



Percutaneous/ Mucous Membrane Exposure Blood and Body Fluids

What is a percutaneous or mucous membrane exposure?

Exposures occur through needlesticks or cuts from other sharp instruments contaminated with an infected patient's blood or bodily fluid or through contact with the eyes, nose, mouth or skin with a patient's blood or bodily fluids. Precautionary measures should be taken to protect the exposed individual against possible infections including hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV).

How do you prevent percutaneous exposures?

Many needlesticks and other cuts can be prevented by using safer techniques, disposing of used needles in appropriate sharps disposal containers and using medical devices with safety features designed to prevent injuries. Many exposures to the eyes, nose, mouth or skin can be prevented by using appropriate barriers (e.g., gloves, eye and face protection, gowns) when contact with blood is expected.

What are the first steps an individual needs to take if they have been exposed to blood?

- Wash needlesticks and cuts with soap and water.
- Flush splashes to the nose, mouth or skin with water.
- Irrigate eyes with clean water, saline or sterile irrigants.
- Report the incident to your supervisor.
- Seek medical treatment immediately (medical evaluation may include laboratory testing and vaccination).

What steps should a health-care provider recommend immediately following a percutaneous or mucous membrane exposure?

A decision to provide postexposure prophylaxis (PEP) must include the following considerations: 1) is the source of the blood available, 2) is the infectious status of the source known, and 3) is the hepatitis B immunization status of the exposed person known.

Testing and vaccination recommendations for hepatitis B are different when the infectious status of the source is known versus unknown. Hepatitis B Immune Globulin (HBIG) is a form of PEP for hepatitis B and may be advised in certain circumstances. A health-care provider should assess whether or not HIV PEP is indicated. HIV PEP should be considered in settings where high-risk individuals are being treated or live in high prevalence geographic areas. If HIV PEP is indicated, begin within 36 hours.

What testing is recommended for an individual if the source of blood exposure is known?

If the source of the exposure is known to be positive for HBV, HCV or HIV, the exposed person should be tested for hepatitis B surface antigen (HBsAg), HCV antibody and HIV antibody. Testing should be conducted in a timely manner to ensure the exposed person can be treated, if necessary, within the recommended timeframe. The exposed individual does not need to be tested if source is known to be negative for HBV, HCV or HIV.

What testing is recommended for an individual if the source of blood exposure is unknown?

The exposed individual should be tested for hepatitis B antibody (anti-HBs) if previously vaccinated, and baseline antibody levels for HCV and HIV as near the time of exposure as possible. If antibody levels to

hepatitis B are adequate (anti-HBs ≥ 10 mIU/mL), no further testing or treatment for hepatitis B is recommended. If the exposed individual has not previously been vaccinated, has an unknown vaccination history or is a known non-responder (anti-HBs < 10 mIU/mL) to vaccine they should be tested for HBsAg and baseline testing for hepatitis C and HIV.

Does follow-up testing need to occur?

Yes. Follow-up testing needs to occur if the source of the exposure is unknown or has tested positive for HBV, HCV or HIV. Follow-up testing for HCV and HIV should occur at six weeks, three months and six months. At three to six months following exposure, HBsAg testing also may be considered. If vaccine was administered, hepatitis B antibody testing should be conducted one to three months following the completion of the hepatitis B vaccine series.

What vaccines should be given following a blood exposure?

There is no vaccine for HCV or HIV. There is a vaccine to protect against hepatitis B. The series is three doses given at zero, one to two months and six months. HBIG also may be recommended. Vaccine recommendations and the use of HBIG depend upon the vaccination status of the exposed individual. Specific recommendations are listed below in Table 1.

Table 1 Recommendation for Hepatitis B Prophylaxis After Percutaneous Exposure to Blood or Bodily Fluids

Exposed Persons	Treatment when source is found to be:			
		HBsAg +	HBsAg-	Unknown or Not Tested
Unvaccinated		Administer one dose of HBIG and complete hepatitis B vaccine series	May initiate hepatitis B vaccine series	Initiate hepatitis B vaccine
Previously vaccinated	Known Responder (anti-HBs is adequate)	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, administer a booster dose of hepatitis B vaccine.	No treatment	No treatment
	Known Non-Responder (anti-HBs inadequate)	Administer one dose of HBIG in addition to completing the hepatitis B vaccine series	No treatment	If known high-risk source, may treat as if source were HBsAg positive
	Response Unknown	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, complete hepatitis B vaccine series.	No treatment	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, hepatitis B vaccine booster dose

Anti-HBs: Hepatitis B Surface Antibody, adequate response is ≥ 10 milli-international units

Additional Information: For more information, call the North Dakota Department of Health at 800.472.2180.

Resource: Centers for Disease Control and Prevention. Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis MMWR 2001; 50 (No. RR11).

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