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). The risk from a single needle stick or a cut exposure to HBV-infected blood ranges from 6%–30% and depends on the Hepatitis B e antigen (HBeAg) status of the source individual. Individuals who are both Hepatitis B surface antigen (HBsAg) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV. HBsAg will be detected in an infected person's blood an average of 4 weeks (range: 1–9 weeks) after exposure to the virus. Health care workers who have received Hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection.

II. MANAGEMENT PLAN EMPLOYEE: 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. Hepatitis B vaccination is recognized as an effective defense against HBV infection and confers long-term protection against clinical illness and chronic Hepatitis B virus infection.

A. All OSDH employees who are determined by job classification or work duties to be at reasonable risk of contact with blood or other potentially infectious body fluids are considered to be at risk of exposure to a blood borne pathogen. Those employees determined to be at risk of an occupational exposure will be offered the Hepatitis B vaccination series at no cost to them.

1. Upon hire, review the employee's immunization record to determine if previous vaccination with the Hepatitis B vaccine series has occurred.

2. Review Attachment C Hepatitis B Vaccination Status ODH 807 with the employee and complete the form per the instructions.

3. If the employee has documented proof of completing a previous Hepatitis B vaccination 3 dose series and a positive (≥10 mIU/mL) post-vaccination antibody titer 1 – 2 months after completion of the series, the employee does not need additional Hepatitis B vaccinations.

4. If the employee has documented proof of completing the Hepatitis 3 dose series but did not have post-vaccination antibody testing, CDC recommends antibody testing for immunity. If post-vaccination anti-HBS levels are not protective, CDC recommends a challenge dose of Hepatitis B vaccine.
   A. Pre-exposure antibody titers are not provided as part of the occupational health vaccination program.
   B. If the employee elects to have a pre-exposure antibody titer, they will need to contact their PCP to make arrangements for the titer.
   C. The employee and or their private insurance will be responsible for the expense(s) associated with the hepatitis B pre-exposure antibody
titer and, if indicated, the recommended challenge dose of Hepatitis B vaccine and subsequent post-vaccination antibody titer.

5. If the employee does not have documented proof of completing the 3 dose Hepatitis B vaccination series they should be considered as incompletely vaccinated and should receive the remaining doses in the vaccination series. Ensure the employee is provided training on the vaccine including efficacy, safety, method of administration, and the benefits of vaccination.

6. Inform the employee Hepatitis B vaccinations are recommended for persons in their job classification or preforming their job duties but not required. The employee has the right to decline the Hepatitis B vaccination series.

7. If the employee elects to decline the Hepatitis B vaccination series, they must indicate that on the Occupational Health Record Employee Screening Record Attachment C of the ODH807. Explain to the employee, initial declination will not prevent them from receiving the vaccinations in the future should they change their mind. The paper copy of this form is kept confidential and retained in their employee health record.

8. 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.

9. If the employee elects to receive the Hepatitis B vaccination series, explain the vaccinations will be offered at no cost to the employee.

10. If the Hepatitis B vaccine from the appropriate funding source is available the DNM, designated county health department Employee Health Nurse may administer the vaccinations to the employee.

11. Central Office employees will be referred to their PCP or local vaccination provider for the Hepatitis B vaccinations.

12. If the Hepatitis B vaccine from an appropriate funding source is not available refer the employee to their healthcare provider where the vaccinations are available utilizing their personal health insurance benefits. The employee will need to contact their PCP or provider of choice to schedule the vaccination appointments. Explain to the employee the immunization coverage benefit made available through the Affordable Care Act (ACA). The employee should ensure their provider is aware of this benefit at the time they schedule the immunization appointment.

Note: The ACA requires coverage for Immunizations recommended by the Advisory Committee on Immunization Practices (ACIP) to the insured at no cost-sharing or copay when the delivered by an in-network provider.

13. If the Hepatitis B vaccine from the appropriate funding source is available, ensure the employee has signed an ODH303C Consent for Service prior to administering the vaccinations.
14. Ask the employee to sign an 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.

15. Administer the Hepatitis B vaccinations per the ACIP guidelines. The public health nurse must ensure that another employee, preferably CPR certified, is present who can assist if an emergency occurs before any vaccinations can be administered.

16. One to two months after the employee completes the 3 dose vaccination series which has been documented into OSIIS /PHOCIS and/or their employee health record, a Hepatitis B antibody titer (HBsAb) is recommended to verify post vaccination immunity to the Hepatitis B virus.
   D. Post vaccination titers are not provided as part of the occupational health vaccination program.
   E. If the employee elects to have a post vaccination titer, they will need to contact their PCP to make arrangements for the titer.
   F. The employee and or their private insurance will be responsible for the expense(s) associated with the hepatitis B titer.

17. If the employee elects to have a post-vaccination titer, a copy of that titer should be maintained in the employee’s employee health record.

B. SPECIAL CONSIDERATION: (PRE-EXPOSURE)

1. Employees who have completed the Hepatitis B vaccination series and whose titer(s) indicate inadequate response (i.e. anti-HBs <10mIU/ml) should be referred to their private provider to discuss the need to complete a second 3-dose Hepatitis B vaccination series or to be evaluated to determine if they are HBsAg positive.

2. Persons who have completed two documented Hepatitis B series and whose titers indicate inadequate response (i.e., anti-HBs <10mIU/ml) are to be considered as non-responders and are to be counseled regarding how to prevent HBV transmission.

3. Employees, who are known to be non-responders to hepatitis B vaccination, should be instructed to immediately report any/all invasive exposure to blood and body fluid in the course and scope of their job duties. Immediate reporting of the exposure facilitates the initiation of HBIG prophylaxis for the employee.

4. The employee’s hepatitis B vaccination and antibody status should be clearly identified in their employee health record.

5. 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.

III. MANAGEMENT PLAN EMPLOYEE: 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. 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)

4. Use Table 1 to determine treatment needed for an exposed employee.

5. If the employee’s antibody response is unknown, the employee should have blood drawn for an anti-HBs test. Use ODH 1087 BBP Post-Exposure Blood Testing of Exposed Employee (Attachment 1)

6. Follow the instructions in the Infection Control Manual for collecting and processing all post-exposure serology testing.

7. If Hepatitis B vaccine is indicated, it should also be administered as soon as possible (preferably within 24 hours) and can be administered simultaneously with HBIG at a separate site (vaccine should always be administered in the deltoid muscle).

8. The public health nurse must ensure that another employee, preferably CPR certified, is present who can assist if an emergency occurs before any vaccinations or injections can be administered.

9. If vaccination with the Hepatitis B vaccine is warranted, the employee should be evaluated for Hepatitis B antibody response (HBsAb) one to two months after completion of the vaccination series.

10. Anti-HBs testing for employees, who received HBIG as part of postexposure prophylaxis, should be performed 6 months after HBIG was administered to determine if protective concentration of hepatitis B antibodies is present.

B. SPECIAL CONSIDERATION: (POST- EXPOSURE)

1. HBIG is not contraindicated for pregnant or lactating women. The Hepatitis B vaccine contains noninfectious HBsAg particles so no apparent risk exists for adverse effects to developing fetuses when Hepatitis B vaccine is administered to pregnant women.

2. For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred.

3. Drug Interactions: Use of live virus vaccines should be deferred until approximately 3 months after HBIG administration.

4. You must wait 6 months before drawing the hepatitis B antibody titer if the employee
received HBIG in order to determine if the antibody level is related to the HBIG which is temporary or if the employee has developed a true protective antibody level.

5. 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.

C. MANAGEMENT PLAN SOURCE: POST EXPOSURE

1. Draw (venipuncture) one serum separator tube (SST) of the source’s blood for hepatitis B antigen (HbsAg) testing. **You must have a signed consent (ODH 887) from the client before any post exposure serology testing can be performed.**

2. The results of the serology testing are recorded on the **(ODH 1207) BBP Employee Health Specimen Referral Log** with a copy of the laboratory results put in the client’s record and a copy placed in the exposed employee’s employee health file.
<table>
<thead>
<tr>
<th>Employee Vaccination and antibody response status</th>
<th>Source HBsAg‡* - positive</th>
<th>Source HBsAg‡ - negative</th>
<th>Source unknown or not available for testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unvaccinated/ incompletely vaccinated or vaccine refusers</td>
<td>HBIG+ x 1 dose; initiate and complete hepatitis B vaccination series if not previously started. Complete remaining doses in series if previously started.‡</td>
<td>Initiate HB vaccine series</td>
<td>HBIG X1 dose; Initiate and complete hepatitis B vaccination series‡,</td>
</tr>
<tr>
<td>Previously vaccinated: 1. Known responder after 3 doses‡</td>
<td>No treatment/No action needed</td>
<td>No treatment/No action needed</td>
<td>No treatment/No action needed</td>
</tr>
<tr>
<td>2. Response unknown after completing 3 doses</td>
<td>Check Emp. Titer ¶: If &lt;10mIU/mL; HBIG x1 dose and initiate and complete a 2nd hepatitis B vaccination series If Emp. Titer ≥10mIU/mL; No treatment/No action needed</td>
<td>Check Emp. Titer ¶: If &lt;10mIU/mL; hepatitis B vaccination x1 dose, then repeat anti-HBs testing 1-2 months later.° If Emp. Titer ≥10mIU/mL; No treatment/No action needed</td>
<td>Check Emp. Titer ¶: If &lt;10mIU/mL; HBIG x1 dose and initiate and complete hepatitis B vaccination series If Emp. Titer ≥10mIU/mL; No treatment/No action needed</td>
</tr>
<tr>
<td>Known non-responder++ (after completing 6 doses of hep B vaccine)</td>
<td>HBIG x 1 dose and initiate and complete 2nd hepatitis B vaccination series‡ OR HBIG x 2 doses, preferably (separated by 1 month)</td>
<td>No treatment/No action needed</td>
<td>If known high-risk source, treat as if source were HBsAg positive</td>
</tr>
</tbody>
</table>

* 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 mlU/ml).

++ A non-responder is a person with inadequate response to vaccination (i.e., serum anti-HBs<10 mlU/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. Persons whose anti-HBs remains <10mlU/mL should undergo revaccination with 2 more doses.

‡‡ Antibody to HbsAg

Adapted from MMWR, Vol. 62/No. RR10 December 20, 2013
REFERENCES:

Centers for Disease Control and Prevention. CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management. MMWR 2013; 62(RR10); 1-19.
