

# Hepatitis B Quicksheet

July 2022



## Clinical Symptoms

Hepatitis B virus (HBV) infection may be asymptomatic or patients may present with subacute illness (anorexia, nausea, malaise), clinical hepatitis with jaundice, or fulminant hepatitis. Development of clinical symptoms is highly age-dependent with asymptomatic infection most common in young children.

Age at time of infection is the primary determinant of the risk of progression to chronic infection; 90% of perinatally infected infants develop chronic HBV infection, whereas 5% to 10% of acutely infected older children and adults progress to chronic HBV infection.<sup>1</sup>

## Mode of Transmission

HBV may be transmitted by parenteral or mucosal exposure to the body fluids, particularly blood and serous fluids, of an infected person.

## Incubation Period

60 to 150 days (average, 90 days) from exposure to jaundice onset.

## Period of Communicability

An individual infected with HBV should be considered infectious any time hepatitis B surface antigen (HBsAg) is present in the blood. HBsAg can be found in the blood and body fluids of infected persons 1 to 2 months before and any time after the onset of symptoms.

## Serology and Laboratory Testing

**Anti-HBs** positive test results indicate immunity to HBV due to immunization or recovery from prior infection.

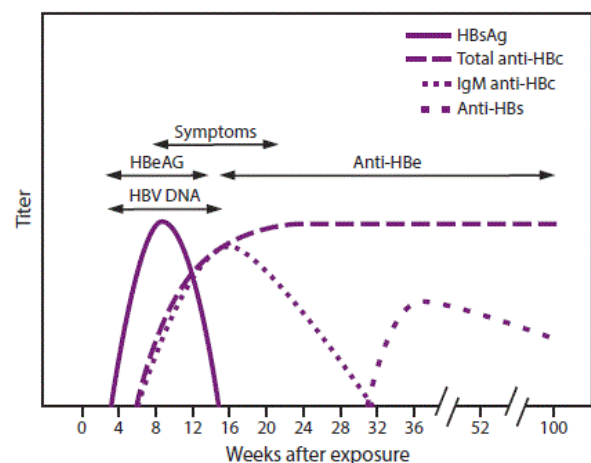
**HBsAg, HBV DNA, and HBeAg** positive test results indicate HBV infection. During recovery, these markers become undetectable.

Persistence of these markers for six months or more indicates progression to chronic infection. Presence of HBeAg and high levels of HBV DNA indicate increased infectivity.

**IgM Anti-HBc** positive test results generally indicate acute HBV infection. This marker will typically become undetectable by six months after infection. IgM Anti-HBc can also occur during exacerbations of chronic infection.

**Total Anti-HBc** positive test results indicate current or prior infection. Total anti-HBc may remain detectable for years after infection.

## Acute Infection with Recovery



<sup>1</sup> Centers for Disease Control. 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): 1-31.

### Acute Hepatitis B Case Definition

**Confirmed:** An acute illness with discrete onset of any sign or symptom consistent with viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, abdominal pain),\* and:

- Either jaundice **OR** ALT levels > 100 IU/L **AND**
- HBsAg positive **AND**
- IgM anti-HBc positive (if done)

\*A documented negative HBsAg laboratory test result <6 months prior to a positive HBsAg, HBeAg or HBV DNA result does not require an acute clinical presentation to meet the surveillance case definition.

### Chronic Hepatitis B Case Definition

No symptoms are required to meet the chronic hepatitis B case definition:

**Confirmed:** A person with either set of test results:

- IgM anti-HBc negative result **AND** HBsAg or HBeAg or HBV DNA (qualitative, quantitative, or genotyping) positive result **OR**
- HBsAg, HBeAg or HBV DNA (qualitative, quantitative, or genotyping) positive test results two times at least 6 months apart. Any combination of these tests performed at least 6 months apart is acceptable.

**Probable:** A person with a single HBsAg, HBeAg or HBV DNA positive lab result who does not meet the case definition for acute hepatitis B.

**Comment:** Multiple laboratory tests indicative of chronic HBV infection may be performed simultaneously on the same patient specimen as part of a “hepatitis panel.” Testing performed in this manner may lead to seemingly discordant results. Specifically, occult hepatitis B infection may be present when a patient is HBsAg-negative and HBV DNA-positive. For the purposes of the chronic hepatitis B case definition, a positive HBsAg, HBeAg or HBV DNA result is acceptable evidence of infection, regardless of other testing results. Negative HBeAg results and HBV DNA levels below positive cutoff level do not confirm the absence of

HBV infection.

### Perinatal Hepatitis B Case Definition

**Confirmed:** Child born in the US to an HBV-infected mother and positive for HBsAg between 1 and 24 months of age **OR** positive for HBeAg or HBV DNA between 9 and 24 months of age.

**Probable:** Child born in the US and positive for HBsAg between 1 and 24 months of age **OR** positive for HBeAg or HBV DNA between 9 and 24 months of age, but whose mother’s hepatitis B status is unknown.

### Recommendations for Vaccination

The HBV vaccine series is recommended for all children beginning at birth, **all adults 19-59 years of age**, and adults 60 years of age and older with risk factors for hepatitis B. Additionally, adults 60 years of age and older without known risk factors for hepatitis B who are seeking protection from HBV infection may also receive hepatitis B vaccine.

See a detailed discussion of the [ACIP hepatitis B vaccination recommendations for adults](#).

### Recommended Postexposure Prophylaxis

Following exposure to an HBsAg positive source patient, healthcare workers (HCWs) who have not completed the hepatitis B vaccine series should receive one dose of vaccine and Hepatitis B Immune Globulin (HBIG) as soon as possible. HCWs who have completed the vaccine series and do not have a documented anti-HBs result should receive anti-HBs testing as soon as possible to determine if vaccination or HBIG are needed. For HCWs who have completed the hepatitis B vaccine series and have documented anti-HBs  $\geq 10$  mIU/mL, no further management is needed. [ACIP recommendations for hepatitis B prevention in HCWs](#).

Management of non-healthcare providers with a discrete, identifiable percutaneous or mucosal exposure to blood or other potentially infectious materials (e.g., needlestick, laceration, bite, sexual

exposure, shared razor or toothbrush, etc.) includes consideration of the HBsAg status of the source of the exposure and the HBV immunization and response status of the exposed person. If the source is HBsAg-positive, unimmunized or partially immunized people should receive HBIG and HBV vaccine as soon as possible after exposure, preferably <24 hours. The effectiveness of HBIG diminishes the longer after exposure it is initiated and is unlikely to be effective >7 days. [See ACIP recommendations for management of non-occupational exposure to hepatitis B.](#)

**Perinatal exposure:** All infants born to HBsAg-positive mothers, regardless of birth weight, should receive a dose of single-antigen HBV vaccine and HBIG (0.5 mL) within 12 hours of birth and complete the vaccine series. For infants weighing <2000 grams at birth, the birth dose of HBV vaccine should not count towards the completion of the vaccine series.

All infants born to HBsAg-positive mothers should receive postvaccination serologic testing for HBsAg and anti-HBs 1-2 months after completion of the vaccine series, but no earlier than 9 months of age. If anti-HBs is  $\leq 10$  mIU/mL, the infant should receive an additional dose of hepatitis B vaccine and repeat postvaccination serologic testing for HBsAg and anti-HBs 1-2 months later. If the anti-HBs is still  $\leq 10$  mIU/mL following the additional dose, the infant should receive two additional doses of hepatitis B vaccine to complete the second vaccine series, and repeat postvaccination serologic testing 1-2 months later. Persons who don't respond after

being revaccinated with a second series are unlikely to respond to additional doses of vaccine. [Recommendations for responding to perinatal hepatitis B exposure.](#)

### Investigation and Reporting Guidelines

**Acute Hepatitis B:** All cases of acute HBV should be investigated using the CDPH "Acute Hepatitis B/C Case Report Form." Priority should be given to identifying possible healthcare-associated infections. See the "[Acute HBV/HCV Public Health Investigation Quicksheet](#)".

**Chronic Hepatitis B:** Due to the high volume of HBsAg-positive reports, many local health jurisdictions are unable to investigate all chronic HBV cases. Priority should be given to identifying and reporting HBsAg-positive pregnant women to the Perinatal Hepatitis Prevention Program. For more information on conducting chronic hepatitis B surveillance, please view [CDC's Hepatitis B Surveillance Guidance](#).

**Perinatal Hepatitis B:** In addition to the CMR, perinatal hepatitis B cases should also be reported to the CDPH Perinatal Hepatitis B Prevention Program using the [Perinatal Hepatitis B Case Report Form](#). More information on the Perinatal Hepatitis B Prevention Program can be found on the program's [web page](#).

**For additional questions or assistance, contact:** CDPH Immunization Branch at 510-620-3767 for questions about hepatitis B cases.