

PATHCHAT

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Post-exposure prophylaxis after occupational exposure to HIV, HBV and HCV

Introduction

It is important that healthcare workers (HCWs) know the steps to follow when an accidental exposure to infectious bodily fluids occurs. Viruses that can be transmitted after occupational exposure to potentially infectious bodily fluids include HIV, hepatitis B virus (HBV) and hepatitis C virus (HCV). Exposure can occur via the percutaneous route (such as a needlestick injury) or contact with mucous membranes (such as an eye splash) or non-intact skin. Potentially infectious body fluids include blood, tissue, cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, semen and vaginal secretions. Non-infectious body fluids include stool, nasal secretions, saliva, sweat, tears, urine and vomit, unless visibly contaminated with blood. Post-exposure prophylaxis (PEP) is not recommended after accidental exposure to non-infectious body fluids.

Steps to follow after occupational exposure

- Step 1: Gently wash the area with soap and water for at least 30 seconds.
- Step 2: Take a dose of antiretrovirals (ARVs) for HIV PEP immediately. Do not delay this pending HIV testing of the source patient.
- Step 3: Perform appropriate laboratory tests after the counselling and consent of the source patient.

	Source patient	Injured HCW
HIV	>18 months of age: 4 th generation HIV ELISA <18 months of age: 4 th generation HIV ELISA, if positive also HIV PCR If known HIV positive and on ARVs: Request a HIV viral load	4 th generation HIV ELISA (baseline)
HBV	Hepatitis B surface antigen (HBsAg)	Hepatitis B surface antibody (HBsAb)
HCV	Hepatitis C antibody If HCV antibody positive: request a HCV PCR	If the source patient is HCV antibody positive: perform HCV antibody and ALT (baseline)

Rapid HIV tests performed on the source patient must be confirmed with a 4th generation HIV ELISA test (antibody and p24 antigen). Do not stop HIV PEP based on a negative rapid HIV test, which has a longer window period compared to the 4th generation HIV ELISA test.

- Step 4: Review the test results

HIV result interpretation and action to follow

Source patient: HIV	Injured HCW	Action
HIV negative	HIV negative	No PEP unless acute HIV infection is suspected or HCW wishes to take PEP
HIV positive or unknown	HIV negative	Requires HIV PEP with three ARVs for 28 days
HIV positive on ARVs with undetectable HIV VL		Requires HIV PEP with three ARVs for 28 days
HIV positive on ARVs with detectable HIV VL		Requires HIV PEP with three ARVs for 28 days. Standard PEP might not be appropriate, consult an expert for advice.
HIV negative or positive	HIV positive	No PEP

Hepatitis B result interpretation and action to follow

Source patient: HBsAg	Injured HCW: HBsAb	Action
Positive/unknown	HBsAb >10 mIU/mL	No PEP required. HCW is immune.
	HBsAb <10 mIU/mL	Give PEP. HCW is not immune. 1. Non/partial vaccination: HBIG+HBV vaccine course 2. Non responder: two HBIG doses, one month apart
Negative	HBsAb >10 mIU/mL	No PEP. HCW is immune.
	HBsAb <10 mIU/mL	HBV vaccine course to protect against future exposure.

Hepatitis C result interpretation and action to follow

Source patient: HCV	Action
HCV antibody negative	No action required.
HCV antibody positive and HCV PCR negative or positive	No PEP available. Follow up injured HCW to determine whether or not they become infected.

Step 5: Decide on the appropriate PEP regimen

HIV PEP regimens

1 st line ARV regimen		2 nd line ARV regimen
Truvada® Tenofovir 300 mg/Emtricitabine 200 mg (one tablet) daily	or	Combivir®/Duovir®/Lamzid® Zidovudine 300 mg/Lamivudine 150 mg (one tablet) twice daily
and		and
Isentress® Raltegravir 400 mg (one tablet) twice daily		Aluvia® Lopinavir/Ritonavir 400/100 mg (two tablets) twice daily

- If the injured cannot be given Truvada®, substitute with Combivir®
- If the injured cannot be given Isentress® substitute with Aluvia®

Baseline investigations prior to giving HIV PEP

Antiretroviral	Recommended tests	Side effects/complications
Tenofovir	Serum creatinine: Baseline	Contraindicated in kidney disease
Zidovudine	Full blood count: Baseline, 2 weeks, 4 weeks	Anaemia, neutropenia
Lamivudine	None	Well tolerated
Emtricitabine	None	Well tolerated
Raltegravir	None	Well tolerated
Lopinavir/ritonavir	None	Greatest potential for drug interactions

Timing of ARVs for HIV PEP

- ARVs must be started as soon as possible, preferably within one to two hours from the time of exposure and definitely within 72 hours of exposure.
- Although unlikely to be effective, HIV PEP should be administered between 72 hours and one week post-exposure should there be a delay in initiating PEP.
- There is no value in commencing PEP more than one week after exposure.

Hepatitis B

- Previously vaccinated HCWs with a documented HBsAb titre > 10 mIU/mL are regarded as immune and do not require HBV PEP when exposed.
- If the HbsAb level is not known, or the HCW has been partially vaccinated, an HBsAb test must be performed.
- HBV PEP is only indicated if the source patient tests HBsAg positive or the HBsAg status is unknown and the injured HCW is not immune (HBsAb titre < 10mIU/mL) as a result of non/partial vaccination or is a known HBV non-responder.
- A HBV vaccine non-responder is defined as a person with no detectable HBsAb after two prior, complete HBV vaccine courses, who is not chronically infected with HBV.

HBV PEP: non/partially vaccinated HCW	HBV PEP: HBV vaccine non-responder
<p>On exposure: hepatitis B immunoglobulin (HBIG) and HBV vaccine must be given by intramuscular injection at different sites:</p> <ul style="list-style-type: none"> • Hepatitis B immune globulin (200 IU/2 mL) (Hebagam®): 500 IU (5mL) • Hepatitis B vaccine (Engerix-B®, H-B-Vax II® Heberbiovac HB®): one ampoule/dose <ul style="list-style-type: none"> – Complete the vaccine series (second and third dose at one and two months respectively). 	<p>Two doses of HBIG must be given by intramuscular injection a month apart:</p> <ul style="list-style-type: none"> • On exposure: HBIG (Hebagam® 200 IU/2 mL): 500 IU (5mL) • One month later: HBIG (Hebagam® 200 IU/2 mL): 500 IU (5mL)

Hepatitis C

- No PEP is available for HCV exposures.
- If the source patient has a positive hepatitis C antibody test, the injured HCW must be followed up regardless of the HCV PCR result.

Step 6: Follow up testing for the injured HCW after known exposure to HIV and/or HBV and/or HCV

Exposure	6 weeks	3 months	6 months
HIV	4 th generation HIV ELISA	4 th generation HIV ELISA	
HBV			HBsAg, HBcAb
HCV	ALT, if elevated perform a HCV PCR.	ALT, if elevated perform a HCV PCR.	ALT and HCV antibody test. If ALT elevated or HCV antibody positive, perform a HCV PCR.

- A 4th generation HIV ELISA should be the only test performed on asymptomatic HCWs post HIV exposure. HIV PCR or HIV viral load testing on the injured HCW post exposure is not recommended to detect early infection as the time points that these become positive are not well known and can vary. A HIV viral load test should only be performed if HIV seroconversion is clinically suspected.
- Post HBV vaccination: HBsAb one to two months after the last vaccine dose.

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Steps:



Laboratory testing

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Hepatitis B PEP

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