

Bloodborne Pathogens

HS99-152C(2-05)

Goal

This program provides information about the requirements of the Occupational Health and Safety Administration (OSHA) Bloodborne Pathogens Standard, 29 Code of Federal Regulations (CFR) 1910.1030. Information about the Needlestick Safety and Prevention Act will also be provided.

Objectives

The reader will understand the requirements of the OSHA Bloodborne Pathogens Standard including definitions, minimum elements of an *exposure control plan* (ECP), engineering and work practice controls, methods of compliance with the standard, use and availability of the hepatitis B vaccine, actions required in the event of an exposure, post-exposure follow-up, labeling, training, workplace communication of hazards, and required record keeping.



Background

The Bloodborne Pathogens Standard, in effect since June 4, 1992, was designed to address occupational exposure to body fluids. This standard also protects health care workers and workers in a variety of professions such as first aid responders, medical researchers, teachers, and laundry workers, etc. The standard is based on the Centers for Disease Control and Prevention's (CDC) 1987 universal precautions intended to protect workers at risk of exposure. These precautions direct that all blood and specified human body fluids should be treated as potentially infectious. OSHA revised the Bloodborne Pathogens Standard, effective April 18, 2001, in response to health care workers' and workers' in the general industry (i.e., first-aid responders, laundry and custodial workers, etc.) concerns about blood or other potentially infectious body fluid.

According to OSHA estimates, more than 5.6 million workers could be potentially exposed on the job. Also, according to the National Institute for Occupational Safety and Health (NIOSH) in March 1999, an estimated 600,000-800,000 health care workers sustain needle sticks and other percutaneous (through the skin) injuries each year. Needlestick injuries and other sharps related injuries that result in occupational bloodborne exposure continue to be an important public health issue.

The inclusion of the Needlestick Safety and Prevention Act, effective April 18, 2001, modified the Bloodborne Pathogens standard to set forth in greater detail the requirements that employers identify, evaluate, and make use of effective safer medical devices.

Definitions

Blood refers to human blood, human blood components, and products made from human blood.

Bloodborne pathogens refer to pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, the hepatitis B virus (HBV), hepatitis C virus (HCV) and the human immunodeficiency virus (HIV).

Contaminated refers to the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Engineering controls means controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazards from the workplace.

Exposure incidents refer to a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood, or other potentially infectious materials that result from the performance of an employee's duties.

Needleless systems are devices that do not use a needle for:

- collection of bodily fluids;
- administration of medication/fluids; and
- any other procedure with potential percutaneous exposure to a contaminated sharp.

Occupational exposure refers to reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the employee's duties.

Other Potentially Infectious Materials (OPIM) are human body fluids that can be potentially infectious:

- semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid;
- saliva in dental procedures;
- any body fluid that is visibly contaminated with blood;
- all body fluids in situations where it is difficult or impossible to differentiate between body fluids;
- any unfixed tissue or organ (other than intact skin) from a human (living or dead);
- organ cultures, culture medium or other solutions containing HIV or HBV, cells or tissue cultures containing HIV; and
- blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral means piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.

Sharps are medical items used in health care, which have sharp points or cutting edges capable of causing injury to, or piercing human skin, when handled. Items may be made of metal with cutting edges or sharp points (i.e., single-use hypodermic needles, scalpel blades, staples, lances, etc.), glass (chipped, cracked or broken), or plastic (with torn or serrated edges).

Work practice controls are devices that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., use of a mechanical device or a one-handed technique).

Exposure Control Plan

The Bloodborne Pathogens Standard requires employers with any employees at risk for occupational exposure to develop a written exposure control plan (ECP). The purpose of the ECP is to eliminate or minimize employee exposure. The plan must have the following required minimum elements:

1. exposure determination
2. schedule and method of implementing sections of the standard covering the methods of compliance, hepatitis B vaccination and post-exposure follow up
3. procedures for evaluating an exposure incident
4. process to maintain records of all training, hazard exposure identification and methods to eliminate exposure(s)
5. review and update ECP annually to include changes in technology that reduce/eliminate exposure
6. annual documentation of consideration and implementation of safer medical devices
7. solicitation of input from non-managerial employees
8. plan must be revised to reflect any changes in tasks, procedures, or any identified potential exposure, and
9. employers must ensure a copy of the plan is accessible to all employees.

Exposure Determination

The employer must review each job to determine whether the potential for exposure to bloodborne pathogens exists, regardless of the use of personal protective equipment. The exposure determination should list:

- job classifications in which *all* employees in those job classifications have occupational exposure; and
- job classifications in which *some* employees have occupational exposure, and a list of all tasks and procedures or groups of closely related tasks and procedures, in which occupational exposure occurs. Specific tasks must be listed because, for example, some workers might be assigned the task of handling contaminated laundry in a hospital laundry room while other laundry personnel may not.

Methods of Compliance

Engineering and work practice controls are the primary methods used to eliminate or minimize occupational transmission of bloodborne pathogens. Personal protective equipment (PPE) and protective clothing are needed when exposure to bloodborne pathogens remains, even after engineering controls are in place. Proper housekeeping is also required to maintain places of employment in a clean and sanitary condition.

Engineering and Work Practice Controls

Selection of engineering and work practice controls is dependent on the employer's exposure determination. The employer's exposure determination must:

- identify worker exposures to blood or OPIM
- evaluate available engineering controls (safer medical devices)
- train employees on safe use and disposal
- implement appropriate engineering controls/devices
- provide training for all new devices and technologies annually
- review all processes and procedures with exposure potential annually
- document entire process in ECP (review and implementation of engineering controls) and
- re-evaluate when new processes or procedures are used.

This serves as the basis for determining when and where the use of engineering and work practice controls must be implemented. Engineering controls must be appropriate for each process and procedure, independently.

Employee training is key. Devices will not be effective if employees do not feel comfortable using them.

Employee exposure can be reduced when engineering controls are used to:

- remove the hazard;
- isolate the hazard; and
- isolate the worker.

Engineering controls must be examined and maintained or replaced on a scheduled basis to ensure effectiveness. The following are examples of engineering controls:

- self-sheathing needles;
- needleless systems;
- puncture-resistant disposal containers for contaminated sharps;
- hand washing facilities;

- resuscitation bags; and
- ventilation devices.

Where occupational exposure remains after institution of these controls, personal protective equipment shall also be used.

The following are examples of work practice controls:

- restrict eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses;
- prohibit mouth pipetting;
- prohibit food and/or drink storage in refrigerators or other locations where blood or other potentially infectious materials are kept;
- routinely check and decontaminate equipment before servicing and shipping;
- wash skin immediately after contact with blood or other potentially infectious material; and
- never recap, remove, or bend needles unless no alternative is feasible or specific medical procedure requires this action.

Personal Protective Equipment

Personal protective equipment (PPE) is considered appropriate only if it prevents blood or other potentially infectious materials from directly contacting clothes, skin, eyes, mouth, or other mucous membranes. PPE is required to protect the worker under normal working conditions and for the duration of the exposure.

The Bloodborne Pathogens Standard requires employers to provide, make accessible, and require the use of PPE at no cost to the employee. PPE also must be provided in appropriate sizes. Sensitive or allergic employees must be provided with hypoallergenic gloves or other similar alternatives. All PPE must be properly used, cleaned, laundered, repaired, and/or replaced as needed.

The following are work practices for safe handling and use of PPE:

- remove contaminated PPE before leaving the work area;
- place used PPE in designated areas or containers for storage, washing, decontamination, or disposal;
- wear appropriate gloves when contacting blood or other potentially infectious material, handling or touching contaminated items or surfaces, or performing vascular access procedures;
- replace gloves if torn, punctured, or contaminated, or if their ability to function as a barrier is compromised;
- never wash or decontaminate disposable gloves for reuse;
- if necessary, use double gloves as a “best practice” protection; and

- wear appropriate face and eye protection to guard against splashes, sprays, spatter, or droplets of blood or other potentially infectious materials.

Solicitation of Non-Managerial Employees

Non-management employees are to be identified to assist in the identification, evaluation, and selection of engineering controls. Employers must select employees that are:

- responsible for direct patient care; and,
- representative sample of those employees with potential exposure

Smaller medical offices may want to seek input from all employees when making their decisions. Larger facilities are not required to request input from all exposed employees; however, the employees selected should represent the range of exposure situations encountered in the workplace (i.e., pediatrics, emergency department, ICU, etc.). The solicitation of employees who have been involved in the input and evaluation process must be documented in the ECP.



Housekeeping

Employers must keep the workplace clean and sanitary. Employers shall develop and implement a written housekeeping schedule for cleaning and methods for decontamination based upon the location within the facility, type of surfaces to be cleaned, the type of contamination present, and types of tasks and procedures performed in the area. *Refer to Table 1 for additional information.*

The Bloodborne Pathogens Standard requires the following housekeeping procedures.

- Clean and decontaminate all equipment and surfaces after any contact with blood or other potentially infectious materials.
- Remove and replace contaminated protective coverings like plastic wrap and aluminum foil.
- Regularly inspect and decontaminate reusable receptacles such as bins, pails, and cans that may have become contaminated.
- Never pick up contaminated broken glass, even with gloved hands; use tongs, forceps, or a brush and dust-pan.

- Reusable sharps must be stored and processed in a manner that does not require employees to reach into the sharps container with their hands.
- Store, handle, transport or ship regulated waste in containers constructed to prevent leakage.
- Provide easy access to sharps containers and keep them in areas where sharps are used.
- Maintain sharps containers in an upright position, replace them on a routine basis, close them when moving, and do not overfill them.
- Never open, empty, or clean reusable sharps containers by hand.
- Dispose of all regulated waste according to federal, state and local regulations.

Laundry

Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded. Whenever contaminated laundry is wet and presents a reasonable likelihood of soak-through or leakage from the bag or container, the laundry shall be placed and transported in bags or containers that prevent soak-through and/or leakage of fluids to the exterior. Employers must ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment. *Refer to Table 1 for additional information.*

- Handle contaminated laundry as little as possible, using appropriate PPE.
- Bag contaminated laundry at the location of use.
- Never sort or rinse contaminated laundry in the location of use.
- Place contaminated laundry in leak-proof, labeled, or color-coded containers before transporting.

Exposure Control

Hepatitis B Vaccination

Employers are required to provide the hepatitis B vaccination series and laboratory tests at an accredited laboratory, and at no cost to employees at risk for occupational exposure. A licensed physician or other licensed health care provider must perform or supervise the vaccination at a reasonable time and place. The vaccination series must be offered to employees within 10 working days of initial assignment to a position with occupational exposure. If the employee has already received the complete hepatitis B vaccination series, or if antibody tests reveal the employee's immunity, or if medical reasons prevent the employee from receiving the vaccinations, the vaccination series need not be given. Employees who decline the

vaccination must complete a declination form. Employees may reserve the right to request and obtain the free vaccination at a later date if the risk for exposure continues.

- how to obtain an accessible vaccination;
- epidemiology, symptoms, and transmission of bloodborne diseases;
- recognition of tasks that might result in occupational exposure;
- explanations of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;
- use and limitations of work practices, engineering controls, and PPE;
- an explanation of the basis for selection of personal protective equipment;
- PPE types, selection, use, location, removal, handling, decontamination, and disposal;
- safety benefits, efficacy, methods of administration, and availability of hepatitis B vaccinations (HBV);
- notice of whom to contact and appropriate actions in an emergency;
- post-exposure evaluation and medical follow-up procedures; and
- warning labels, signs, and/or color-coding.

Training should conclude with a question and answer session.

Record Keeping

Sharps Injury Logs must be kept by those required to keep records under *29 CFR 1904, Occupational Injury and Illness Recording and Reporting Requirements* (may exclude select Standard Industry Classification (SIC) and North American Industrial Classification System (NAICS) codes and employers with 10 or fewer employees).

At a minimum, the log must contain, for each incident:

- Type and brand of device involved;
- Department or area of incident; and
- Description of incident.

The type and brand must be documented, if it is known (refers to situations where a stick occurred through trash or bedding; mostly in housekeeping and maintenance). If attempting to determine the type and brand of device would increase the potential for an exposure, do not proceed (i.e., do not attempt to remove it from sharps container). Simply list the area of occurrence and a description of the incident.

The log must be maintained confidentially. Personal identifiers must be removed from any list when posting or copying.

As employers, it is important to review the log frequently to determine where needle sticks are occurring and why.

Medical Records

Employers must retain the medical records of each employee with occupational exposure in accordance with 29 CFR 1910.20. These records are confidential and should be maintained for the duration of employment plus 30 years. These medical records must contain:

- employee's name and social security number;
- HBV vaccination status including vaccination dates and any records related to the employee's ability to receive vaccinations;
- results of examinations, medical testing, and post-exposure evaluation and follow-up procedures;
- copy of health care provider's written opinion; and
- a copy of the information provided to the health care provider for post-exposure evaluation.

Training Records

Training records must be maintained for three years from the date the training occurred and be made available to employees or their representatives upon request, and include:

- training dates;
- contents or a summary of the training;
- names and qualifications of trainers; and
- names and job titles of attendees.

Review

1. An occupational exposure is defined as a reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood, or other potentially infectious materials that may result from the performance of an employee's duties.

True or False?

2. An employee should practice universal precautions when picking up used blood drawing equipment.

True or False

3. The employee is required to provide their own personal protective equipment.

True or False?

4. Can an employee store their lunch in the lab refrigerator labeled "biohazard"?

Yes or No?

5. An employer can charge their costs to provide hepatitis B vaccinations.

True or False?

Answer Key

1. True.
2. True. Employees practicing universal precautions will assume that all blood and other potentially infectious materials could possibly infect them, and should therefore wear appropriate PPE and practice appropriate work practices.
3. False. Employers must provide and maintain appropriate PPE for employees.
4. No. Food or drinking material may not be stored in refrigerators or freezers containing blood or other potentially infectious materials.
5. False. Employers must provide the vaccination free of charge to all employees at risk for occupational exposure within 10 days of assignment to their position.

Table 1. Labeling Requirements

Item	Biohazard Label	or	Red Container
Regulated waste container (contaminated sharps containers)	X	or	X
Reusable contaminated sharps containers (surgical instruments soaking in a tray)	X	or	X
Refrigerator/freezer holding blood or other potentially infectious materials	X		X
Containers used for storage, transport or shipping of blood	X	or	X
Blood/blood products for clinical use		No labels required	
Individual specimen containers of blood or other potentially infectious materials remaining in facility	X	or	X
* Contaminated equipment needing service (dialysis equipment, suction apparatus)	X		X
** Specimens and regulated waste shipped from the primary facility to another for service or disposal	X	or	X
Contaminated laundry	X	or	X
*** Contaminated laundry sent to another facility that does not use Universal Precautions	X	or	X

* No label is needed if Universal Precautions are used and specific use of container or item is known to all employees.

** Include a label specifying where the contamination exists.

*** Alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with *Universal Precautions*.

Resources

The Texas Department of Insurance, Division of Workers' Compensation (TDI/DWC) Resource Center offers a workers' health and safety video tape library. Call (512) 804-4620 for more information or visit our web site at www.tdi.state.tx.us.

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www.osha.gov
www.cdc.gov
www.tdh.state.tx.us

Safety Violations Hotline

1-800-452-9595

safetyhotline@tdi.state.tx.us

The Texas Department of Insurance,
 Division of Workers' Compensation (TDI/DWC)
 E-mail resourcecenter@tdi.state.tx.us
 or call 1-800-687-7080 for more information.