**PURPOSE:**

With current treatment options for HIV disease and the evolution of knowledge about hepatitis C, it is important to promptly and carefully evaluate potential exposures to bloodborne pathogens.

The purpose of this policy is to establish a uniform system for medical management and epidemiological monitoring of all percutaneous and significant mucous membrane exposures to blood and/or other body substances which have potential for resulting in infection with hepatitis B or C viruses and/or human immunodeficiency virus (HIV), in accordance with CDC Guidelines, OSHA regulations, and the latest P.H.S. recommendations for chemoprophylaxis after occupational exposure to HIV.

**DEFINITION:**

1. **Bloodborne pathogens**. The following body fluids, tissues and substances are potential sources of HIV, Hepatitis B and Hepatitis C exposure and should be taken into consideration in the post-exposure assessment:
2. blood or blood containing body fluids, tissues or substances visibly contaminated with blood;
3. amniotic, cerebrospinal, pericardial, peritoneal, pleural or synovial fluids;
4. inflammatory exudates;
5. semen and vaginal secretions;
6. human milk (at CHLA);
7. viral cultures, regardless of the age of the specimen.
8. **Principal Routes**. The principal routes of exposure to substances that carry a potential risk of HIV transmission are:
9. percutaneous injuries (i.e.: skin puncture from contaminated needle or laceration from contaminated sharp objects);
10. exposure of mucous membranes;
11. exposure of non-intact skin.
12. **The type and extent of exposure**. Type and extent of exposure are assessed according to the following criteria:

a. High risk source

i. patient with AIDS or HIV positive;

ii. Asian born or Pacific Island born (hepatitis B only).

* 1. High risk history

1. hemophilia with factor replacement prior to 1987
2. household contact of a hepatitis B virus carrier;
3. recipient of blood transfusions in the past year;
4. child born to high-risk parents, i.e.:

* acute chronic liver disease
* rejection as a blood donor
* multiple blood transfusions prior to 1986
* multiple episodes of venereal disease
* percutaneous use of illicit drugs
* males: sexual contact with another man or multiple sex partners
* prostitution or multiple sex partners
* sexual partners of a high-risk person
  1. High risk exposure

1. deep injury (causing bleeding) from a hollow-bore (larger the bore the higher the risk), blood-filled needle;
2. direct contact with concentrated virus in a research lab.
   1. Low risk exposure
3. needle stick injury or laceration (causing bleeding) from an instrument visibly contaminated with blood;
4. exposure of an open wound or conjunctivae to blood or to body substance visibly contaminated with blood;
5. prolonged blood contact over large areas of skin (if skin is completely intact risk is lowered)
6. exposure of a closed wound or mucous membranes to blood or body substance visibly contaminated with blood.
   1. Very Low risk exposure
7. superficial injury (not causing bleeding);
8. wound caused by a bite breaking the skin (in this case there is little risk to the person bitten unless the saliva was visibly contaminated by blood prior to biting).
   1. No documented risk
9. contamination of intact skin (small area) by blood;
10. injury with instrument not visibly contaminated with blood.
11. contact with skin or mucous membrane by urine, emesis, or saliva not containing visible blood.
    1. Risk in category 4a, 4b and 4c is further increased if source patient is in end stage of AIDS or is in the window period of HIV infection;
    2. Skin wounds due to bite (risk category 4e.ii) should be evaluated on a case-by-case basis, depending on the risk status of the source.
12. CDC recommendations with respect to health-care workers (HCW). Health-care workers who do invasive procedures should know their HBsAg and HIV antibody status, any CHLA HCW who does invasive procedures may elect to have a baseline hepatitis B surface antigen (HBsAg) or HIV antibody test done by contacting Employee Health Services (EHS).
13. HCW baseline blood testing. \*If a HCW consents to baseline blood testing, but not to HIV baseline testing, a blood sample will be stored for 90 days to allow the HCW time to reconsider.
14. Precautions will be taken to protect HCW confidentiality as well for post-exposure testing.
15. HCWs who do not do invasive procedures and HCWs who are exposed or do invasive procedures and who desire a higher level of confidentiality should be referred to HIV testing and counseling at alternative sites.
16. Records on HCW exposure events are maintained for the duration of employment plus 30 years.

**PROCEDURE:**

1. All bloodborne pathogen exposures must be reported and exposed employees must be offered medical evaluation.
2. HCWs sustaining an exposure should immediately flush the exposed area copiously with water (sterile water or saline may be used for eye exposure), removing any foreign material embedded in the wound if present and wash the wound thoroughly with soap and running water (betadine may be used).
3. HCW should report the exposure to their manager or supervisor immediately.
4. Follow IC 601.1 for exposures during hours that Employee Health is closed (Monday-Friday 4 PM to 6 AM, and weekends). When EHS is closed, exposed HCWs should report the incident IMMEDIATELY to the house supervisor through the CHLA operator.
5. For exposures during hours that Employee Health is open (Monday-Friday 6 AM to 4 PM), the following steps need to be taken immediately:

* Treating provider will need to obtain verbal consent, place orders and make sure the source individual’s blood is drawn right then before releasing the source from the clinic or hospital
* Exposed individual should report promptly to Employee Health for follow-up and evaluation

1. Every effort should be made to evaluate high-risk exposures within an hour of the incident.

**HEPATITIS B**

1. When the source is HBsAg positive and a significant blood exposure has occurred, personnel with KNOWN sufficient antibodies to hepatitis B (HBsAb > 10 SRU), whether by natural infection or immunization, need no prophylaxis for hepatitis B.
2. Any non-protected person or one with UNKNOWN protection status, whether hepatitis B vaccine was administered or not, will require investigation by testing the source for HBsAg and the HCW for HBsAb.
   1. if source is negative for HBsAg and HCW is negative for HBsAb, no treatment necessary;
   2. if source is negative for HBsAg and HCW is positive for HBsAb, no treatment necessary;
   3. if source is positive for HBsAg and HCW is positive for HBsAb, no treatment necessary;
   4. if source is questionable, unknown, or positive for HBsAg and HCW is negative for HBsAb, administer HBIG and begin vaccine series;

**HEPATITIS C**

1. All sources and exposed HCWs should be tested for anti-HCV baseline.
2. When the source is known to be or has a potential for being HCV positive and a significant blood exposure has occurred:
3. obtain alanine aminotransferase (ALT) and anti-HCV baseline value at 0, 3 and 6 months after exposure;
4. counsel regarding symptoms: anorexia, nausea or vomiting, malaise, abdominal pain, dark urine, jaundice;
5. Counsel regarding risks and precautions.

**HUMAN IMMUNODEFICIENCY VIRUS**

If the source is HIV positive or high risk, a decision regarding postexposure prophylaxis (PEP) should be made promptly since recent data suggest that specific antiretroviral chemoprophylaxis reduces the risk of seroconversion in exposed HCWs. Treatment, if elected, should be started as soon as possible, (preferably within two hours of exposure, but no later than 72 hours following exposure). Treatment recommendations for source HIV unknown or source HIV positive will be at the discretion of the Clinical Immunologist.

1. When the source is HIV positive and a significant exposure occurred:
2. Obtain blood from the HCW and do a Rapid HIV blood test, Hep B Surface Ab, Hepatitis B surface antigen, Hep C Ab, ALT and AST. Initially seronegative HCWs should be retested for HIV, HEP C Ab, and Hb Surface Ag at 6 weeks, 3 and 6 months after exposure.
3. If HCW refuses to consent to HIV test, complete documentation of efforts to obtain consent and refusal to consent must be made in HCW's medical record. HIV prophylaxis will not be offered if HCW refuses to consent to HIV testing.
4. Counsel HCW to:
5. report to EHS for any acute illness especially if characte­rized by fever; myalgia, profound fatigue, malaise, persistent headaches, rash or lymph­adenopa­thy that occurs within 14 weeks of exposure;
   * 1. refrain from blood, semen or organ donation;
     2. use proper precautions during sexu­al intercourse;
     3. women should not breast-feed their infants;
6. If EHS is closed, follow the protocol in IC 601.1 for after-hour exposures. The on-call Clinical Immunologist will recommend antiretroviral chemoprophylaxis and counsel the HCW as outlined regarding:
   * 1. risk of occupationally acquired HIV infection due to exposure;
     2. theoretical rationale for post-exposure prophylaxis
     3. current knowledge of antiretroviral chemoprophylaxis toxicity and limitations of this knowledge in predicting toxicity in uninfected individuals who take these drugs after occupational exposure;
     4. option to decline post-exposure prophylaxis.
     5. need for post-exposure follow-up.

\*When EHS is open, and the source is HIV unknown or HIV positive, the EHS clinician will consult with the clinical Immunologist and counsel the patient regarding the above issues. The EHS clinician will offer and provide chemoprophylaxis as advised by the clinical immunologist. Prophylactic therapy can be ordered by the EHS practitioner as recommended by the Clinical Immunologist when EHS is open and will be furnished by the in-patient pharmacy. If EHS is closed, the clinical immunologist on call will counsel the HCW and call in the prescription to the in-patient pharmacy. Arrangements for the HCW's further drug supply, follow-up and monitoring will be made by EHS.

1. If the HIV status of the source is unknown, but the source belongs to or is suspected of belonging to a high risk group, follow these steps:
2. Obtain blood from the HCW and do a Rapid HIV blood test, Hep B Surface Ab, Hepatitis B surface antigen, Hep C Ab, ALT and AST.
3. If HCW refuses to consent to HIV test, complete documentation of efforts to obtain consent and refusal to consent must be made in HCW's medical record. HIV prophylaxis will not be offered if HCW refuses to consent to HIV testing.
4. Inform source patient of the exposure and tell the source patient or his parent that you want their permission to do an HIV test – fill out the document noting you obtained verbal consent (Appendix 601.2). The treating practitioner needs to be aware the testing is being done and when possible, testing will be ordered and entered by the EHS staff when EHS is open or by the treating MD/NP and facilitated by the house supervisor when EHS is closed (see appendix A). The results will be provided to both the source patient’s treating practitioner and to EHS. The source patient’s treating practitioner will be responsible for communicating those results to his or her patient and for any follow-up treatment indicated with respect to the source patient. The EHS practitioner will provide results and follow-up for the at risk employee. \*If the source patient is under 5 months old, a blood test also needs to be performed on the source patient’s mother.
5. Follow-up testing for healthcare workers:
6. If the HIV test on patient and patient’s mother are negative, the HCW will be tested at baseline, 6wks, 3mos, and 6mos.
7. If the HIV test on the source patient or source patient’s mother are positive, follow same procedure as with any HIV positive source as under 1.
8. If source patient refuses HIV testing, follow same procedure as with HIV positive source under 1.
9. If HIV status of source patient is not known but source does not belong to any high risk group, the HCW will be tested at baseline, 6 wks, 3 mos, 6 mos.

4. Additional counseling for HCW should be arranged if necessary.

**ATTACHMENTS:**

1. [IC - 601.1 Flyer –After Hours BBP Exposure](https://secure.compliance360.com/ext/sD7GjXZsbQtS076TvDdEew==)
2. [IC - 601.2 Verbal Consent for HIV](https://secure.compliance360.com/ext/MUSIUhHi0d3HVvsIwxScBw==)

**REFERENCES:**

1. MMWR/ Vol. 54 / No. RR-9. Sept. 30, 2005. Updated Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis
2. MMWR/ Vo1. 55/No. RR-16 Dec. 8, 2006. Appendix B Postexposure Prophylaxis to Prevent Hepatitis B Virus Infection.
3. Bloodborne Pathogens 2009 update 29 CFR 1910.1030 *mrw/opeiu459aflcio/H/Bloodborne/BloodbornePathogensUpdaterev.doc*

CDC Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Post-exposure Prophylaxis (PEP) Sept. 25, 2013. https://stacks.cdc.gov/view/cdc/20711

1. PEP guidelines, Mountain Plains AIDS Education and Training Center, School of Medicine, Division of Infectious Diseases, University of Colorado Health Sciences Center, Denver Colorado – National HIV/AIDS Clinician Consultation Center.
2. MMWR/December 14, 2007/ 56(49); 1291-1292, Notice to Readers: Updated Information Regarding Antiretroviral Agents Used as HIV post exposure Prophylaxis for Occupational HIV Exposures

**POLICY OWNER:**

*Manager, Employee Health*