Management of Occupational Blood Exposures to HBV, HCV, or HIV

Step 1:

Provide immediate care to the exposure site

- Wash wounds and skin with soap and water
- Flush mucous membranes with water
- Irrigate eyes with clean water, saline, or sterile irrigant
- Do not squeeze wounds or use antiseptics or caustic agents (e.g., bleach)

Step 2:

Evaluate the exposure

Determine risk associated with exposure

Exposures

Exposures posing risk of infection transmission
- Percutaneous injury
- Mucous membrane exposure
- Non-intact skin exposure
- Bites resulting in blood exposure to either person involved

Substances

Substances posing risk of infection transmission
- Blood
- Fluids containing visible blood
- Potentially infectious fluids (semen; vaginal secretions; and cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids) or tissue
- Concentrated virus

Status

Determine **infection status** of source (if not already known)
- Presence of HBsAg
- Presence of **HCV** antibody
- Presence of **HIV** antibody*
- For unknown sources, evaluate the likelihood of exposure to a source at high risk for **HBV, HCV,** or **HIV** infection
- Do not test discarded needles

**Rapid testing facilitates making timely decisions about HIV PEP.*

Susceptibility

Determine susceptibility of exposed person
- **Hepatitis B** vaccine status
- **HBV** immune status (anti-HBs titer) if vaccine response status is unknown
- Anti-**HCV** and ALT
- **HIV** antibody

Step 3:

Give postexposure prophylaxis (PEP) for exposures posing risk of infection transmission

HBV — see Table
- Give PEP as soon as possible, preferably within 24 hours
- PEP can be given to pregnant women

HCV — PEP not recommended

HIV — see Table
- Initiate PEP within hours of exposure
- Offer pregnancy testing to all women of childbearing age not known to be pregnant; PEP can be given to pregnant women
- Seek expert consultation if viral resistance suspected
- Administer PEP for 4 weeks if tolerated

Step 4:

Perform follow-up testing and provide counseling

Advise exposed persons to seek medical evaluation for any acute illness occurring during follow-up

HBV exposures
- Test for anti-HBs 1-2 months after last dose of vaccine series or vaccine booster
- Follow-up not needed if exposed person immune to hepatitis B or received HBIG PEP

HCV exposures
- Perform testing for anti-HCV and ALT 4-6 months after exposure
- Perform HCV RNA testing at 4-6 weeks if earlier diagnosis of HCV infection desired
- Confirm repeatedly reactive anti-HCV EIAs with supplemental tests

HIV exposures
- Evaluate exposed persons taking PEP within 72 hours after exposure and monitor for drug toxicity for at least 2 weeks
- Perform HIV-antibody testing for at least 6 months postexposure (e.g., at baseline, 6 weeks, 3 months, and 6 months)
- Perform HIV antibody testing for illness compatible with an acute retroviral syndrome
- Advise exposed persons to use precautions to prevent secondary transmission during the follow-up period

Recommended HBV PEP

Vaccination and antibody response status of exposed healthcare personnel*	Treatment		
	Source HBsAg† positive	Source HBsAg† negative	Source unknown or not available for testing
Unvaccinated	HBIG§ x 1 and initiate hepatitis B vaccine series	Initiate hepatitis B vaccine series	Initiate hepatitis B vaccine series
Previously vaccinated			
Known responder¶	No treatment	No treatment	No treatment
Known nonresponder**	HBIG x 1 and initiate revaccination or HBIG x 2††	No treatment	If known high risk source, treat as if source were HBsAg positive
Antibody response unknown	Test exposed person for anti-HBs§§ 1. If adequate,¶ no treatment is necessary 2. If inadequate,** 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 vaccine booster

* Persons who have previously been infected with HBV are immune to reinfection and do not require postexposure prophylaxis
† Hepatitis B surface antigen
§ Hepatitis B immune globulin; dose is 0.06 mL/kg intramuscularly
¶ A responder is a person with adequate levels of serum antibody to HBsAg (i.e., anti-HBs ≥10 mIU/mL)
** A nonresponder is a person with inadequate response to vaccination (i.e., serum anti-HBS <10 mIU/mL)
†† The option of giving one dose of HBIG and reinitiating the vaccine series is preferred for nonresponders 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

Recommended HIV PEP

Percutaneous injuries					
	Infection status of source				
	HIV-positive, class 1*	**HIV-positive, class 2***	**Source of unknown HIV status**	**Unknown source**	**HIV-negative**
Exposure type	Asymptomatic HIV infection or known low viral load (e.g., <1500)	Symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load	e.g., deceased source person with no samples available for HIV testing	e.g., a needle from a sharps disposal container	
Less severe, e.g. solid needle, superficial injury	Recommend basic 2-drug PEP	Recommend expanded ≥3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP† for source with HIV-risk factors§	Generally, no PEP warranted; however, consider basic 2-drug PEP† in settings in which exposure to HIV-infected persons is likely	No PEP warranted
More severe, e.g., large-bore hollow needle, deep puncture, visible blood on device, or needle used in patient's artery or vein	Recommend expanded ≥3-drug PEP	Recommend expanded ≥3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP† for source with HIV-risk factors§	Generally, no PEP warranted; however, consider basic 2-drug PEP† in settings where exposure to HIV-infected persons is likely	No PEP warranted
Mucous membrane exposures and nonintact skin¶ exposures					
	Infection status of source				
	HIV-positive, class 1*	**HIV-positive, class 2***	**Source of unknown HIV status**	**Unknown source**	**HIV-negative**
Exposure type	Asymptomatic HIV infection or known low viral load (e.g., <1500)	Symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load	e.g., deceased source person with no samples available for HIV testing	e.g., splash from inappropriately disposed blood	
Small volume, e.g., few drops	Consider basic 2-drug PEP†	Recommend basic 2-drug PEP	Generally, no PEP warranted¶	Generally, no PEP warranted	No PEP warranted
Large volume, e.g., major blood splash	Recommend basic 2-drug PEP	Recommend expanded ≥3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP† for source with HIV-risk factors§	Generally, no PEP warranted; however, consider basic 2-drug PEP† in settings in which exposure to HIV-infected persons is likely	No PEP warranted

* If drug resistance is a concern, obtain expert consultation; initiation of PEP should not be delayed pending expert consultation, and, because expert consultation alone cannot substitute for face-to-face counseling, resources should be available to provide immediate evaluation and follow-up care for all exposures
† The designation "consider PEP" indicates that PEP is optional; a decision to initiate PEP should be based on a discussion between the exposed person and the treating clinician of the risks versus benefits of PEP
§ If PEP is offered and taken and the source is later determined to be HIV-negative, PEP should be discontinued
¶ For skin exposures, follow-up is indicated only if evidence exists of compromised skin integrity (e.g., dermatitis, abrasion, or open wound)

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For more help call the National Clinicians' Postexposure Prophylaxis Hotline (PEPline) 888-448-4911 or visit the PEPline website www.ucsf.edu/hivcntr/PEPline/index.html

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