

## HEPATITIS B PRE- & POST-EXPOSURE - OCCUPATIONAL HEALTH

### I. DEFINITION:

Hepatitis B is a vaccine-preventable communicable disease transmitted through sexual contact, direct blood exposures (percutaneous, non-intact skin, and mucous membrane), human bites that break the skin and cause bleeding, perinatally, among household contacts of carriers, and potentially from an acutely infected primary caregiver to infants less than a year old. Hepatitis B virus can survive in dried blood for up to a week, transmitted via discarded needles and fomites, and is efficiently transmitted through percutaneous injury involving blood.

Hepatitis B is a highly infectious disease of the liver caused by the hepatitis B virus (HBV). See OSDH EPI Manual for a detailed discussion of hepatitis B infection, interpretation of serologic testing, and recommendations for public health follow-up.

Although HBV infections are expected to decline as a result of universal childhood immunizations and increased vaccination of adults at risk, an estimated 1.25 million persons in the United States are living with chronic HBV infection.

### II. MANAGEMENT PLAN: PRE-EXPOSURE

Both pre- and post-exposure prophylaxes are available to prevent transmission of hepatitis B. Any person who performs tasks involving contact with blood, blood-contaminated body fluids, other body fluids, or sharps should be vaccinated against hepatitis B.

A. The OSDH provides hepatitis B vaccine to health department employees who are determined to have occupational risk (see Infection Control Manual). Offer the hepatitis B vaccination series to any employee whose job duties put them at a reasonable risk of having contact with blood, body fluids, or percutaneous sharps. Studies indicate that immunologic memory remains intact for at least 20 years among healthy vaccinated individuals who initiated Hepatitis B vaccination >6 months of age. The vaccine confers long-term protection against clinical illness and chronic Hepatitis B virus infection.

1. Obtain consent to vaccinate.
2. Ask the employee to sign a Authorization to Release PHI allowing the vaccinations to be documented into OSIIS/PHOCIS. If the employee refuses to sign the Authorization to Release PHI, explain to them the vaccinations will be documented on paper only and retained in their employee health file.
3. Administer the hepatitis B vaccinations per the ACIP guidelines.
4. One to two months after the employee completes the 3 dose vaccination series which has been documented, draw a blood specimen from the employee and test their antibody response (HBsAb) to vaccination.

Persons who do not respond to the primary vaccine series (i.e., anti-HBs <10mIU/ml) should complete a second 3-dose series or be evaluated to determine if they are HBsAg-positive.

Revaccinated persons should be evaluated 1 to 2 months after the completion of the second vaccine series.

5. Persons who have completed two documented hepatitis B series and whose titers show inadequate response (i.e., anti-HBs <10mIU/ml) should be counseled regarding how to prevent HBV transmission to and regarding the need for medical evaluation.

Refer those people to their primary care physician for further medical evaluation.

**Any and all paper copies of documentation of the provision of hepatitis B vaccinations and lab results for hepatitis B antibody response are to be kept confidential in their employee health record.**

- B. The employee has the right to decline the hepatitis B vaccinations by signing the **Occupational Health Record Employee Screening Record (ODH No 807)**. The paper copy of this form is kept confidential and retained in their employee health record.
  1. If the employee declines the hepatitis B vaccination series, provide education to them regarding their susceptibility to HBV infections and precautions to follow to reduce their risk and or prevent HBV infection.

### III. MANAGEMENT PLAN: POST-EXPOSURE

- A. The exposure should be evaluated for the potential to transmit HBV based on the type of body substance involved and the route and severity of the exposure. Post-exposure prophylaxis is based on whether the exposed person has been previously vaccinated and may consist of either a booster dose of vaccine, a combination of vaccine and hepatitis B immune globulin (HBIG), or 2 doses of HBIG. (See Table 1.)

OSDH provides HBIG to those employees when indicated after occupational exposure.

  1. Immediately after the exposure occurs, wash the site thoroughly with soap and water.
  2. The employee who sustains an occupational exposure is to **IMMEDIATELY** report the exposure to their District Nurse Manager (DNM).
  3. The DNM or the employee health designee will review the exposed employee's hepatitis B vaccination and/or HBsAb status and provide a copy to the employee to be shared with the healthcare provider when receiving medical evaluation and/or treatment from the healthcare provider. (Occupational Exposure in The Infection Control Manual)
- B. Use Table 1 to determine treatment needed for an exposed employee.

**TABLE 1**  
**Recommended Post Exposure Prophylaxis**  
**For Percutaneous or Mucosal Exposure to Hepatitis B Virus**

Vaccination and antibody response status of exposed person*	Treatment when source (client) is:		
	Source HBsAg <sup>‡</sup> * - positive	Source HBsAg <sup>‡</sup> - negative	Source unknown or not available for testing
<b>Unvaccinated</b>	HBIG+ x 1; initiate HB vaccine series <sup>‡</sup>	Initiate HB vaccine series	Initiate HB vaccine series
<b>Previously vaccinated:</b>			
Known responder**	No treatment	No treatment	No treatment
Known non- responder++	HBIG x 1 and initiate revaccination or HBIG x 2 <sup>φ</sup>	No treatment	If known high-risk source, treat as if source were HBsAg positive
Antibody response unknown	Test exposed person for anti-HBs <sup>¶</sup> 1. If adequate, **no treatment is necessary 2. If inadequate, ++ administer HBIG x 1 and vaccine booster	No treatment	Test exposed person for anti-HBs 1. If adequate, **no treatment is necessary 2. If inadequate, ++ administer HBIG x 1 and vaccine booster

\* Persons who have previously been infected with HBV are immune to reinfection and do not require post exposure prophylaxis.

‡ Hepatitis B surface antigen.

+ **Hepatitis B immune globulin; dose is 0.06 ml/kg intramuscularly.**

‡ Hepatitis B vaccine.

\*\* A responder is a person with adequate levels of serum antibody to HbsAg (i.e., anti-HBs≥10 mIU/ml).

++ A non-responder is a person with inadequate response to vaccination (i.e., serum anti-HBs<10 mIU/ml).

φ The option of giving one dose of HBIG and reinitiating the vaccine series is preferred for non-responders who have not completed a second 3-dose vaccine series. For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred.

¶ Antibody to HbsAg

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- C. HBIG contains a high titer to (HBsAg (anti-HBs). When HBIG is indicated, it should be administered as soon as possible after exposure (preferably within 24 hours). The effectiveness of HBIG administered >7 days after exposure is unknown. HBIG provides passive immunity for individuals exposed to the hepatitis B virus and can be administered concurrently with the hepatitis B vaccine as long as they are administered at different anatomical sites (i.e. deltoid for vaccine and gluteal muscles for HBIG).
1. The administration of the usual recommended dose of this immune globulin generally results in a detectable level of circulating anti-HBs that persists for approximately 2 months or longer.
  2. Contraindications: Prior systemic allergic reactions following the administration of human immune globulin preparations; patients who have severe thrombocytopenia or any coagulation disorder that would contraindicate intramuscular injections.
  3. Precautions: Pregnant women should be referred to their private physician.
  4. Drug Interactions: Use of live virus vaccines should be deferred until approximately 3 months after HBIG administration.
  5. Effectiveness: For acute exposure to blood containing HBsAg, and sexual exposure to a person with acute hepatitis B, HBIG is approximately 75% effective.