

Management of Exposure to Bloodborne Pathogens

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Percutaneous exposure to blood is frequent in health care settings. Fortunately, transmission of bloodborne pathogens (hepatitis B virus [HBV], hepatitis C virus [HCV] and human immunodeficiency virus [HIV]) occurs infrequently due to their low prevalence in the general population and the efficacy of hepatitis B immunization. Transmission rates are highest following percutaneous exposure to HBV positive blood (25.0%), intermediate for HCV (2.5%) and lowest for HIV (0.25%).

Health care facilities, including dental offices and clinics, are responsible for ensuring that percutaneous exposures are minimized through preventative procedures and are appropriately managed when they do occur.¹⁻³

Management of exposure includes:

- general wound care and cleaning;
- counselling of the exposed worker regarding bloodborne pathogens;
- source patient testing if possible for HBV, HCV and HIV (consent of the source person is required);
- documentation of the incident with a review of the cause to determine if such exposures can be prevented in the future;
- postexposure assessment and prophylaxis for the health care worker if indicated;
- baseline and follow-up serology of the health care worker if indicated.

A person who is competent in the management of exposure to bloodborne pathogens should carry out the postexposure assessment. Transmission of hepatitis B carries the greatest risk for the nonimmune health care worker. Those who have not been immunized should begin a vaccine series at the first assessment. Hepatitis B immune globulin (HBIG) should be given within 72 hours if the source patient is positive for hepatitis B surface antigen. Workers who have completed the vaccine series and who have not been documented to have mounted an adequate antibody response should be tested following an exposure to ensure they are immune. Those who

have responded to the vaccine can be considered immune. Workers exposed to hepatitis B who do not have immunity at the time of exposure and who have not previously displayed a response to hepatitis B immunization should receive a dose of HBIG and another series of the vaccine.

Exposure to HIV-infected blood is uncommon in the office setting and the risk of transmission is low. However, issues surrounding transmission of this pathogen tend to result in the greatest amount of anxiety following exposure to blood. Exposure is considered significant if it involves blood or sterile body fluids. HIV does not transgress intact skin. Thus blood or sterile body fluid must penetrate the skin or come into contact with mucous membranes or broken skin. The risk of transmission increases with depth of exposure (mucous membrane < superficial penetration < deep penetration), degree of contamination of the penetrating device (solid-bore needles < hollow-bore needles) and level of virus in the source blood (treated patients with undetectable virus < untreated patients with high viral loads). Antiviral prophylaxis for one month following workplace exposure to HIV provides a 5-fold reduction in the risk of transmission. Drug toxicity generally limits the use of this approach to incidents where the source patient is known to be positive or is at high risk of infection. Antiviral drugs should be initiated within 2 hours of the exposure, if possible. Rapid screening (within 24 hours) of source patients is possible in most populated areas. Workers with documented exposure to HIV require 6 months of follow-up to rule out infection.

Unfortunately, no vaccines or prophylactic drug treatments prevent the transmission of hepatitis C. For those who have had significant exposure, base-line liver enzymes should be recorded and hepatitis C serology should be carried out with repeat testing at 6 weeks, 3 months and 6 months. People whose liver enzymes become elevated or have a positive antibody test should be urgently referred to a specialist with expertise in managing hepatitis C. ♦

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