

**What is a percutaneous or mucous membrane exposure?**

Exposures that occur through accidental 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 including 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 post-exposure 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 as soon as possible but no later than 24-36 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 source 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 the 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  $\geq 10$  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.

## 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 over a six month period. 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 Virus Prophylaxis After Percutaneous or Mucosal Member Exposure to Blood or Bodily Fluids

Exposed Persons	Treatment when source is found to be:				
		HBsAg +	HBsAg-	Unknown or Not Tested	Postvaccination Serologic Testing
<b>Unvaccinated</b>		Administer one dose of HBIG and complete HBV vaccine series. P	Initiate HBV vaccine series.	Initiate HBV vaccine series.	Yes. Regardless of Source Status.
<b>Previously vaccinated</b>	Known Responder (anti-HBs is adequate)	1. No treatment	No treatment	No treatment	No.
	Known Non-Responder (anti-HBs inadequate)	Administer two dose of HBIG separated by one month.	No treatment	Administer two doses of HBIG separated by one month.	No.
	Response Unknown	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, administer one dose of HBIG and complete hepatitis B vaccine series.	No treatment	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, administer one dose of HBIG and complete vaccine series.	Yes if source is positive for HBV or has an unknown HBV status.

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

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

Resources:

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).

Centers for Disease Control and Prevention. CDC Guidelines for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management MMWR 2013: 62(rr10); 1-19.

American Academy of Pediatrics. [Hepatitis B]. In: Pickering LK, ed. Red Book: 2015 Report of the Committee on Infectious Diseases. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2015:[400-422].

Control of Communicable Disease Manual, 20th Edition-2015, Heymann, David, MD ed.

