

IN THIS ISSUE: HEPATITIS B POST VACCINATION SEROLOGY TESTING**Recommended Testing for Infants Post HBV Vaccine Series****Introduction**

Testing is a vital public health strategy in the prevention of vertical transmission of infectious diseases. One of the many infectious diseases that can be transmitted in this manner is hepatitis B. Preventing perinatal hepatitis B virus (HBV) transmission is a fundamental part of the national strategy to eliminate HBV in the United States.¹ Testing for HBV in pregnant persons is critical, as an active infection poses a risk to the baby at birth. Perinatal HBV transmission can be prevented at birth by providing HBV immune globulin within 12 hours of birth, and the first dose of the HBV vaccine series within 24 hours of birth and achieving completion of the HBV vaccine series by (time period).¹ Upon completion, post vaccination serology testing (PVST) is essential in identifying infants who may need additional vaccinations to prevent infection. The Centers for Disease Control and Prevention (CDC) estimates only 65% of infants born to hepatitis B infected persons receive the recommended PVST after completion of the HBV vaccine series.¹ Timely serology testing is vital to confirm immunity as antibody concentration declines rapidly after the first year.²

Epidemiology

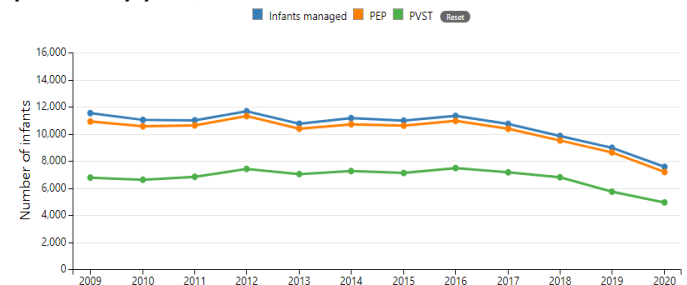
Postvaccination protection is achieved in 98% of healthy full-term infants who received a 3-dose or 4-dose hepatitis B vaccine series. However, it is lower among infants with birthweights < 2,000 grams.² Infants with birth weights < 2000 grams had lower median protection proportions compared to infants with birthweights > 2000 grams, 93% and 98%, respectively.²

Approximately 40% of infants born to persons with HBV infection in the US will develop chronic HBV as a result of perinatal transmission, without proper post exposure prophylaxis.¹ Furthermore, around 90% of perinatal HBV infections result in chronic

HBV, which underscores the importance of assessing post-vaccination immunity status of the exposed infant.² According to the CDC's Perinatal Hepatitis B Prevention Program, the percentage of infants in the United States who received PVST has increased from 59% in 2009 to 65% in 2020 [Fig 1].³

In 2020, 92% of the infants managed in the state of Nevada received the appropriate doses of hepatitis B immune globulin (HBIG) and hepatitis B vaccine (HepB) at birth.⁴ Of those infants managed, 93% received the complete series by 12 months of age and only 59% received PVST.⁴

Figure 1: Outcomes of infants born to hepatitis B infected persons by year, 2009 - 2020



* Includes 50 states, District of Columbia, and 5 cities. Excludes territories and freely associated island nations. Source:

<https://www.cdc.gov/hepatitis/statistics/2021surveillance/perinatal-hepatitis-b/figure-4.1.htm>

Testing, Results Interpretation, and Vaccination

CDC advises infants born to persons who are HBV-positive should undergo the post vaccination serology testing at appropriate intervals. This includes an antibody to hepatitis B surface antigen (anti-HBs) test and a hepatitis B surface antigen (HBsAg) test, between the ages of 9 and 12 months, or, if the vaccination series is delayed, 1-2 months after the last dosage.¹ Tests for antibodies to hepatitis B core antigen (anti-HBc) **should not** be ordered.³

The CDC encourages pediatricians to order this recommended panel (HBsAg and anti-HBs) as this

helps identify if an infant born to a HBsAg positive person did not respond adequately to the vaccine series, and helps identify infants with HBV infection.¹

Confirmation of immunity, susceptibility or infection can be ascertained after HBIG and vaccination series are complete and by following up with PVST at the appropriate time [Fig. 2].^{1,3}

Figure 2: Interpreting Post Vaccine Serologic Test (PVST) Results

Immune
HBsAg – Negative Anti-HBs-Positive Antibody Level ≥ 10 mIU/mL No further follow up necessary Report results to your Perinatal Hepatitis B Prevention Program (PHBPP) coordinator
Still Susceptible
HBsAg – Negative Anti-HBs-Negative Antibody level < 10 mIU/mL Needs additional follow up and vaccines Contact your PHBPP coordinator for assistance
Infected
HBsAg – Positive Anti-HBs-Negative Antibody level < 10 mIU/mL Needs additional follow up Contact your PHBPP coordinator for assistance

Source: Adapted from <https://www.cdc.gov/vaccines/programs/perinatal-hepb/downloads/HepB-Provider-tipsheet-508.pdf>

Northern Nevada Public Health Perinatal HBV Prevention Program

Northern Nevada Public Health (NNPH) is responsible for the Washoe County's Perinatal HBV Prevention Program. The primary goal is to reduce the incidence of hepatitis B in infants born to persons with hepatitis B. For more information on the program, please visit NNPH Perinatal Hepatitis B Prevention Program at <https://www.nnph.org/programs-and->

[services/cchs/maternal-child-health/perinatal-hepatitis-b-prevention-program.php](https://www.nnph.org/services/cchs/maternal-child-health/perinatal-hepatitis-b-prevention-program.php)

Reporting

NRS 442.013 requires that all hepatitis B in pregnant persons to be reported within one working day to the health department. HBsAg-positive lab results should be reported along with the complete Confidential Case Report Form to the confidential fax at (775) 328-3764. The list of reportable communicable diseases and reporting forms can be found at:

<http://tinyurl.com/WashoeDiseaseReporting>

Report communicable diseases to Northern Nevada Public Health. To report a communicable disease, please call 775-328-2447 or fax your report to the NNPH at 775-328-3764.

Acknowledgement

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References

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