OSHA: Bloodborne Pathogens

Course ID: 1002 - Credit Hours: 1

**Audience**
The standard covers all health care workers who could be "reasonably anticipated" to face contact with blood and other potentially infectious materials as a result of performing their job duties.

**Accreditation**
KLA Education Services LLC is accredited by the State of California Board of Registered Nursing, Provider # CEP16145.

**Course Objectives**
Upon completion of the lesson, participants will be able to:

1. Give at least 3 examples of workers who are at risk of...
2. List the three ways exposure to bloodborne pathogens commonly occurs.
3. Describe at least 5 key aspects of a Bloodborne Pathogen Exposure Control Plan.
4. Explain how properly used PPE and appropriate housekeeping methods protect against exposure to bloodborne pathogens.
5. List three important steps to take if exposed to a bloodborne pathogen.
“Bloodborne pathogens” means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include among others hepatitis B virus (HBV), which causes hepatitis B; human immunodeficiency virus (HIV), which causes AIDS; hepatitis C virus and other pathogens, such as those that cause malaria.

“Other potentially infectious materials” means:
1. The following human body fluids: 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, and all body fluids in situations where it is difficult or impossible to differentiate between bodily fluids;
2. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and
3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.
Introduction

- Approximately 5.6 million workers in health care and other facilities are at risk of exposure to bloodborne pathogens such as human immunodeficiency virus (HIV – the virus that causes AIDS), the hepatitis B virus (HBV), and the hepatitis C virus (HCV).
- OSHA’s Bloodborne Pathogens standard prescribes safeguards to protect workers against the health hazards from exposure to blood and other potentially infectious materials, and to reduce their risk from this exposure.

29 CFR 1910.1030

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2. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and
3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.
OSHA’s Bloodborne Pathogens standard, 29 CFR 1910.1030, does not apply to construction, agriculture or maritime.

The term “reasonably anticipated” contact means potential contact as well as actual contact with blood or other potentially infectious materials.
The scope of the Bloodborne Pathogens standard is not limited to employees in these jobs. The hazard of exposure to infectious materials affects employees in many types of industries and is not restricted to the health care industry.
It is estimated that 600,000 to 800,000 needlestick injuries occur each year in the United States.

“Contaminated sharps” means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.
The exposure control plan is the key provision of the standard because it requires the employer to identify individuals who will receive the training, protective equipment, vaccination and other protections of the standard.

For more information, see OSHA Instruction CPL 02-02-069, *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens Standard*, Appendix D, *Model Exposure Control Plan*. 
Exposure Control Plan

• Written plan required
• Plan must be reviewed at least annually to reflect changes in:
  – tasks, procedures, or assignments which affect exposure, and
  – technology that will eliminate or reduce exposure
• Annual review must document employer’s consideration and implementation of safer medical devices
• Must solicit input from potentially exposed employees in the identification, evaluation and selection of engineering and work practice controls
• Plan must be accessible to employees

1910.1030(c)(1)(i)

Employees who must be consulted are those non-managerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps.
Universal Precautions

- Treat all human blood and certain body fluids as if they are infectious
- Must be observed in all situations where there is a potential for contact with blood or other potentially infectious materials

1910.1030(d)(1)

Universal Precautions is an approach to infection control used to protect employees from exposure to all human blood and other potentially infectious materials.

Alternative concepts in infection control are called Body Substance Isolation (BSI) and Standard Precautions. These methods define all body fluids and substances as infectious. These concepts are acceptable alternatives to Universal Precautions provided that facilities using them adhere to all other provisions of this standard.
Engineering and Work Practice Controls

- These are the primary methods used to control the transmission of HBV and HIV
- When occupational exposure remains after engineering and work practice controls are put in place, personal protective equipment (PPE) must be used

1910.1030(d)(2)

Employers must solicit input from non-managerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation and selection of engineering and work practice controls.
Engineering Controls

These controls reduce employee exposure by either removing the hazard or isolating the worker. Examples:

• Sharps disposal containers
• Self-sheathing needles
• Safer medical devices
  – Needleless systems
  – Sharps with engineered sharps injury protections
Safer Medical Devices

- **Needless Systems**: a device that does not use needles for the collection or withdrawal of body fluids, or for the administration of medication or fluids
- **Sharps with Engineered Sharps Injury Protections**: a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident
Shearing or breaking of contaminated needles is prohibited.

Contaminated needles and other contaminated sharps must not be bent, recapped, or removed except as noted below:
- The employer can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.
- Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.

Other work practice controls are listed in 1910.1030(d)(2).
When there is occupational exposure, PPE must be provided at no cost to the employee to prevent blood or other potentially infectious materials from passing through or contacting the employees’ work or street clothes, undergarments, skin, eye, mouth, or other mucous membranes.
The employer must ensure that appropriate PPE in the appropriate sizes is readily accessible at the worksite or is issued to employees. Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives must be readily accessible to those employees who are allergic to the gloves normally provided.
Housekeeping

Must develop a written schedule for cleaning and decontamination at the work site based on the:

- Location within the facility
- Type of surface to be cleaned
- Type of soil present
- Tasks or procedures being performed

1910.1030(d)(4)(i)

The term “work site” refers not only to permanent fixed facilities such as hospitals, dental/medical offices, etc., but also includes temporary non-fixed workplaces (blood mobiles, ambulances, etc.).
Housekeeping (cont’d)

Work surfaces must be decontaminated with an appropriate disinfectant:
• After completion of procedures,
• When surfaces are contaminated, and
• At the end of the work shift

1910.1030(d)(4)(ii)(A)

Appropriate disinfectants include diluted bleach solution, EPA registered tuberculocides, and sterilants. The lists of these EPA Registered Products are available from the National Antimicrobial Information Network at (800) 447-6349.
Regulated Waste

Must be placed in closeable, leak-proof containers built to contain all contents during handling, storing, transporting or shipping and be appropriately labeled or color-coded.

1910.1030(d)(4)(iii)
Laundry

• Handle contaminated laundry as little as possible and use PPE
• Must be bagged or containerized at location where used
• No sorting or rinsing at location where used
• Must be placed and transported in labeled or color-coded containers

1910.1030(d)(4)(iv)

When a facility uses Universal Precautions in the handling of all soiled laundry, alternative labeling or color-coding is sufficient if it permits all employees to recognize that the containers require handling in compliance with Universal Precautions.
Hepatitis B Vaccination Requirements

- Must make available, free of charge at a reasonable time and place, to all employees at risk of exposure within 10 working days of initial assignment unless:
  - employee has had the vaccination
  - antibody testing reveals immunity
- The vaccination must be performed by a licensed healthcare professional

1910.1030(f)

Must be provided according to U.S. Public Health Service (USPHS) recommendations. See www.usphs.gov for more information.
Hepatitis B Vaccine Declination (Mandatory)

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

This form must be used and cannot be edited.
What to do if an exposure occurs?

- Wash exposed area with soap and water
- Flush splashes to nose, mouth, or skin with water
- Irrigate eyes with water or saline
- Report the exposure
- Direct the worker to a healthcare professional

Treatment should begin as soon as possible after exposure, preferably within 24 hours, and no later than 7 days.
Post-Exposure Follow-Up

- Document routes of exposure and how exposure occurred
- Record injuries from contaminated sharps in a sharps injury log, if required
- Obtain consent from the source individual and the exposed employee and test blood as soon as possible after the exposure incident
- Provide risk counseling and offer post-exposure protective treatment for disease when medically indicated in accordance with current U.S. Public Health Service guidelines
- Provide written opinion of findings to employer and copy to employee within 15 days of the evaluation

1910.1030(f)(3), (4) & (5)

The requirement to establish and maintain a sharps injury log applies to any employer who is required to maintain a log of occupational injuries and illnesses under 29 CFR 1904.

If the employee consents to baseline blood collection, but does not give consent at that time for HIV serologic testing, the sample must be preserved for at least 90 days.


Call the National Clinician’s Hotline at 1-888-448-4911.
Biohazard Warning Labels

• Warning labels required on:
  — Containers of regulated waste
  — Refrigerators and freezers containing blood and other potentially infectious materials
  — Other containers used to store, transport, or ship blood or other potentially infectious materials
• Red bags or containers may be substituted for labels

1910.1030(g)(1)

Labels must be predominantly fluorescent orange or orange-red with lettering and symbols in a contrasting color.

Labels must be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.
Training Requirements

- Provide at no cost to employees during working hours
- Provide at time of initial assignment to a job with occupational exposure and at least annually thereafter
- Additional training needed when existing tasks are modified or new tasks are required which affect the worker’s occupational exposure
- Maintain training records for 3 years

1910.1030(g)(2) & (h)(2)

Training records must be maintained for 3 years from the date training occurred and include the following information:
- Dates of the training sessions
- Contents or a summary of the training sessions
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training sessions
### Training Elements

- Copy of the standard
- Modes of transmission
- Site-specific exposure control plan
- Hazard recognition
- Use of engineering controls, work practices and PPE
- Live question and answer sessions

1910.1030(g)(2)(vii) & (viii)

The person conducting the training must be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

OSHA does allow video or distance training, but employees still must have access to a “live” person (even if by phone or electronically) to answer questions – i.e., there must be an opportunity for interactive questions and answers with the person conducting the training session.
Medical Recordkeeping Requirements

- Employee’s name and social security number
- Employee’s hepatitis B vaccination status
- Results of examinations, medical testing, and post-exposure evaluation and follow-up procedures
- Health care professional’s written opinion
- Information provided to the health care professional
- Employee medical records must be kept confidential and not disclosed or reported without the employee’s written consent (unless required by law)
- Medical records must be maintained for duration of employment plus 30 years according to OSHA’s rule governing access to employee exposure and medical records

1910.1030(h)

Access to employee exposure and medical records: 1910.1020
The purpose of the sharps injury log is to aid in the evaluation of devices being used in the workplace and to quickly identify problem areas in the facility. It must be reviewed at least annually during the review and update of the Exposure Control Plan.

If the data are made available to other parties (e.g., supervisors, safety committees, employees), any information that could be used to identify the employee must be withheld to protect the employee’s privacy.

The requirement to establish and maintain a sharps injury log applies to any employer who is required to maintain a log of occupational injuries and illnesses under 29 CFR 1904, OSHA’s recordkeeping rule. The sharps injury log must be maintained for the period required by 29 CFR 1904.6.
Summary

• OSHA’s Bloodborne Pathogens standard prescribes safeguards to protect workers against the health hazards from exposure to blood and other potentially infectious materials, and to reduce their risk from this exposure
• Implementation of this standard not only will prevent hepatitis B cases, but also will significantly reduce the risk of workers contracting AIDS, Hepatitis C, or other bloodborne diseases

For more information on Bloodborne Pathogens, see OSHA’s web site at www.osha.gov
The BBP Standard applies to all employers with employees with reasonably anticipated occupational exposure to blood or OPIM. It applies, not just in healthcare, but in general industry as well (e.g., first aiders). The BBP standard does not apply in construction, agriculture, or maritime; as those industries have adopted different standards.
Bloodborne Pathogens Standard

Major Provisions by Paragraph
(b) Definitions
(c) Exposure Control Plan (ECP)
(d) Engineering and Work Practice Controls
   - Personal Protective Equipment (PPE)
(e) HIV and HBV Research Labs
(f) Vaccination, Post-Exposure Follow-up
(g) Labeling and Training
(h) Recordkeeping

Requirements for (1) Exposure Control Plan, (2) Engineering Controls, (3) Recordkeeping, as these are the areas where new requirements have been mandated.

The remaining sections of the standard have been in place since 1991. If you have questions on these sections, feel free to call your OSHA Area or Regional Office. Contact information is available on OSHA’s website at www.osha.gov.
Since paragraph (d) of the standard is exceptionally important in reducing and eliminating occupational exposure to blood and OPIM, it is important to note all of the major methods of compliance (indicated on this slide).

Universal precautions is an approach to infection control where all human blood and certain human body fluids are treated as if they are known to be infected by HIV, HBV, HCV, and other bloodborne pathogens. The Centers for Disease Control and Prevention (CDC) and local Departments of Health have numerous resources regarding proper infection control practices. Documents are available from the CDC at www.cdc.gov.

Engineering and work practice controls must be used to eliminate or minimize employee exposure. Where occupational exposure remains after the institution of these controls, personal protective equipment must also be used.

Housekeeping ensures that a worksite is maintained in a clean and sanitary condition.
Since 1991...

- Advancements in medical technology
- September 1998, OSHA’s Request for Information (RFI)
  - Findings of RFI
- Union and Congressional involvement
- November 1999, CPL 02-02-069

- Nearly 10 years of new technology, medical treatments, and interpretations since publication of 1991 BBP Standard

- The information gathered from the RFI demonstrated feasibility and availability of safer medical devices, and the importance of training and work practices controls.

- In May of 1999, the Stark Boxer Healthcare Worker Needlestick Prevention Act was introduced to Congress. This was also designed as an attempt to reduce needlesticks.

- The Needlestick Safety and Prevention Act was passed unanimously in the House and Senate (introduced by Congressman Cass Ballenger (NC) as HR 5178).
The Needlestick Safety and Prevention Act mandated...

OSHA clarify and revise
29 CFR 1910.1030, the Bloodborne Pathogens Standard

This indicates the intent of the Needlestick Safety and Prevention Act, which was to modify the Bloodborne Pathogens standard to set forth in greater detail its requirement that employers identify, evaluate, and make use of effective safer medical devices (Rep. Ballenger, HR5178)
Needlestick Safety and Prevention Act Timeline

- P. L. 106-430 signed; November 6, 2000
- Revised Standard published in Federal Register; Jan. 18, 2001
- Effective date; April 18, 2001
- Enforcement of new provisions; July 17, 2001
- Adoption in OSHA state-plan states; October 18, 2001
This is just an overview of the new provisions, these will be discussed in detail as the presentation progresses.
Additional Definitions
1910.1030(b)

- **Engineering Controls** - includes additional definitions and examples:
  - *Sharps with Engineered Sharps Injury Protections* - [SESIP]
  - *Needleless Systems*

Specific definitions in slides that follow.
Engineering Controls
New Definition

“... 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 hazard from the workplace.”
Needleless Systems
New Definition

• Device that does not use a needle for:
  – Collection of bodily fluids
  – Administration of medication/fluids
  – Any other procedure with potential percutaneous exposure to a contaminated sharp
“SESIP”
New Definition

Non-needle sharp or a needle with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.
NOTE: The devices pictured in the next few slides are meant to serve as examples of devices that are currently available, this is not an exhaustive list, nor is it meant to favor one device over another. OSHA does not approve, endorse, register, or certify any medical devices.

Needle guard has protected sliding sheath (with some designs the shield must be twisted to engage the lock).

To safely activate the sheath, hold back of syringe in one hand, hold external sheath with other and pull back on the syringe so the sheath is left covering needle. This is better than advancing the sheath forward; if hands slip, a stick may result.

Activated (used) syringe must then be placed in a sharps box, as device activation is considered to be a temporary safety measure, and treated as regulated waste.

[Device drawings courtesy of International Health Care Worker Safety Center, University of Virginia]
After injecting medication, further depression of the plunger activates a mechanism that retracts needle into the syringe.

Activated (used) syringe must then be placed in a sharps box and treated as regulated waste.
After final tube of blood is drawn, blunt internal hub is activated by forward pressure of vacuum tube, blunting needle before it is removed from patient.

Blunting may occur accidentally or deliberately with the first tube, if pushed into the blunting activation mechanism.
If the needle is blunted prematurely, it cannot be used again or repositioned.

Activated (used) syringe must then be placed in sharps box and treated as regulated waste.

Note: The standard prohibits the removal of a needle, unless it is medically necessary. After single use, the device must be deposited in a sharps container.
The hinged safety device can either be purchased separately to add on to an existing syringe or purchased pre-attached to a syringe or blood tube holder.

Once the needle is used, the hinge should be clicked into place using a tabletop—NOT the other hand.

The activated (used) device must then be placed in a sharps box and treated as regulated waste.
These devices are used for finger pricks, most often to test blood sugar in people with diabetes.

When these devices are triggered, the lancet instantly protracts and cannot be used again.

After use, the device must be placed in a sharps box and treated as regulated waste.
Single use disposable scalpels with blades that retract or sheath. Most of these devices do not lock. Be careful.

After use, safely place the scalpel in a sharps box.
Additional Information About Safety Devices Available At...

www.med.virginia.edu/~epinet  
www.tdict.org

Examples of two sources

The ECP must be updated to include:

• changes in technology that reduce/eliminate exposure
• annual documentation of consideration and implementation of safer medical devices
• solicitation of input from non-managerial employees

The plan must be updated annually and whenever necessary to reflect any changes.
Small 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 (e.g., pediatrics, emergency department, nuclear medicine, etc.). The solicitation of employees who have been involved in the input and evaluation process must be documented in the Exposure Control Plan.
Engineering and Work Practice Controls: 1910.1030(d)

Employers must **select** and **implement** appropriate engineering controls to reduce or eliminate employee exposure.

This is an original requirement of the 1991 standard. The Needlestick Safety and Prevention Act merely amplifies and specifies this requirement. (Further discussion follows)
“Where engineering controls will reduce employee exposure either by removing, eliminating, or isolating the hazard, they must be used.”

CPL 02-02-069

This quote is taken from CPL 2-2.44D Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens (November 1999 compliance directive). The directive lends specificity to the standard, setting forth the methods by which employers must protect their employees from the hazards of blood and OPIM with regard to the implementation of engineering and work practice controls.

The directive further explains OSHA’s expectation for preventing exposures includes a comprehensive programs, including engineering controls (e.g., needleless systems, SESIPs, etc.) and proper work practices (e.g., immediately disposing of a contaminated sharp in a sharps box). If engineering and work practice controls do not eliminate exposure, the use of PPE (e.g., eye protection) is required.

Much of the Needlestick Safety and Prevention Act was modeled after the November 1999 directive.
Exposure Determination is (and has been) required by the original standard. Further discussion about the elements of an exposure determination can be found in the 1991 standard and in CPL 2-2.44D (Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens Compliance Directive).

Engineering and Work Practice Controls

Selection of engineering and work practice controls is dependent on the employer’s exposure determination.
Exposure Determination

• The employer must:
  – Identify worker exposures to blood or OPIM
  – Review all processes and procedures with exposure potential
  – 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 and Work Practice Controls (con’t)

• The employer must:
  – Evaluate available engineering controls (safer medical devices)
  – Train employees on safe use and disposal
  – Implement appropriate engineering controls/devices

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. Employees must receive training on new devices and/or new medical procedures.
Engineering and Work Practice Controls (con’t)

• The employer must:
  – Document evaluation and implementation in ECP
  – Review, update ECP at least annually
  – Review new devices and technologies annually
  – Implement new device use, as appropriate and available
Engineering and Work Practice Controls (con’t)

• The employer must:
  – Train employees to use new devices and/or procedures
  – Document in ECP

Note: This entire process (review and implementation of engineering controls) must be documented in the employer’s Exposure Control Plan. It is not necessary to include all supporting documents in the ECP, as long as there is reference in the ECP to where the original documents can be found. The ECP must be available to employees.
Recordkeeping: 1910.1030(h)

- Sharps Injury Log
  - Only mandatory for those keeping records under 29 CFR 1904
  - Confidentiality
  - Maintained independently from OSHA 300

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) codes and employers with 10 or fewer employees).

The log must be maintained confidentially, as required by paragraph (h)(1)(iii) of the standard. (Personal identifiers must be removed from any list when posting or copying.)

  Procedures for maintaining confidentiality for employers are listed in 29 CFR 1904.
  Procedures for maintaining confidentiality for CSHOs are listed in 1913.10.

For CSHOs: If additional medical records are needed to ensure compliance, may be necessary to obtain a Medical Access Order under 1913.10. Check with Area Director.
Type and brand must be documented if it is known. [“If 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 a 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.]

As employers, it is important to review your log frequently to determine where needlesticks are occurring and why. This is the rationale behind logging specific information about each incident, as required by the revised standard.
Summary of New Provisions

- Additional definitions, paragraph (b)
- New requirements in the Exposure Control Plan, paragraph (c)
- Non-managerial employees involved in selection of controls, paragraph (c)
- Sharps injury log, paragraph (h)
References

OSHA Standard
- 29 CFR 1910 Subpart Z (1910.1030)
  Ø http://www.osha-slc.gov/oshaslcd/1910_1030.html
- 29 CFR 1910 Subpart Z (1910.1030 App A) Hepatitis B Vaccine Declination
- OSHA Publications
- 3128 Bloodborne Pathogens and Acute Care Facilities
- 3129 Controlling Occupational Exposure to Bloodborne Pathogens in Dentistry
- 3130 Occupational Exposure to Bloodborne Pathogens – Precautions for Emergency Responders
- 3131 Bloodborne Pathogens and Long-Term Care Workers
- OSHA References/Resources
- OSHA Technical Links – Bloodborne Pathogens
- OSHA Technical Links – Needlestick Prevention
- Protecting Nursing Home Workers: OSHA’s Safety and Health Program Approach
- Video: As It Should be Done: Workplace Precautions Against Bloodborne Pathogens