testing for ONLY hepatitis B surface antigen (HBsAg) and antibodies to hepatitis B surface antigen (anti-HBs). Do NOT test for antibodies to hepatitis B core antigen (anti-HBc).

Interpreting Post Vaccination Serologic Test (PVST) Results

Immune	Still Susceptible	Infected
HBsAg-Negative Anti-HBs-Positive Antibody Level ≥10mIU/mL **No further follow up necessary** Report results to your Perinatal Hepatitis B Prevention Program (PHBPP) coordinator. https://www.cdc.gov/vaccines/vpd/hepb/hcp/perinatal-contacts.html	HBsAg-Negative Anti-HBs-Negative Antibody Level <10mIU/mL **Needs additional follow up and vaccines** Contact your PHBPP coordinator for assistance https://www.cdc.gov/vaccines/vpd/hepb/hcp/perinatal-contacts.html	HBsAg-Positive Anti-HBs-Negative Antibody Level <10mIU/mL **Needs additional follow up** Contact your PHBPP coordinator for assistance https://www.cdc.gov/vaccines/vpd/hepb/hcp/perinatal-contacts.html

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Hepatitis B Virus FAQs

What is hepatitis B virus (HBV)?

Hepatitis B is an infectious liver disease. The infection can be acute or chronic. Chronic infections can lead to cirrhosis, liver cancer, and premature death. Though usually asymptomatic, most infants (90%) who are infected with HBV will develop chronic infection and 25% will die prematurely from liver cancer or cirrhosis. HBV is transmitted through contact with infectious blood or body fluids or from a person who is infected (HBsAg+) to their newborn during delivery.

Can perinatal transmission be prevented?

Yes, perinatal transmission can be prevented by screening for HBsAg during every pregnancy. Infants born to HBsAg+ women should receive HBIG and a dose of single-antigen hepatitis B vaccine ≤12 hours of birth, followed by a complete series of hepatitis B vaccine, which is up to 94% effective in preventing perinatal transmission.

What if my practice identifies a Perinatally HBV-exposed newborn that did not receive HBIG before hospital discharge?

The infant should receive an urgent referral to receive HBIG, which can be administered up to 7 days after birth. If more than 7 days have passed, HBIG is unlikely to be effective in preventing transmission. However, it is still important for the infant to complete the hepatitis B vaccine series, and providers should adhere to the minimum intervals between doses.

What is postvaccination serologic testing (PVST) and why is it necessary?

Postvaccination serologic testing (PVST) is recommended for infants and children born to women with hepatitis B infection. 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. PVST should occur between 9–12 months of age or 1–2 months after vaccine series completion, if the series is delayed. Note: Tests for antibodies to hepatitis B core antigen (anti-HBc) should *not* be ordered.

Why aren't antibodies to hepatitis B core antigen (anti-HBc) included in PVST?

A positive anti-HBc test result indicates a past or current hepatitis B infection. In infants, a positive anti-HBc test may result from measuring passively acquired maternal antibodies that are detectable in HBV-exposed infants up to 24 months of age.

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

Testing performed before 9 months of age can provide inaccurate anti-HBs results by detecting passive antibodies from HBIG administered at birth rather than actual response to the hepatitis B vaccine. Also, for infants who receive HBIG at birth, there can be a prolonged HBV incubation period. Waiting until 9 months of age can maximize detection of late HBV infection if present.

If vaccine series completion is delayed and I am concerned that the infant will NOT return for PVST, can I perform testing immediately after completing the vaccine series?

No, transient HBsAg positivity has been reported for up to 18 days after vaccination. To assure accurate PVST results, the test must be conducted at 9–12 months of age or 1–2 months after vaccine series completion if the series is delayed.

Can PVST be delayed until the infant is older?

No, anti-HBs concentrations decline rapidly within the first year after the series is completed. Delaying PVST beyond the recommended time frame may yield a negative/non-reactive anti-HBs result, making it difficult to determine if immunity has waned or vaccine has failed. This ambiguity may lead to unnecessary revaccination. For this reason, providers are encouraged to test at 9–12 months of age or 1–2 months after vaccine series completion if the series is delayed.

Is assistance available for management of HBV-exposed infants?

Yes, CDC provides funding and technical assistance for perinatal hepatitis B prevention programs (PHBPPs) in all 50 states and 14 other jurisdictions. All Perinatally HBV-exposed infants should be managed by the PHBPP. To find contact information for the perinatal hepatitis B prevention program coordinator in your area, please go to: https://www.cdc.gov/vaccines/vpd/hepb/hcp/perinatal-contacts.html

PHBPP Coordinator contact information:

CDC Tip Sheet is adapted with permission from the Georgia Department of Public Health publication, "A Pediatric Guide: Caring for Infants Born to Hepatitis B-Infected Mothers."

CASE MANAGEMENT GUIDELINES
(CONTINUED)

- Approximately 4-6 weeks prior to delivery, the LPHA will contact the designated delivery hospital to make them aware of the upcoming birth.
- On the estimated delivery date, please contact the hospital to see if the client has delivered the infant.
  - Request birth information for the PHB-29. Complete page 2 (infant page).
    - ✓ Remember to collect the date and time that HBIG and Hep B #1 were administered. This information will be updated in ShowMeVax (SMV) by the PHB Program Manager once the form is saved in the file cabinet of the Hep B (Infant) Perinatal Condition.

CASE MANAGEMENT GUIDELINES
(CONTINUED)

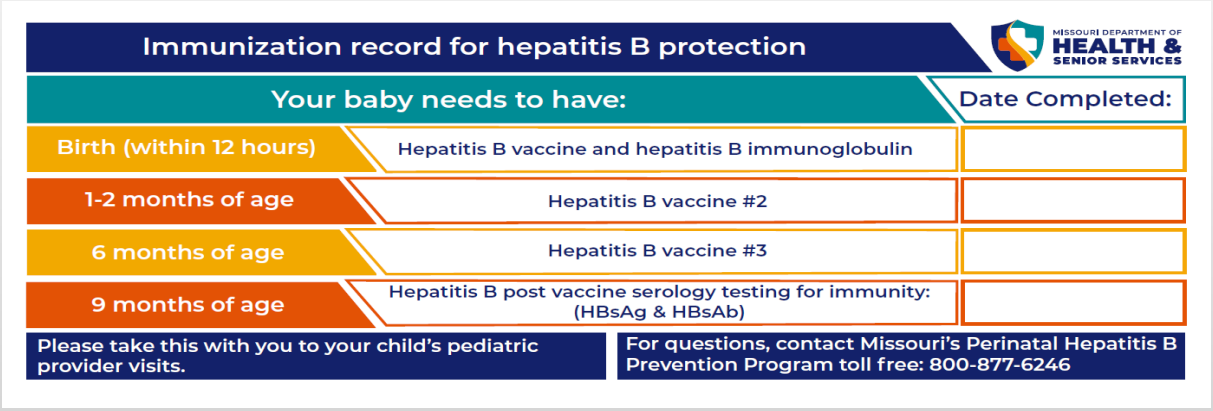
- The infant will need to be linked to the mother in SMWC.
- First, create the infant in SMWC to include all demographic information. Newborns are not automatically loaded in SMWC.
- Second, create a Contact Investigation from the Mother's Hep B (Pregnancy) Prenatal condition.
- Once the infant has been linked, change the infant's condition type from Hep B (Pregnancy) Prenatal to Hep B (Infant) Perinatal.
  - Process status = Under Investigation
- The Hep B (Infant) Perinatal condition will be where case management for the child will take place.
- Upload all documentation in the file cabinet of the infant record.
  - PHB-29's, vaccine information, PVST

CASE MANAGEMENT GUIDELINES
(CONTINUED)

- Once an infant is linked, change the process status of the mother's Hep B (Pregnancy) Prenatal condition to 'Pending Infant Follow-up' on the Admin tab. This will stay in this status until the infant is closed out.
  - Close out the mother at the same time as the infant.
    - ✓ Process Status = Closed by Agency, Ready for DHSS QA.
  - Close out the infant when case management is complete, this could be via PVST, Lost to Follow-up, Transfer to another State, etc.
    - ✓ Process Status = Closed by Agency, Ready for DHSS QA
      - When moved to another State, please contact the PHBPP Program Manager.

CASE MANAGEMENT GUIDELINES
(CONTINUED)

- Follow infants to ensure completion of Hep B vaccine series.
  - Contact infant provider and parents to ensure Hep B #2 is completed at 1-2 months of age and Hep B #3 at 6 months of age.
    - ✓ Update PHB-29 after each vaccination and upload to the file cabinet in SMWC. Vaccine information will be updated in ShowMeVax, if not already there.



Immunization record for hepatitis B protection

MISSOURI DEPARTMENT OF HEALTH & SENIOR SERVICES

Your baby needs to have:		Date Completed:
Birth (within 12 hours)	Hepatitis B vaccine and hepatitis B immunoglobulin	
1-2 months of age	Hepatitis B vaccine #2	
6 months of age	Hepatitis B vaccine #3	
9 months of age	Hepatitis B post vaccine serology testing for immunity: (HBsAg & HBsAb)	

Please take this with you to your child's pediatric provider visits.

For questions, contact Missouri's Perinatal Hepatitis B Prevention Program toll free: 800-877-6246

CASE MANAGEMENT GUIDELINES
(CONTINUED)

- After the infant completes their vaccination series, it's time for Post Vaccine Serology Testing (PVST). Ideally, at 9 months of age.
- PVST consists of both HBsAg and HBsAb lab tests.
  - Be sure to give the provider the CPT Codes for the labs.
    - ✓ HBsAg: 87340 (positive = infected).
    - ✓ HBsAb: 86317 for the quantitative test (preferred).
      - Must be ≥ 10 mIU/mL for immunity.
    - ✓ HBsAb: 86706 for the qualitative test.
      - Positive equals immunity.
- When results are received, update SMWC and PHB-29 and upload to the file cabinet in SMWC.

CASE MANAGEMENT GUIDELINES
(CONTINUED)

- In a perfect world, case management is completed at 9 months of age. However, if vaccination is not completed within the recommended timeframe, it throws off the PVST timeframe. A few things to remember:
  - Continue working with parents and providers to finish vaccination series.
  - PVST can be completed 4-6 weeks after the last vaccine; the infant must be at least 9 months of age. (due to the half-life of HBIG).
  - Continue working with parents and provider to complete PVST until the child is 2 years of age and ages out of the program.

CASE MANAGEMENT GUIDELINES

ShowMe WorldCare

- With the introduction of SMWC, the ability to create Tasks will make Case Management easier.
- The PHB Program Manager will create a task and then assign it to the appropriate investigator with a due date.
  - The investigator should receive the notification and then follow up on what has been assigned.
  - Close out the task when completed.
  - Examples of tasks: Pregnancy Status Needed, PHB-29 Needed, Follow-up on 3rd Trimester HBV DNA Viral Load, Notice of Pending Birth to Hospital, Follow-up on Delivery, Hep B #2 needed, Hep B #3 needed, PVST.

Resources

- Perinatal Hepatitis B Case Management | Hepatitis B | Health & Senior Services (mo.gov) https://health.mo.gov/living/healthcondiseases/communicable/hepatitisb/casemanagement.php
- Hepatitis B | Health & Senior Services (mo.gov)
  https://health.mo.gov/living/healthcondiseases/communicable/hepatitisb/
- Perinatal Transmission of Hepatitis B virus | CDC
  https://www.cdc.gov/hepatitis/hbv/perinatalxmtn.htm
- Division of Viral Hepatitis | CDC https://www.cdc.gov/hepatitis/index.htm
- ShowMe WorldCare Resources: Pre/Perinatal Hep B Processes preperinatal-hep-b-processes.pdf
- PHB-29 580-3283 (4-2022) PERINATAL HEPATITIS B CASE MANAGEMENT FORM FOR HBSAG-POSITIVE PREGNANT OR NEWLY POSTPARTUM WOMEN
- State Public Health Lab MSPHL User Access Request Form

MISSOURI DEPARTMENT OF HEALTH & SENIOR SERVICES

QUESTIONS?

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Perinatal Hepatitis B Case Management | Hepatitis B | Health & Senior Services (mo.gov)

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