



# Perinatal Hepatitis B Prevention

Sarah Chicchelly, MPH | February 23, 2024

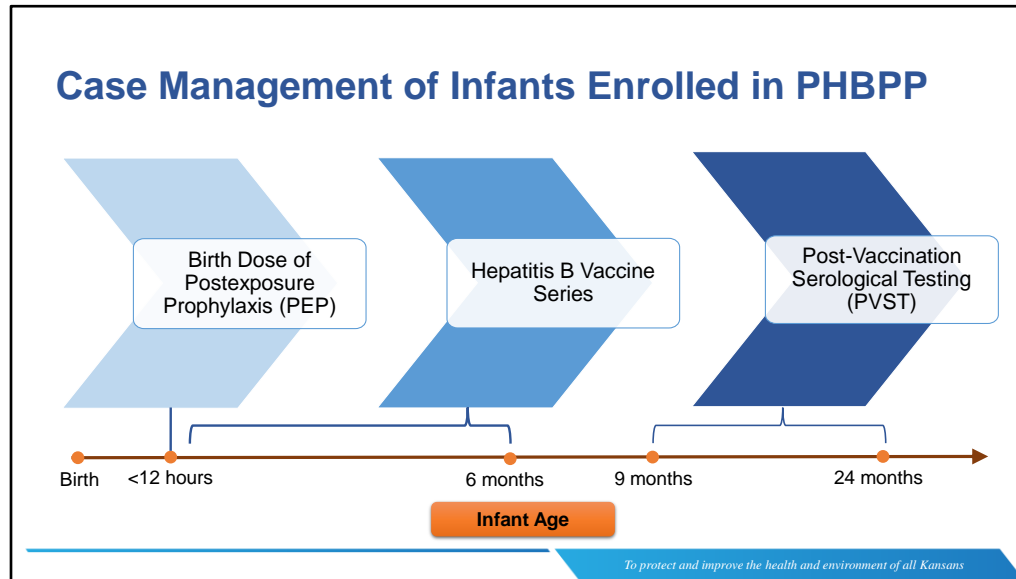
## Kansas Perinatal Hepatitis B Prevention Program (PHBPP)

- Established in 1990.
- Actively **identify infants** born to hepatitis B (HBV)-positive mothers and **perform case management** to ensure that the infant receives the recommended prevention measures and testing.
- Decentralized.
- Coordinated effort between prenatal care providers, hospitals, pediatricians and local health departments (LHDs).



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The KS PHBPP began in 1990 here at KDHE when the federal government began funding state- and territory-level perinatal hepatitis b prevention programs as part of a larger effort to eliminate HBV transmission in the US. The purpose of this program is to protect infants from perinatal transmission of hepatitis B virus (or HBV) through public health recommendations. The program functions to actively identify infants born to HBV-positive mothers and perform case management to ensure that each infant receives appropriate prevention measures as well as testing to verify protective immunity to HBV. Our program here in KS is decentralized, which means that the county health department where the infant resides has primary jurisdiction to perform follow-up whereas KDHE performs the surveillance portion and provides support and oversight for the case management portion. Thus, This program requires coordinated efforts between prenatal care providers, hospitals, pediatricians, and LHDs.



When a perinatally exposed infant is identified and enrolled in our program, there are three main steps to complete before we can consider them to have finished the program: Birth dose of postexposure prophylaxis (PEP) within the first 12 hours of life, the hepatitis B vaccine series, and post-vaccination serological testing (PVST) once that series is completed. We typically follow each infant until they complete all steps in the program and are shown to be immune to HBV or until they turn 2 years old, whichever comes first.

## Birth Dose of PEP

- Hepatitis B vaccine **AND** hepatitis B immunoglobulin (HBIG).
- Must be given **within 12 hours** of birth.
- Recommended for infants born to mothers with positive or unknown HBV status.



**\*\*Note: birth dose (vaccine only) is universally recommended within 24 hours of birth for infants born to mothers with negative HBV status.**

Link: [Birth Dose Recommendations](#)

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The first step in prevention involves birth dose of PEP, which consists of hepB immune globulin (HBIG) **AND** the first dose in the vaccine series. For infants born to mothers with positive or unknown HBV status, these must be given within 12 hours of birth. For infants born to HBV-negative mothers, birth dose of the vaccine is universally recommended within 24 hours if medically stable and weighing at least 2000g.

## Hepatitis B Vaccine Series

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

Administer hepatitis B immune globulin (HBIG) and single-antigen vaccine in separate limbs at birth ( $\leq 12$  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).

|  | $\leq 12$ hours of birth                               | 1 mo                 | 2 mos                | 4 mos                | 6 mos                |
|--|--|----------------------|----------------------|----------------------|----------------------|
| Single-Antigen Vaccine Series*                 | 1 <sup>st</sup> dose                                   | 2 <sup>nd</sup> dose |                      |                      | 3 <sup>rd</sup> dose |
| Single-Antigen and Combination Vaccine Series* | 1 <sup>st</sup> dose ( <i>single-antigen vaccine</i> ) |                      | 2 <sup>nd</sup> dose | 3 <sup>rd</sup> dose | 4 <sup>th</sup> 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).

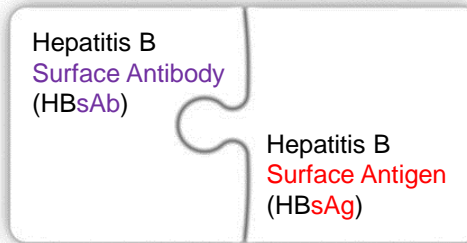
Links: [Pediatrician Tip Sheet](#) and [ACIP Vaccine Recommendations](#)

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Step 2 in perinatal hep B prevention is going to include completion of the vaccine series per ACIP guidelines. The schedules for perinatally exposed infants are depicted here and involve a 3-4 dose series to be completed at 6 months of age.

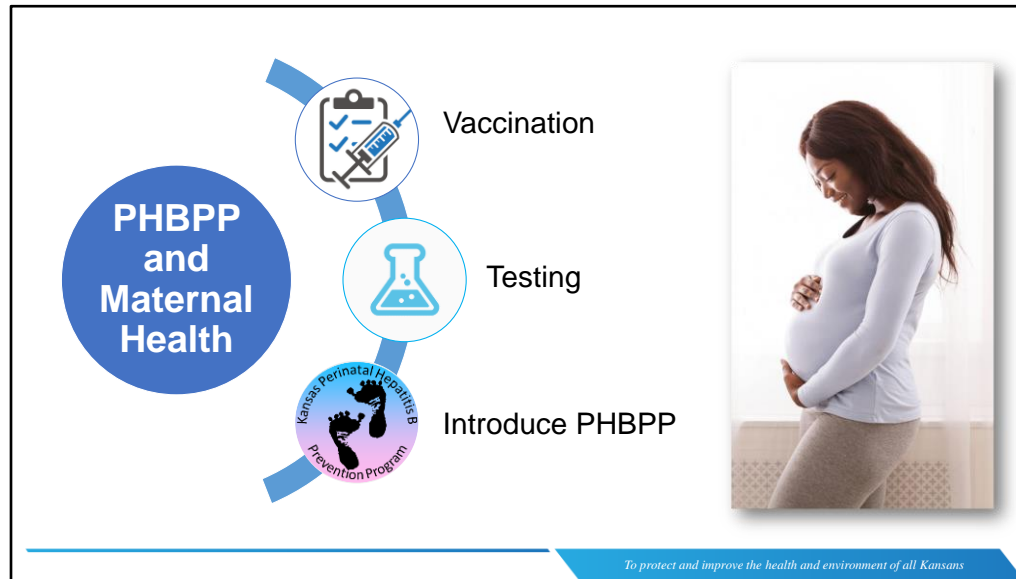
## Post-Vaccination Serological Testing (PVST)

- Once an infant has completed the vaccine series, they can be tested for HBV **at least 1-2 months** after final dose.
- Typically recommended at **age 9-12 months**, can be done at well-child checkups.



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And the third and final step in prevention is to test baby for HBV once they have completed the vaccine series. This can occur as soon as 1-2 months following that final dose and we typically recommend it at the 9 or 12 month well-child checkup. The PVST recommendation includes two specific tests: HepB **surface ANTIGEN** and hepB **surface ANTIBODY**. Surface antigen indicates whether baby is infected with hepatitis B, and surface antibody indicates whether they have developed a protective immune response from vaccination. Both results are necessary in determining whether additional vaccine doses are needed and whether baby will need to be referred to specialist care for management of infection.

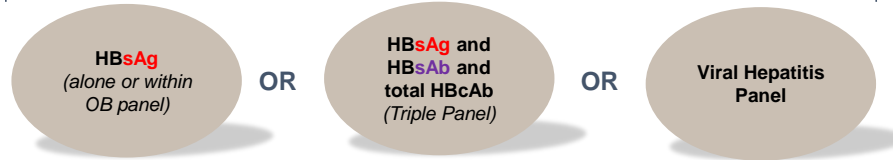


We've discussed the recommended prevention measures for infants, but what about the mothers? What do these hepB prevention measures look like within the context of maternal health? Our recommendations for pregnant people and their prenatal care providers primarily revolve around testing for HBV, though vaccination also recommended for pregnant people with risk factors for HBV infection during the pregnancy, such as multiple recent sex partners, co-occurring STIs, recent or current injection drug use, or known HBV-positive sex partner. Pregnancy is **not** a contraindication to hepB vaccination.

In addition to immunizations and testing, we also try to reach out to moms once their pregnancy is identified so that we can provide an introduction to PHBPP, assess for additional resources they might need, and answer any questions the family has regarding our public health recommendations.

## Maternal HBV Testing

**K.S.A. 65-153f:** Clinicians must collect a specimen to test pregnant people for hepatitis B and syphilis **within 14 days** of the pregnancy diagnosis.



- Additional testing may be recommended.
- Report hepatitis B during pregnancy to KDHE **within 24 hours!**

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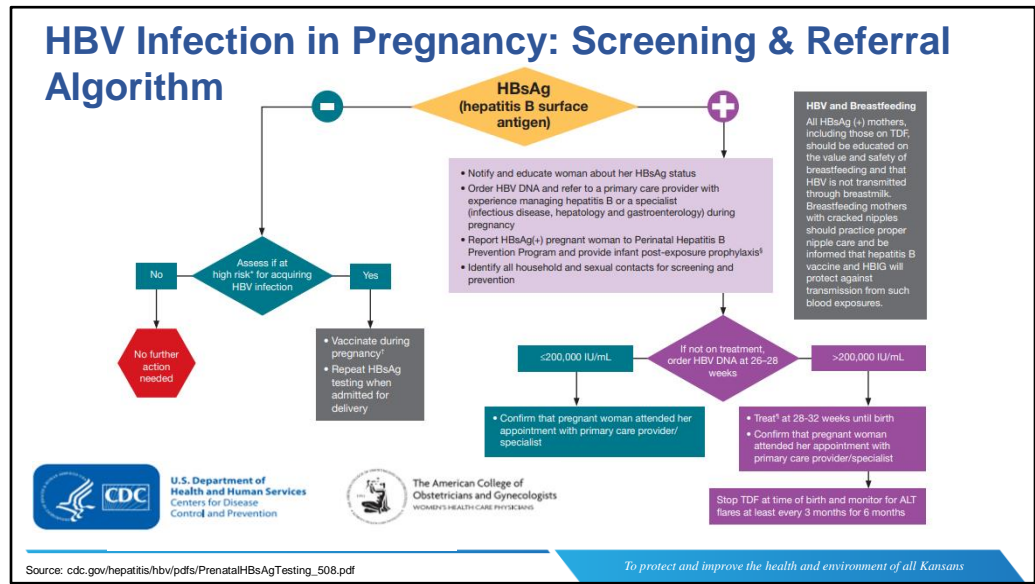
Now I want to go a bit more in-depth on the prenatal testing component because this is where we primarily focus for identifying these infections in pregnant people. Prenatal HBV testing is required by law here in Kansas under Statute 65-153f, which states that clinicians must collect a specimen to test pregnant people for hepatitis B within 14 days of the pregnancy diagnosis. This does apply to **each** pregnancy for a given person. In practice, this means that HBsAg is typically included on the routine OB panel performed during the first trimester, though it can be ordered later in the pregnancy or upon delivery if prenatal care is absent or delayed.

For the recommended tests, we again refer specifically to that HBsAg (surface antigen) for an initial screen. If positive or if the provider wants more information to determine mom's status, we would also recommend a triple panel or full viral hepatitis panel that includes HBsAg (surface antigen), HBsAb (surface antibody), and total HBcAb (core antibody). Ideally, initial positive HBsAg screens should be reflexed to a confirmation by neutralization assay to rule out false positives which do occasionally occur.

Given a confirmed positive HBsAg, there is additional testing that is recommended which will be covered on the next slide.

It is also worth noting that Hepatitis B during pregnancy is a 24-hour reportable condition here in Kansas, so KDHE does need to be notified within one business day when HBV infection is identified in a pregnant person.





This is a prenatal testing algorithm developed by CDC in conjunction with ACOG to assist providers in screening and referral for hepatitis B. I know the text is quite small but this algorithm can be found on CDC's website if you'd like to take a closer look. Essentially, it depicts HBsAg as the primary test for screening and determining a pregnant person's HBV status. If positive, it then goes on to recommend HBV DNA testing at 26-28 weeks to determine mom's viral load, and if high enough then antiviral treatment is recommended during the third trimester to suppress some of that viral replication and minimize risk to baby. It is important to note that the HBV DNA test results should only be used to guide treatment decisions for mom and should **NOT** be used to determine whether she is positive and infectious to baby. This is because it is possible for a person to be HBsAg positive but DNA negative and still be capable of transmitting the virus. A lot of prenatal providers will (understandably) misinterpret a negative HBV DNA result as no infection or risk of transmission, so that's something we're working on being more communicative with and providing more educational opportunities. So again, any time that surface Ag is positive, regardless of viral load, a person should be considered potentially infectious.

## Resources for Mothers & Caregivers

- Free immunizations through VFC program.
- Free PVST for underinsured or uninsured infants.
- Informational materials available in multiple languages.



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These are some examples of resources that we can provide to moms and caregivers of infants enrolled in our PHBPP. Our wonderful KDHE Immunizations Program provides hepB vaccine doses for eligible infants at enrolled locations through the federally-funded VFC program to help address any difficulties with cost and access to healthcare. If an infant is underinsured or uninsured, we do offer free PVST through the state public health lab as well.

Additionally, we've developed a variety of informational materials intended for caregivers of these infants and in several languages.

## Resources for Prenatal Care Providers

- Report forms, one-pagers and tip sheets.
- Badge Buddies.
- [KDHE PHBPP](#) and [CDC](#) websites.



**Kansas** Department of Health and Environment **Prenatal Providers**

**Kansas Law (K.S.A. 65-153F):**  
Requires that every pregnant woman be tested for hepatitis B surface antigen (HBsAg) during **each** pregnancy.

- Fax all HBsAg positive lab results to your local health department or KDHE [877-427-7318]
- Provide patient with information regarding steps necessary to protect her baby from infection:
  - HBIG at birth
  - Completion of hepatitis B vaccine series
  - Post-Vaccine Serological Testing (PVST)

Visit PHBPP website for more information:  
<https://www.kdhe.ks.gov/266/Perinatal-Hepatitis-B-Prevention-Program>

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We've also got resources for prenatal care providers when hepatitis B infection is implicated- these include CDC-developed provider tip sheets, informational one-pagers, report forms, and Badge Buddies (example pictured here). We do have a PHBPP webpage on KDHE's website for more information in addition to CDC's webpage. I can be another good resource for providers and my door is always open if they are needing a consult on the public health recommendations or have questions on where to refer (see contact info on final slide).

## References

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**Sarah Chicchelly, MPH**

Epidemiologist & Kansas Perinatal Hepatitis B Prevention Program Coordinator  
Sarah.Chicchelly@ks.gov  
785-296-3685

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