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Hepatitis B Vaccination at Birth

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SUMMARY POINTS

- Since its implementation in 1991, hepatitis B vaccination at birth has reduced pediatric hepatitis B infections by 99%.
- Hepatitis B infection can be transmitted to children vertically during birth or horizontally through contact with infected contacts, often due to unknown infection in the household.
- Up to 90% of infants infected perinatally or in the first year of life will develop chronic hepatitis B infection.
- Vaccinating all infants at birth is important due to the possibilities of false negative tests, unknown status, and infection after screening in early pregnancy.
- Pediatricians and pediatric providers should check birth records to assess hepatitis B vaccination and catch up any unvaccinated infants within the first month of life.

Hepatitis B Infection

Hepatitis B is a viral infection that attacks the liver. It can cause acute and chronic disease. There is no cure for hepatitis B. 90% of infants infected with hepatitis B will go on to develop chronic disease which can result in cirrhosis, cancer, and death. Each year in the United States (U.S.), thousands of people are infected with hepatitis B, with an estimated 14,400 new acute infections in 2023 and 1,769 hepatitis B-related deaths. In Philadelphia, the total number of people living with chronic hepatitis B in 2023 was 1.6% of the population, or about 24,828 residents. 60% of those with newly reported chronic hepatitis B were women, and 45% were 44 years old or younger. In 2022, 18 people in Philadelphia died of hepatitis B-related causes. An estimated 1 in 2 people in the U.S. are unaware of their positive hepatitis B status. In 2021, an estimated 0.5% births in the U.S. occurred to hepatitis B-positive birthing persons. In 2023, 83 infants in Philadelphia were born to people with chronic hepatitis B; however, due to successful post-exposure prophylaxis, no new cases of perinatal hepatitis B transmission have occurred since 2016.

Hepatitis B infection can be transmitted vertically during birth as well as horizontally through close contact with infected individuals. Horizontal transmission can occur during care of the newborn by household or childcare contacts who may be unaware of their hepatitis B status. All pregnant individuals are recommended to be screened for hepatitis B infection with serology during each pregnancy. However, as of 2023, an estimated 15.7% of pregnant people in the U.S. did not receive adequate prenatal care, and 14.6% were not tested for hepatitis B. In Philadelphia, the percentage of births for which an individual received late or no prenatal care was 13.27% in 2023. In addition, pregnant individuals can become infected later in pregnancy after initial testing.

Prior to universal hepatitis B infant vaccination, approximately 18,000 children were infected with hepatitis B yearly. While half of these children were infected through the birthing parent, the other half were infected from other sources. Children are at risk of infection through close contact with infected household members and daycare contacts. Hepatitis B is 100 times more infectious than HIV and can survive on surfaces for up to 7 days. Children can become infected through contact with bodily fluids, including amounts of blood too small to be seen.

Hepatitis B Vaccine

The single-antigen hepatitis B vaccines, Engerix-B® and Recombivax HB®, are licensed for administration at birth. The hepatitis B vaccines have been studied extensively for both safety and efficacy. Side effects remain mainly reactogenic and short-lived, with no link to chronic diseases or neurodevelopmental outcomes. Vaccine efficacy is 95% after completion of the 3-4 dose series, and protection is durable, lasting for decades. Seroprotection is seen in 25% of infants after the first dose, in 63% after the second dose, and in 95% after the third dose. Hepatitis B serology is useful only in specific clinical situations, including assessing immunity post completion of the vaccine series at 9-12 months of age in infants born to hepatitis B-positive birthing persons. An anamnestic response due to cell-mediated immunity is seen even after hepatitis B antibodies wane with time. The current practice of administering hepatitis B vaccine and hepatitis B immunoglobulin to infants born to a hepatitis B-positive birthing person reduces the risk of perinatal hepatitis B transmission by up to 97%. Since the implementation in 1991 of the safety net practice of vaccinating all infants at birth regardless of the birthing person's status, pediatric hepatitis B infections have virtually disappeared with a decrease of 99%.

It is essential that pediatricians and pediatric providers review the newborn birth record and the Philadelphia Immunization Information System, Philavax, for hepatitis B vaccine administration to identify and vaccinate unvaccinated infants during all clinic visits, ideally initiating catch up in the first month of life.

At its December 2025 meeting, the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) voted to recommend shared decision-making for infants born to a birthing person who tests negative for hepatitis B. The CDC

adopted this recommendation on December 16, 2025. This means that parents and clinicians will continue to decide together whether to administer the hepatitis B vaccine at birth or begin the series later in infancy. CDC's child and adolescent immunization schedule will be updated accordingly. At this time no changes have been made to the Vaccines for Children (VFC) program. If any changes are made to VFC in the future, the Philadelphia Department of Public Health (PDPH) will provide additional guidance to healthcare providers, including details on enrolling in the PA CARES program, which Pennsylvania has established to cover any potential gaps in the federal VFC program. In addition, an executive order signed by Governor Shapiro requires that all health insurers operating under the Pennsylvania Insurance Department's authority continue to cover evidence-based vaccines endorsed by the American Academy of Pediatrics, American College of Obstetrics and Gynecology, and the American Academy of Family Physicians.

1. Red Book: 2024–2027 Report of the Committee on Infectious Diseases
   By: Committee on Infectious Diseases, American Academy of Pediatrics
   Edited by: David W. Kimberlin, MD, FAAP, Ritu Banerjee, MD, PhD, FAAP et al
2. Screening and Testing for Hepatitis B Virus Infection: CDC Recommendations — United States, 2023 | MMWR
3. Universal Hepatitis B Vaccination at Birth. Safety, effectiveness and public health impact. Center for Infectious Diseases Research and Policy (CIDRAP) December 2, 2025
4. Why We Give Hepatitis B Vaccines to Infants. National Foundation for Infectious Diseases (NFID.) October 20, 2025
5. PhilaStats
6. Philadelphia Department of Public Health Division of Disease Control, Hepatitis B, Hepatitis C, and Hepatitis D Surveillance Report, 2023. Philadelphia, PA: City of Philadelphia; December 2024