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## Hepatitis B, Perinatal Virus Infection 2017 Case Definition

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### CSTE Position Statement(s)

16-ID-06

### Background

Great progress has been made in identifying hepatitis B surface antigen (HBsAg)-positive pregnant women and immunizing their infants with Hepatitis B (HepB) vaccine and Hepatitis B immune globulin (HBIG) to prevent vertical infection, but there are still infants who acquire hepatitis B virus (HBV) infection. This is because either their mothers are not recognized as infected and the infant does not receive HBIG and the full Hep B vaccine series or the intervention does not prevent infection. Without post-exposure prophylaxis with HBIG and HepB vaccine, approximately 45% of infants born to HBV-infected mothers will become infected and up to 90% of those infected will develop chronic, life-long infection. Among infants who do develop infection, 25% will die prematurely of liver cirrhosis or cancer. It is estimated that 1,000 newborns are infected annually.<sup>1</sup> Although, treatment of HBV infection is now possible and can attenuate the impact of infection, hepatitis B cannot yet be cured.<sup>2</sup>

It is important to assure adequate immunity in infants of HBV-infected mothers and to determine if infection of the infant occurred with or without post-exposure prophylaxis. The Centers for Disease Control and Prevention (CDC) and the Advisory Committee on Immunization Practices (ACIP) recommend universal testing of pregnant women for HBsAg, post-exposure prophylaxis within 12 hours of birth with HBIG and the first dose of HepB vaccine for infants born to HBV-infected mothers, universal birth dose administration to all infants regardless of the mother's HBsAg status, completion of a valid three dose vaccine series in all infants, and post-vaccination serologic testing (PVST) for HBsAg

and anti-HBs at 9-12 months for infants born to HBV-infected mothers or infants born in regions of high and intermediate HBV endemicity.<sup>3</sup> The CDC Perinatal Hepatitis B Prevention Program helps promote these recommendations and provides case management of HBV-infected mothers and their infants. Evaluation of the program depends on the follow-up of exposed infants.

## Clinical Criteria

Perinatal HBV infection in a child  $\leq$  24 months of age may range from asymptomatic to fulminant hepatitis.

## Laboratory Criteria for Diagnosis

Laboratory evidence of HBV infection in an infant consists of one or more of the following:

- positive hepatitis B surface antigen (HBsAg) test (only if at least 4 weeks after last dose of Hep B vaccine)
- positive hepatitis B e antigen (HBeAg) test
- detectable HBV DNA

## Epidemiologic Linkage

Born to a HBV-infected mother.

## Case Classification

### Probable

Child born in the US and positive for HBsAg at  $\geq$  1 month of age and  $\leq$  24 months of age **OR** positive for HBeAg or HBV DNA  $\geq$  9 months of age and  $\leq$  24 months of age, but whose mother's hepatitis B status is unknown (i.e. epidemiologic linkage not present).

### Confirmed

Child born in the US to a HBV-infected mother and positive for HBsAg at  $\geq$  1 month of age and  $\leq$  24 months of age **OR** positive for HBeAg or HBV DNA  $\geq$  9 months of age and  $\leq$  24 months of age.

## Comments

Infants born to HBV-infected mothers should receive HBIG and the first dose of HepB vaccine within 12 hours of birth, followed by the second and third doses of HepB vaccine at 1 and 6 months of age, respectively. PVST for HBsAg and anti-HBsAg is recommended 1 to 2 months following completion of the vaccine series, but not earlier than 9 months of age.

If the mother is known to not be infected with HBV, refer to the case definition for acute Hepatitis B.

## Reference(s)

1. Ko SC, Fan L, Smith EA, Fenlon N, Koneru AK, Murphy TV. Estimated Annual Perinatal Hepatitis B Virus Infections in the United States, 2000–2009. *Journal of the Pediatric Infectious Diseases Society*. 2014 Dec 18:pii115.
2. Terrault NA, Bzowej NH, Chang K-M, et al. AASLD Guidelines for Treatment of Chronic Hepatitis B. [https://www.aasld.org/sites/default/files/guideline\\_documents/hep28156.pdf](https://www.aasld.org/sites/default/files/guideline_documents/hep28156.pdf) (accessed 18 January 2016).
3. Mast EE, Margolis HS, Fiore AE, Brink EW, Goldstein ST, Wang SA, Moyer LA, Bell BP, Alter MJ; Advisory Committee on Immunization Practices (ACIP). A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP) part 1: immunization of infants, children, and adolescents. *MMWR Recomm Rep*. 2005 Dec 23;54(RR-16):1-31.

## Related Case Definition(s)

- Hepatitis B, Perinatal Virus Infection | 1995 Case Definition  
(<https://wwwn.cdc.gov/nndss/conditions/hepatitis-b-perinatal-virus-infection/case-definition/1995/>)

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Division of Health Informatics and Surveillance (DHIS) (<http://www.cdc.gov/ophss/csels/dhis/>)

National Notifiable Diseases Surveillance System (NNDSS) (<http://www.cdc.gov/nndss/>)