01.02 – Blood Borne Pathogens (BBP) Occupational Post Exposure Prophylaxis

**Purpose**
Establish protocol for management of occupational exposures to blood or potentially infectious materials.

**Audience**
All employees of UTMB hospitals, clinics, outpatient surgical center, contract workers, volunteers, and students.

**Policy**
Exposures to bloodborne pathogens will be managed as described in sections to follow for any occupational exposure of healthcare workers or students. UTMB will assume responsibility for testing of a source patient in the care of a UTMB facility.

**Definitions**
Occupational exposures to blood and body fluids are defined as:
- Percutaneous injury (e.g. needlestick, laceration with a sharp object)
- Contact of mucous membranes or ocular membranes (permucosal exposure)
- Contact of non-intact skin (e.g. skin that is chapped, abraded) with Blood or other potentially infectious fluid (semen; vaginal secretions; and cerebrospinal, synovial, pleural, peritoneal, pericardial and amniotic fluids; bloody body fluids and unfixed tissue).

**Contacts**
- **Employee Health Clinic:** 409-747-9172  E-mail: emphlthc@utmb.edu
- **Student Health:** 409-747-9508  Fax: (409) 747-9330
- **Healthcare Epidemiology during office hours:** 409-772-0466
- **Healthcare Epidemiology After hours pager:** 409-643-3133
A. Initial care of exposed area: exposed employee will cleanse site of percutaneous exposure or rinse exposed mucous membranes for permucosal exposure before reporting the exposure.

B. Reporting an exposure:
   1. Healthcare worker or student on main campus: report exposure to supervisor or supervising instructor/faculty.
   2. First responder exposed to a UTMB patient during pre-hospital care: notify ED charge nurse and agency’s infection control officer.
   4. Student: complete student injury form.

C. Testing source patient:
   1. The priority for testing is to secure a specimen on the source patient, when known, and test the source patient for HIV. This determines the need for prophylaxis to prevent HIV, which should be provided within 4 hours. It is important that the source patient also be tested for hepatitis B and hepatitis C, but these are less time-sensitive tests.
   2. Request charge nurse for patient’s location (hospital/urgent care center/clinic) to obtain consent/blood sample. If patient is no longer in the care of UTMB, call the lab to determine if there is an adequate serum sample drawn for routine clinical care. Obtain consent for HIV testing when feasible. Use manual lab slips (available from Employee Health) to order labs. Obtain 1 serum separator tube and label with source patient’s name and medical record number.
   3. The source patient will be tested for the following: HIV, HBsAg, HCV antibody.
      a) Source patient testing at LCC or ADC: perform a rapid HIV test. Send remainder of sample to Sample Management on the main campus, CSW 7.412 (core laboratory) via courier for confirmatory HIV test and for hepatitis B and C.
      b) Main campus: Sample should be sent to Sample Management, CSW 7.412 for all testing.
4. Laboratory test results will be reported to student health for students and employee health for everyone else. If the exposed person does not belong to one of the following categories, results will be forwarded to Healthcare Epidemiology: UTMB employee, UTMB student, student from Galveston College (contract with UTMB student health), correctional officer.

D. Exposure evaluation, counseling, and management

1. Location:

a. Employee exposure: After arranging source patient testing, employee should report to Employee Health Clinic during office hours or to the nearest UTMB urgent care center or emergency department after hours. Employees at remote locations may use the LCC campus or a facility designated by Clinic management for remote locations. The exposure form can be faxed or scanned to the Employee Health Clinic for follow-up on the next business day.

b. UTMB students:
   1) Exposed on a UTMB campus: report to UTMB Student Health during office hours. After hours, report to the designated urgent care center or emergency department.
   2) Student at off-site rotation at facility not operated by UTMB: report exposure per facility policy to assure source patient testing, then report exposure to UTMB student health.
   3) School of Medicine students who are designated as Austin-based or Houston-based should follow the prearranged process with the appropriate facilities per the School of Medicine agreements.
   4) Non-UTMB student-school has contract with UTMB (Galveston College): Follow UTMB student process by reporting to the Student Health Clinic.
   5) Non-UTMB student-school does not have contract with UTMB Student Health: follow process outlined by school. The instructor or UTMB employee who is supervising the student’s training should assist in procuring a blood specimen from the source patient and instruct the student in correct procedure: cleanse exposed area and report to the ED or Urgent Care for evaluation and treatment. Inform student that they should see their primary care provider for any additional follow-up and treatment indicated.

2. Laboratory tests for exposed individual

a. On all employees/students: HIV-1/HIV-2 antibody, HCV antibody and total anti-HBc.

b. In addition, HBV surface antibody should be ordered for employees/students who have a history of HBV immunization.
prior to coming to UTMB.

c. Additional laboratory tests required if Employee/Student is starting prophylaxis for HIV exposure/possible exposure – CBC (use additional lavender top tube for CBC), ALT, AST, total bilirubin, GGT, creatinine, BUN, blood glucose and CPK. Females must have a urine or serum pregnancy test.

3. Evaluation for counseling, prophylaxis, and follow-up instructions
   a. UTMB employee: Employee Health clinicians will review the source patient and employee tests. They will provide counseling, prophylaxis, or vaccination as indicated, and instructions for any additional follow-up testing or assessment by a specialist (e.g. hepatologist, infectious disease physician, or obstetrician).

   b. Non-UTMB employee:
      1) May register as a patient in an urgent care center or emergency department to start HIV prophylaxis
      2) For counseling and additional evaluation, report to the employee’s company/agency designated occupational health provider.
      3) Source patient’s results are reviewed by Healthcare Epidemiology and communicated after removing patient identifiers to company/agency designated infection control officer or occupational health provider
      4) Any follow up care will be provided either by the agency’s designated occupational health provider or the exposed person’s personal physician.

   c. UTMB student or student from school with UTMB student health contract:
      1) Main campus, during office hours for Student Health: report to Student Health clinic for initial evaluation
      2) Off-site, during office hours for Student Health: notify Student Health Clinic for instructions, submit exposure report to Student Health.
      3) School of Medicine students who are designated as Austin-based or Houston based should follow the prearranged process with the appropriate facilities per the School of Medicine Agreements.
      4) Any location, after hours: report to a UTMB urgent care center or emergency department if one is in close proximity. The student should not delay treatment if they cannot report to and be evaluated within 2 hours. In that case, they should report to the nearest ED for evaluation.
5) Source patient results are reviewed by Student Health clinicians to determine need for additional prophylaxis, testing, vaccination, or treatment.

6) Any follow up care will be provided either by Student Health clinicians with appropriate referrals to specialists as needed.

d. Non-UTMB student
   1) May register as a patient in an urgent care center or emergency department for initial evaluation and/or to start HIV prophylaxis.
   2) Any follow-up care will be through a healthcare provider designated by the school or the student’s personal healthcare provider. Report to individual designated by school and follow school policy regarding evaluation and post-exposure testing/treatment.
   3) Source patient’s results without patient identifiers are communicated to designated school official by Healthcare Epidemiology.

e. First responder:
   1) May register as a patient in an urgent care center or emergency department for initial evaluation and/or to start HIV prophylaxis. Any follow up care will be provided by the agency’s designated occupational health provider.
   2) Any campus: report to the agency’s designated infection control officer.
   3) Source patient’s results without patient identifiers are communicated to designated school official by Healthcare Epidemiology.

f. Correctional care officer:
   1) Register as a patient in the ED on the main campus for initial evaluation and prophylaxis as indicated.
   2) Any follow-up care will be arranged through the TDCJ liaison.

E. General guidelines for testing of exposed employee/student:

Routine Occupational Exposure Follow-up
Follow-up is determined by the results of the initial lab work drawn on the source of the occupational exposure. It proceeds as follows:

<table>
<thead>
<tr>
<th>Known HIV(+) source</th>
<th>Obtain HIV antibody @ exposure</th>
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<tbody>
<tr>
<td></td>
<td>6 weeks</td>
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<tr>
<td></td>
<td>3 months</td>
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<tr>
<td></td>
<td>6 months</td>
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Known HBV (+) source
Obtain Total anti-HBc @ exposure
Obtain HBsAg and Total anti-HBc 6 months
Known HCV(+) source
Obtain HCV antibody @ exposure
Obtain HCV Qual RNA (PCR)  6 weeks
3 months
6 months

Unknown source
Obtain HIV & HCV antibody @ exposure
3 months
6 months

Obtain Total anit-HBc @ exposure and HBsAg and Total anti-HBc
6 months

Special Precautions after an HIV(+) or High Risk Exposure
- Do not share a toothbrush. Gums can bleed easily, getting blood on the toothbrush.
- Do not share razors as blood may go undetected on the blade.
- Avoid pregnancy until HIV infection is ruled out (i.e. generally 6 months following exposure, but up to one year).
- Use safe sex practices-male/female latex condoms for barrier protection or abstain from sex during the follow-up period until HIV infection has been ruled out.
- Do not donate blood, plasma, organs, tissue or semen during the follow-up period.
- Seek medical evaluation for any acute illness that occurs during the follow-up period.

F. HIV exposure prophylaxis specifics
1. Post-exposure prophylaxis and testing for HIV exposure
   a. Risk of HIV Infection
      The average risk of HIV infection due to all types of reported percutaneous exposures to HIV-infected blood is 0.3%. A percutaneous exposure is defined as a needlestick or laceration/puncture with a sharp object.

      The risk appears to be greater than 0.3% for exposure to HIV (+) patients involving deep injury, visible blood on the device causing the injury or a device previously placed in the source patient’s vein or artery.

   b. Prescriptions
      1) Initial dose: Pharmacy has stocked several locations, including EDs, urgent cares and some clinics with initial 24 hr dose if source pt results are not available yet, if source patient is HIV positive, or if the source patient is unknown.

      2) When continued prophylaxis is required, the prescription
will be faxed to the Pharmacy. The Pharmacy will arrange to deliver medication to employees who do not work on the main campus via courier.

c. **Prophylaxis Regimens for Exposure to HIV** (Revised September, 2013) Prophylaxis is being offered to employees and students who have a percutaneous injury or contamination of mucous membranes or nonintact skin exposure to HIV during the performance of their duties. Prophylaxis in these circumstances is voluntary. The CDC says, “Because most occupational exposures to HIV do not result in infection transmission, potential toxicity must be carefully considered when prescribing post-exposure prophylaxis (PEP)”

### Medication Schedule

**Prophylaxis will be treatment for four weeks with:**

**Dolutegravir 50 mg tablet (Tivicay)** One tablet by mouth with or without food once daily for 4 weeks.

**AND**

**Emtricitabine/Tenofovir 200mg/300mg tablet (Truvada)** One tablet by mouth with or without food once daily for 4 weeks.

Side effects associated with dolutegravir (Tivicay) include nausea, diarrhea, headache, dizziness, abnormal dreams and difficulty sleeping.

Side effects associated with emtricitabine/tenofovir (Truvada) include nausea, vomiting, diarrhea, abdominal pain, dizziness, gas, loss of appetite, headache, rash, skin discoloration, joint pain and muscle pain. Rarely, this medication may cause jaundice with dark urine and yellowing of the skin or eyes.
Situations for which Infectious Diseases Consultation for Human Immunodeficiency Virus (HIV) postexposure prophylaxis (PEP) is recommended.  * Provision of PEP should not be delayed while awaiting expert consultation. *

- Delayed (ie, later than 72 hours) exposure report. Interval after which benefits from PEP are undefined.
- Breastfeeding in the exposed person
- If source person’s virus is known or suspected to be resistant to one or more of the drugs considered for PEP, selection of drugs to which the source person’s virus is unlikely to be resistant is recommended.
- Toxicity of the initial PEP regimen
  - Symptoms (eg, gastrointestinal symptoms and others) are often manageable without changing the PEP regimen by prescribing antimotility or antiemetic agents.
- Serious medical illness in the exposed person who is already taking multiple medications may increase the risk of drug toxicity and drug-drug interactions.

G. Post-exposure Prophylaxis for Hepatitis B and Hepatitis C

1. Risk of Hepatitis B or Hepatitis C Infection
   The average risk of Hepatitis B virus (HBV) infection in susceptible persons after percutaneous exposure to HBV-infected blood is 6 – 30%. The risk of Hepatitis C virus (HCV) infection after percutaneous exposure to HCV-infected blood is 7.4% (95% CI 3.9%-12.5%).

2. Testing and vaccination regimens for Hepatitis B:
   a. For vaccinated HCW (who have written documentation of a complete, ≥ 3-dose of Hepatitis B vaccine series) with subsequent ≥ 10 mIU/mL, testing the source patient for HBsAg is unnecessary.
   b. Exposed HCW/Student has never received Hepatitis B vaccine
      1) Offer HBV vaccine if source is known to be positive for hepatitis B or is high risk for hepatitis B or source is unknown, (e.g., needle puncture through a trash bag) and employee/student has not been vaccinated against hepatitis B.
      2) Offer Hepatitis B Immune Globulin 0.06 ml/kg IM if source is known to be positive for hepatitis B, or is high risk for hepatitis B or source is unknown, (e.g. needle puncture through a trash bag) and employee/student has not been vaccinated against hepatitis B. Exposed HCW/Student has received 3 doses of Hepatitis B vaccine twice and anti-HBs < 10 mIU/mL
      3) For vaccinated HCW/Student (who have written documentation of Hepatitis B vaccination) with anti-HBs < 10 mIU/mL after two complete ≥ 3-dose Hepatitis B
vaccine series, the source patient should be tested for HbsAg as soon as possible after the exposure. If the source patient is HbsAg-positive or has unknown HbsAg status, HCW/Student should receive 2 doses of HBIG. The first dose should be administered as soon as possible after exposure and the second dose should be administered 1 month later. If the source patient is HbsAg-negative neither HBIG nor Hepatitis B vaccine is necessary.

4) **Exposed HCW/Student has received 3 doses of Hepatitis B vaccine but has not been tested for anti-HBs:** For vaccinated HCW/Student (who have written documentation of a complete, ≥ 3-dose Hepatitis B vaccine series) without previous anti-HBs testing, the HCW/Student should be tested for anti-HBs and the source patient (if known) should be tested for HbsAg as soon as possible after the exposure. Testing the source patient and the HCW/Student should occur simultaneously; testing the source patient should not be delayed while waiting for the HCW/Student anti-HBs test results, and likewise, testing the HCW/Student should not be delayed while waiting for the source patient HbsAg results.

5) **Exposed HCW/Student has < 10 mIU/mL anti-HBs and source patient positive or has unknown HbsAg status.** If the HCW/Student has anti-HBs < 10 mIU/mL and the source patient is HbsAg-positive or has unknown HbsAg status, the HCW/Student should receive 1 dose of HBIG and be revaccinated as soon as possible after the exposure. The HCW/Student should then receive the second 2 doses to complete the second Hepatitis B vaccine series (6 doses total when accounting for the original 3-dose series) according to the vaccination schedule. To document the HCW’s/Student’s vaccine response status for future exposures, anti-HBs testing should be performed 1-2 months after the last dose of vaccine.

6) **Exposed HCW/Student has anti-HBs < 10 mIU/mL and the source patient is HbsAg negative.** If the HCW/Student has anti-HBs < 10 mIU/mL and the source patient is HbsAg-negative, the HCW/Student should receive an additional Hepatitis B vaccine dose, followed by repeat anti-HBs testing 1-2 months later. HCWs/Students whose anti-HBs remains < 10 mIU/mL should undergo revaccination with 2 more doses (6 doses total when accounting for the original 3-dose series). To document the HCW’s/Student’s vaccine response status for future exposures, anti-HBs testing
should be performed 1-2 months after the last dose of vaccine.

7) **Exposed HCW/Student has anti-HBs ≥ 10 mIU/mL at time of exposure.** If the HCW/Student has anti-HBs ≥ 10 mIU/mL at the time of exposure, no postexposure HBV management is necessary, regardless of the source patient’s HbsAg status.

8) **Exposed HCW/Student unvaccinated or incompletely vaccinated (including those who refused vaccination).** For unvaccinated or incompletely vaccinated HCW/Student (including those who refused vaccination), the source patient should be tested for HbsAg as soon as possible after the exposure. Testing unvaccinated or incompletely vaccinated HCW/Student for anti-HBs is not necessary and is potentially misleading, because anti-HBs ≥ 10 mIU/mL as a correlate of vaccine-induced protection has only been determined for persons who have completed an approved vaccination series. If the source patient is HbsAg-positive or has unknown HbsAg status, the HCW/Student should receive one dose of HBIG and one dose of Hepatitis B vaccine administered as soon as possible after the exposure. The HCW/Student should complete the Hepatitis B vaccine series according to the vaccination schedule. To document the HCW’s/Student’s vaccine response status for future exposures, anti-HBs testing should be performed approximately 1-2 months after the last dose of vaccine. Because anti-HBs testing of HCW/Student who received HBIG should be performed after anti-HBs from HBIG is no longer detectable (6 months after administration), it will likely be necessary to defer anti-HBs testing for a period longer than 1-2 months after the last vaccine dose.

3. Testing and follow-up recommendations for Hepatitis C. Employees/Students testing positive for Hepatitis C Qualitative RNA (PCR) at 6 weeks, 3 months or 6 months, will be referred immediately to a hepatologist for treatment.
References:


