



## Blood/Body Fluid Exposure Module

**Introduction:** Transmission of bloodborne pathogens [e.g., Hepatitis B virus (HBV), Hepatitis C virus (HCV), Human Immunodeficiency Virus (HIV)] from patients to healthcare worker (HCW) is an important occupational hazard faced by HCP. The risk of bloodborne pathogen transmission following occupational exposure depends on a variety of factors that include source patient factors (e.g., titer of virus in the source patient's blood/body fluid), the type of injury and quantity of blood/body fluid transferred to the HCW during the exposure, and the HCW's immune status. The greatest risk of infection transmission is through percutaneous exposure to infected blood. Nevertheless, transmission of HBV, HCV, or HIV after mucous membrane or non-intact skin exposure to blood has also been reported; the risk of transmission of these pathogens through mucocutaneous exposure is considered lower than the risk associated with a percutaneous exposure.

An estimated 385,000 percutaneous injuries (i.e., needlesticks, cuts, punctures and other injuries with sharp objects) occur in U.S. hospitals each year. Prevention of occupational transmission of bloodborne pathogens requires a diversified approach to reduce blood contact and percutaneous injuries including improved engineering controls (e.g., safer medical devices), work practices (e.g., technique changes to reduce handling of sharps), and the use of personal protective equipment (e.g., impervious materials for barrier precautions). Since 1991, when the U.S. Occupational Safety and Health Administration (OSHA) first issued its Bloodborne Pathogens Standard, the focus of regulatory and legislative activity has been on implementing a hierarchy of control measures. The federal Needlestick Safety and Prevention Act signed into law in November 2000 authorized OSHA's revision of its Bloodborne Pathogens Standard to more explicitly require the use of safety-engineered sharp devices.

([www.osha.gov/SLTC/bloodbornepathogens/index.html](http://www.osha.gov/SLTC/bloodbornepathogens/index.html)). Other strategies to prevent infection include hepatitis B immunization and postexposure prophylaxis for HIV and HBV. Strategies for prevention of percutaneous injuries are addressed in CDC's Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program at <http://www.cdc.gov/sharpsafety/index.html>.

Facilities are not required to collect data for exposures that involve intact skin or exposures to body fluids that do not carry a risk of bloodborne pathogen transmission (e.g., feces, nasal secretions, saliva, sputum, sweat, tears, urine and vomitus) unless these are visibly contaminated with blood. However, facilities that routinely collect data on such exposures may enter this information into the system.

### *(i) Methodology*



Occupational exposures to blood and body fluids in healthcare settings have the potential to transmit HBV, HCV, or HIV. Use of the Blood/Body Fluid Exposure Module permits a healthcare facility to record information about the exposure and its management. This module can be used in any healthcare setting where there is potential for occupational exposure to blood and body fluids among HCP. This module requires that data be entered into NHSN when exposures occur, as indicated in the *Healthcare Personnel Safety Reporting Plan (CDC 57.203)*. In general, these data may be provided by the occupational health department in the facility or may be provided by the infection control/epidemiology department, as appropriate. NHSN forms should be used to collect all required data, using the definitions of each data field.

#### *Blood/Body Fluid Exposure with or without Exposure Management*

A facility may choose to report exposure events alone or exposure events and subsequent management and follow-up of each event, including administration of postexposure prophylaxis (PEP) to the HCW and any laboratory test results collected as part of exposure management.

**Settings:** Any healthcare setting with the potential for occupational exposure to blood and body fluids.

**Requirements:** Blood and body fluid exposures are to be reported during the calendar year. Actively participating NHSN sites will be required to submit blood/body fluid exposure data for a minimum of 6 months per calendar year.

#### **Definitions:**

- **Bite:** A human bite sustained by an HCW from a patient, other HCW, or visitor.
- **Bloodborne pathogens:** Pathogenic microorganisms that may be present in human blood and can cause disease in humans. These pathogens include, but are not limited to hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV).
- **HCW (Healthcare Worker):** A person who works in the facility, whether paid or unpaid, who has the potential for exposure to infectious materials, including body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air. Healthcare worker is the singular form of healthcare personnel.
- **HCP (Healthcare Personnel):** The entire population of healthcare workers working in healthcare settings.
- **Hollow-bore needle:** Needle (e.g., hypodermic needle, phlebotomy needle) with a lumen through which material (e.g., medication, blood) can flow.



- **Mucous membrane exposure:** Contact of mucous membrane (e.g., eyes, nose, or mouth) with the fluids, tissues, or specimens listed below in "**Occupational exposure.**"
- **Non-intact skin:** Areas of the skin that have been opened by cuts, abrasions, dermatitis, chapped skin, etc.
- **Non-intact skin exposure:** Contact of non-intact skin with the fluids, tissues, or specimens listed below in "**Occupational exposure.**"
- **Non-Responder to Hepatitis B vaccine:** A HCW who has received two series of hepatitis B vaccine is serotested within 2 months after the last dose of vaccine and does not have anti-HBs  $\geq 10$  mIU/mL.
- **Occupational exposure:** Contact with blood, visibly bloody fluids, and other body fluids (i.e., semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid, tissues, and laboratory specimens that contain concentrated virus) to which Standard Precautions apply and during the performance of an HCW's duties. Modes of exposure include percutaneous injuries, mucous membrane exposures, non-intact skin exposures, and bites.
- **Percutaneous injury:** An exposure event occurring when a needle or other sharp object penetrates the skin. This term is interchangeable with "sharps injury."
- **Sharp:** Any object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.
- **Sharps Injury:** An exposure event occurring when any sharp penetrates the skin. This term is interchangeable with "percutaneous injury."
- **Solid Sharp:** A sharp (e.g., suture needle, scalpel) that does not have a lumen through which material can flow.

### **Reporting Instructions:**

Forms Description and Purpose: (See also: Tables of Instructions for Completion of Healthcare Personnel Safety Component forms)

*All NHSN sites following the Blood/Body Fluids Exposure Module:*

For either exposure reporting or exposure and exposure management reporting, a site should complete the following form:

- › *Healthcare Personnel Safety Component Facility Survey (CDC Form 57.200) – Used to collect facility administrative data including total acute care beds, inpatient and*



outpatient days, inpatient and outpatient surgeries performed, and total numbers of healthcare personnel (full- and part-time) and numbers of healthcare personnel (HCP) in selected occupational groups (full-time equivalents and numbers of HCP).

#### *Exposure-Only Reporting:*

Those facilities participating in exposure-only reporting should complete the following forms:

- › *Healthcare Personnel Safety Monthly Reporting Plan* (CDC Form 57.203) – Used to collect data on which modules and which months (if any) the facilities intend to participate in NHSN HPS Component. This form should be completed for every month that the facility will participate in the HPS component.
- › *Healthcare Worker Demographic Data* (CDC Form 57.204) – Used to collect data on HCW demographics such as gender and occupation for a healthcare worker who has reported a blood or body fluid exposure. This form also is used optionally to collect information about immune status for certain vaccine-preventable diseases (e.g., measles, mumps, rubella).
- › *Exposure to Blood/Body Fluids* (CDC Form 57.205) – Used to collect information about individual blood and body fluid exposure events. Sections I – IV should be completed for all reported exposures. For percutaneous injuries with a needle or sharp object that was not in contact with blood or other body fluids (as defined in “occupational exposure”) prior to exposure, collection of data is optional.

#### *Exposure and Exposure Management Reporting:*

Facilities participating in exposure reporting and exposure management should complete the forms listed below in addition to those listed above:

- › *Exposure to Blood/Body Fluids* (CDC Form 57.205) – Used to collect information about individual blood and body fluid exposure events. Sections I – IV should be completed for all reported exposures. If a facility chooses to follow the protocol for exposure management, Sections V – IX are also required.
- › *Healthcare Worker Prophylaxis/Treatment – BBF Postexposure Prophylaxis (PEP)* (CDC Form 57.206) – Used to collect details of medications administered to a healthcare worker following blood or body fluid exposure to HIV or HBV. This form is required if the facility follows the exposure management protocol.
- › *Follow-Up Laboratory Testing* (CDC Form 57.207) – Used to collect additional laboratory testing results obtained on an HCW following a blood or body fluid exposure as part of exposure management. These serologic and other laboratory results are not required for exposure management but provide details for facilities opting for the long-term follow-up of exposures and evidence of seroconversion.



### **Data Analysis:**

The use of the Blood/Body Fluid Exposure and Exposure Management Modules will allow the participating NHSN site to estimate the nature, frequency, circumstances, and sequelae of occupational exposures to: 1) blood and body fluids 2) tissue 3) concentrated virus, and 4) bloodborne pathogens (HBV, HCV, and HIV). In addition, facilities can assess for changes in percutaneous injuries with the implementation of safety devices and other prevention strategies, the timeliness of initiating HIV postexposure prophylaxis (PEP) when indicated, assess the duration of HIV prophylaxis, and the proportion of HCP experiencing adverse signs and symptoms after taking HIV PEP for occupational exposures.

Denominator data from the annual Facility Survey (CDC 57.200) can be used to estimate rates of exposures to blood/body fluids and to assess the effectiveness of engineering controls, work practices, and protective equipment in reducing exposure.

### **References:**

The following CDC/PHS publications provide recommendations for management and follow-up of blood and body fluid exposures to HBV, HCV, and HIV:

- Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis (MMWR, June 29, 2001 / 50(RR11); 1-42)
- Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis (MMWR, September 30, 2005 / 54(RR09); 1-17). Some PEP regimens changed from previous update.
- A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States. (MMWR), December 8, 2006 / 55(RR16); 1-25)