

UConn Health Employee Health

GUIDELINES FOR MANAGEMENT OF OCCUPATIONAL EXPOSURE TO BLOOD BORNE PATHOGENS

These guidelines are intended to supplement Procedure Number 2011-05: Occupational Exposure to Bloodborne Pathogens-Evaluation and Treatment.

These guidelines represent recommendations to assist the treating clinician(s) in the evaluation and management of blood and body fluid (BBF) exposure. The final decision(s) as to the evaluation and management of the BBF exposed patients remain the purview and sole discretion of the treating provider(s).

GUIDELINES FOR OCCUPATIONAL EXPOSURE TO HIV

The purpose of these guidelines is to provide recommendations for assessing and treating workers who have sustained occupational exposure to blood or body fluid contaminated with HIV. These guidelines are based upon best-practice evidence, existing published studies, and the considered opinions of expert clinicians, and 2013 updated US Public Health Service Guidelines. In approaching post-exposure anti-viral prophylaxis (PEP), these guidelines emphasize timeliness, simplicity, and tolerability in order to facilitate compliance and optimize the likelihood of completion of a full 28-day course of PEP. In order to suppress the risk of viral replication and abort an early infection, these guidelines recommend the use of a **three drug regimen for ALL exposures** that pose a HIV risk. Regimens containing potent agents with rapid onset of activity that target multiple sites of antiviral activity are considered to be the most likely to be effective.

1. RISK ASSESSMENT FOR HIV EXPOSURE

Through 2010, there have been fifty-seven cases of documented seroconversion following occupational HIV exposure reported to the CDC. The risk of infection after a percutaneous injury to HIV infected patient blood is 0.3% or roughly 1/300. Factors that increase the risk of seroconversion include: the presence of a deep injury, a source with a high viral load, a hollow bore needle that had previously been in a source's blood vessel, and a needle with obvious blood contamination.

The average risk of seroconversion is approximately 0.09% (1/1000) following a mucous membrane exposure to HIV contaminated fluid.

Exposure to INTACT skin is not regarded as a significant risk. However, non-intact skin may constitute a portal of entry. Non-intact skin may include fissured, cracked, or abraded skin. Eczema and other types of dermatitis may also constitute non-intact skin.

Other potentially infectious fluids include semen, vaginal secretions, breast milk, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid.

Feces, nasal secretions, saliva, sputum, sweat, tears, urine, and vomitus are not considered potentially infectious for HIV unless visibly bloody.

TYPES EXPOSURES THAT MAY REQUIRE HIV PEP

Risk Assessment by Type of Exposure

- Break in the skin by a sharp used object (including hollow-bore, solid bore, and cutting needles, broken glassware, or other sharp instrument) that is potentially contaminated with blood, visibly bloody fluid or other potentially infectious material, or that has been in the source's blood vessel
- Bite from a source with visible bleeding in the mouth that causes a break in the skin or bleeding in the exposed worker. For human bites, clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to blood borne pathogens.
- Splash of blood, visible bloody fluid, or other potentially infectious material to a mucosal surface (mouth, nose, eyes).
- Exposure to blood, visibly bloody fluid, or other potentially infectious material to non-intact skin (e.g. dermatitis, chapped skin, abraded skin, or open wound).

Risk Assessment by Source Status

- Source known to be HIV positive, start PEP and obtain a HIV viral load on the source
- If source HIV status is unknown, obtain a Rapid HIV test on the source and consider administering a first dose of PEP to the exposed pending results of source testing.
- If unable to determine source's HIV status (e.g. needle in laundry, or sharps container), then PEP determined on a case-by-case basis depending upon HIV risk assessment and exposed individual's preference.
- Do not delay PEP pending testing and consultation.

2. MANAGEMENT OF HIV EXPOSURE

Initial actions following exposure:

- Advise the patient to stop or finish the procedure ASAP and seek Immediate medical care
- Clean skin site with soap and water.
- Eye or mucous membrane exposures should be irrigated with water or normal saline.
- Avoid squeezing or traumatizing wounds
- Avoid use of bleach or caustic agents on skin
- Contact employee health at 860-679-2893 or go to the Emergency Department if after-hours. If treated in the Emergency Department, follow-up with Employee Health within 72-hours.

Completing Exposure Forms and Labwork

- Follow the instructions provided on the Blood and Body Fluid Exposure Forms for the Exposed Individual (Blue Form) and Source (Pink Form) with pre-designated unique MESH#. Complete these forms.
- Label the Lab Tubes with the corresponding unique MESH#. The source specimen is identified by the MESH# followed by the letter "A" following the case MESH#.
- Do not include patient names or medical record numbers on lab requisitions or tubes.

Consent for Source HIV Testing:

- The General Permission to Treat and Consent to Basic Treatment and Diagnostic Procedures at UConn Health includes voluntary testing for HIV. A patient may decline to be tested for HIV.
- **Connecticut General Statutes Section 19a-581 through 19a-590** provides direction for areas such as consent for testing and disclosure of HIV related information. These **statutes should be carefully reviewed and referenced** whenever HIV testing is contemplated or when HIV related information is requested or received.
- CGSA 19a-582 (d)(5) of the Connecticut State Statutes provides guidance for Source HIV testing without consent in the case of a significant occupational exposure providing specified conditions are met.

Routine Baseline lab tests to obtain on individuals exposed to blood and body fluids.

EXPOSED	Baseline
	HIV Antibody
	HEP B Surface Antibody
	HEP C Antibody

Baseline lab tests to obtain on source

SOURCE	Baseline
	RAPID HIV Ab*
	HIV Antibody*
	HEP B Surface Antigen
	Hepatitis C Antibody

***Obtain HIV viral load if source is HIV positive.**

All Completed Exposure Charts should be delivered to Employee Health via the Courier.

CHEMOPROPHYLAXIS AFTER OCCUPATIONAL EXPOSURE TO HIV

- Initiate PEP as soon as possible, ideally within 2 hours of exposure.
- Dispense a five day starter pack of medications to avoid disruption of the treatment regimen pending insurance authorization.
- Inform the patient that **a full course of PEP is 28 days** of treatment and the starter pack **DOES NOT** constitute a full course.
- If initially evaluated in the Emergency Department, advise the patient to be evaluated at Employee Health within 72 hours. The patient may call 860-679-2893 to schedule an appointment.

Antiretroviral regimens for occupational post-exposure prophylaxis of HIV infection

- Use a **three drug regimen** when starting PEP.
- Consider co-morbidities, drug-drug interactions and safety profile when choosing a PEP regimen.

Preferred Standard Regimen:

Tenofovir-emtricitabine (Truvada) 300/200 mg (one tablet) orally once daily
plus
Raltegravir (Isentress) 400 mg one tablet orally twice daily

Situations for Infectious Disease Consultation

If indicated, call the operator to obtain immediate infectious disease consultation. The first dose of PEP should not be delayed while awaiting consultation.

Example Indications for Immediate Infectious Disease Consultation:

- Source may have a drug-resistant HIV infection (i.e., the source is taking antiretroviral therapy but still has detectable viremia).
- Exposed person is breastfeeding.
- The exposed person has significant renal insufficiency due to the potential nephrotoxicity related to Truvada and requirement for renal dose adjustment.
- Other concerns.

National Clinicians Post-Exposure Prophylaxis Hotline (PEPLine) at 888-488-4911 is an alternative resource for immediate consultation.

Follow-up patient instructions:

- ✓ Advise ALL exposed individual (worker, student, volunteer) to call 860-679-2893 and schedule an appointment with Employee Health within 72 hours whether or not PEP is initiated.
- ✓ Review PEP medication side effects.
- ✓ Counsel regarding safe sexual practices
 - Use barrier methods of contraception
 - Avoid pregnancy
- ✓ Avoid blood or tissue donations
- ✓ Avoid breastfeeding
- ✓ Advise the exposed individual to seek medical care for febrile illness

Follow-up appointments:

At Employee Health at 72 hours, 6 weeks, 12, weeks, and 6 months at minimum.
 While taking PEP, exposed individuals should have weekly follow-up in Employee Health and undergo complete blood cell count, renal function, and hepatic function tests at baseline, 2 weeks, and further if needed.

Lab tests to draw for ALL EXPOSED individuals**

At Baseline	One Month	Three month	Six Month
HIV AB	HIV AB	HIV AB	HIV AB
HEP B Surface Antibody			
HEP C AB	HEP C RNA If source HepC pos or Unknown	HEP C RNA If source HepC pos or Unknown	HEP C AB If source HepC pos or Unknown

**Discontinue monitoring of exposed individual if source is negative for HIV, Hepatitis B and Hepatitis C

Additional Monitoring and Lab tests for the exposed individual on PEP**

At Baseline	Week 1	Week 2	Week 4	Week 6	Week 12/ Three month	Six Month
Clinic visit	Clinic visit	Clinic visit	Clinic visit	Clinic visit	Clinic visit	Clinic Visit
CBC, BUN/ creat, Liver tests		CBC, BUN/ creat, Liver tests	***			
Pregnancy test						

**Discontinue PEP and ongoing HIV monitoring if source is negative for HIV. Discontinue all monitoring if source is negative for HIV, Hepatitis B, and Hepatitis C.

***Consider further testing if indicated.

3. OCCUPATIONAL EXPOSURE TO HEPATITIS B and/or HEPATITIS C

The risk of transmission of Hepatitis B (HBV) and/or Hepatitis C (HCV) from an occupational exposure is significantly greater than the risk of HIV transmission. The risk of HCV infection following a needlestick is 1.8%, whereas the risk of HBV infection ranges from 1% to 30%, depending upon the source status . The risk of transmission of HCV from a single mucous membrane exposure is negligible.

Supplemental Treatment Guidelines for Occupational Exposure to Hepatitis B

	Source HBsAg pos	Source HBsAg neg	Source Unknown
EXPOSED			
Unvaccinated	HBIG X 1 Start HB vaccine series	Start HBV vaccine series	Start HBV vaccine series

Known Immunity to Hepatitis B	No treatment	No treatment	No treatment
Known Non-responder to HBV vaccine	HBIG X 2 or HBIG X 1 and HB revaccination	No treatment	If source high risk*, then HBIG X 2
Previously vaccinated: immune status unknown	Test Exposed for HBV Surface Antibody and respond accordingly	No treatment	Test Exposed for HBV Surface Antibody and respond accordingly

HBV: Hepatitis B

HBsAg: Hepatitis B Surface Antigen

HBIG: Hepatitis B Immunglobulin 0.06 ml/kg I.M. Repeat at 30 days following exposure.

*High-risk is defined as sources who engage in needle-sharing or high-risk sexual behaviors, and those born in geographic areas with high HBsAg prevalence (East Asia, Africa).

A **vaccine non-responder** is an individual who has completed a three dose course of Hepatitis B vaccination and fails to mount a significant response defined as serum HBV Surface Antibody >10mIU/ml. The option of giving one dose of HBIG and re-initiating the vaccine series is preferred for non-responders who have not completed a second three-dose vaccine series (total six vaccine doses). To document post-vaccination protective levels of HBV Surface Antibody (>10ml IU/ml), for individuals who also received postexposure HBIG, testing should be delayed until HBsAb from HBIG is no longer detectable (6 months after administration). For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred. Persistent non-responders following a six dose course of vaccination should be tested for HBsAg as active hepatitis is one cause of non-response to vaccination.

Initiation of the HBV vaccine series within 12 to 24 hours of an exposure has been demonstrated to be 70% to 90% effective in preventing HBV infection. The combination of vaccine and HBIG achieves a similar level of efficacy. Among known non-responders to vaccination, one dose of HBIG is 70% to 90% effective in preventing HBV when administered within 7 days of percutaneous HBV exposure, and multiple doses have been shown to be 75% to 95% effective.

Pregnant women can safely receive both the HBV vaccination and HBIG.

Educate exposed workers about the natural history of HBV infection and risks related to infection:

- Avoid alcohol and, if possible, medications that may be toxic to the liver
- Avoid activities that risk transmission to others:
 - Avoid blood-to-blood contact, including sharing personal care items that may have come in contact with blood, such as razors or toothbrushes;
 - Cover wounds and open sores
 - Avoid sexual activity or use barrier methods
 - Avoid donating blood, plasma, organs, tissue, or semen

Supplemental Treatment Guidelines for Occupational Exposure to Hepatitis C

Currently, no effective prophylaxis for HCV has been identified. Immunoglobulin and antiviral agents are not recommended for HCV post-exposure prophylaxis. However, if an individual becomes acutely infected with hepatitis C and is diagnosed at that time, immediate referral to a specialist experienced in the treatment of hepatitis C is strongly recommended.

Obtain Baseline Hepatitis C Antibody on the Exposed and the Source

Follow-up Based Upon Baseline Results:

Source	Exposed Follow-up
HCV-antibody negative	No further Hepatitis C testing is needed
HCV status unknown	Obtain Postexposure Hepatitis C RNA at 6 weeks, 12 weeks and Hepatitis C Antibody at 6 months
HCV positive	Obtain Post-exposure Hepatitis C viral load at 6 weeks, 12 weeks and Hepatitis C Ab at 6 months. Educate exposed as outlined below.

Educate exposed workers about the natural history of HCV infection and risks related to infection:

- Avoid alcohol and, if possible, medications that may be toxic to the liver
- Avoid blood-to-blood contact, including sharing personal care items that may have come in contact with blood, such as razors or toothbrushes;
- Generally, sexual transmission is regarded as a low risk. Factors that may increase the risk of sexual transmission include sex with multiple partners, history of STIs, including HIV, or any other practice that might disrupt mucous membranes. Use barrier methods.
- Avoid donating blood, plasma, organs, tissue, or semen.

Hepatitis C virus is not spread via food or water and is not transmitted by:

- Sharing eating utensils
- Hugging, kissing, or holding hands
- Coughing or sneezing
- Breastfeeding: HCV is not transmitted by breastfeeding; however, clinicians should advise women who may have been exposed to HIV to avoid breastfeeding for 3 months after the exposure.

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