



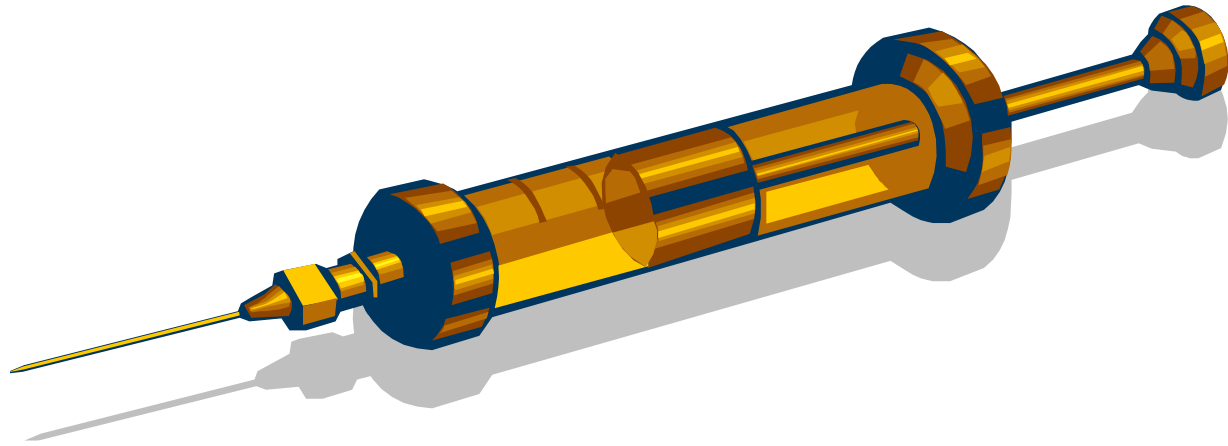
Occupational Exposure to Bloodborne Pathogens

- *29 CFR 1910.1030*



Objectives

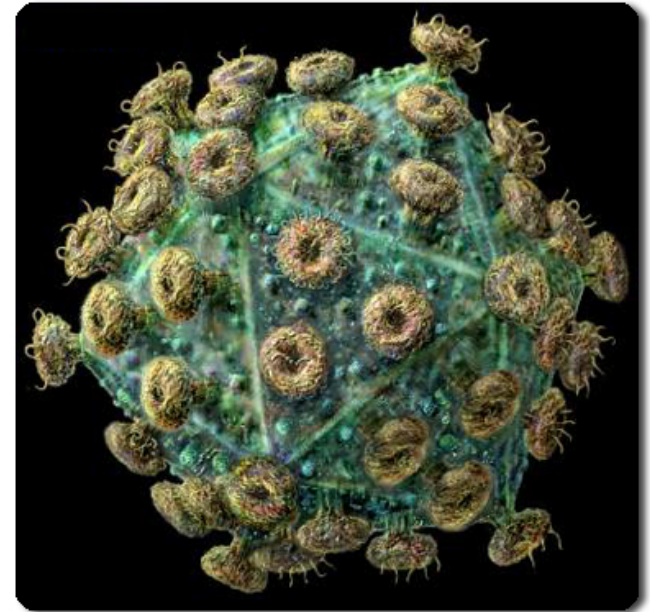
- Provide an overview of the Bloodborne Pathogens Standard
- Highlight OSHA's requirements regarding bloodborne pathogens, including needlestick safety provisions



Scope and Application

1910.1030(a)

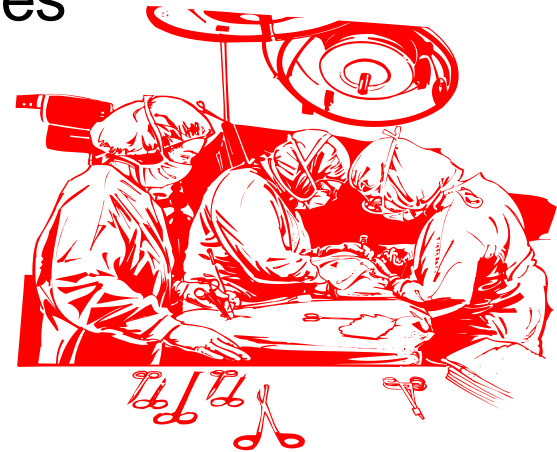
- Bloodborne Pathogens Standard applies to all employees with occupational exposure to blood and other potentially infectious materials



HIV

Scope

- The standard covers many types of occupations including those in:
 - Healthcare facilities
 - Non-healthcare facilities
 - Permanent and temporary worksites



Temporary Operations

- Trauma or rescue scene
- Mobile blood banks
- Crime scenes
- Collateral duties





Multi-Employer Worksites

- Employment agencies
- Personnel services
- Home health services
- Independent contractors
- Independent practices





Employees Potentially At Risk

- Physicians and surgeons
- Nurses
- Phlebotomists
- Medical examiners
- Dentists and dental workers
- Some laundry and housekeeping employees
- Clinical/diagnostic laboratory workers
- Medical technologists
- Nursing home personnel
- Dialysis personnel



North Carolina Specific Rule

- *13 NCAC 7F.0207(a)(4): "Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of collateral first aid duties by an employee in the areas of construction, alteration, or repair, including painting and decorating"*
-

Standard Specific Definitions 1910.1030(b)

- Blood
 - Bloodborne pathogens
 - OPIM
 - Contaminated
 - Occupational exposure
 - Exposure incident
 - Regulated waste
 - SESIP
 - Needleless system
-

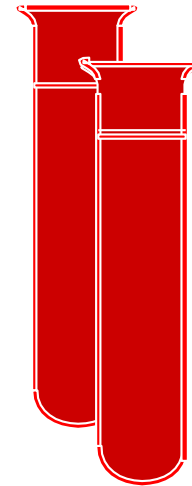
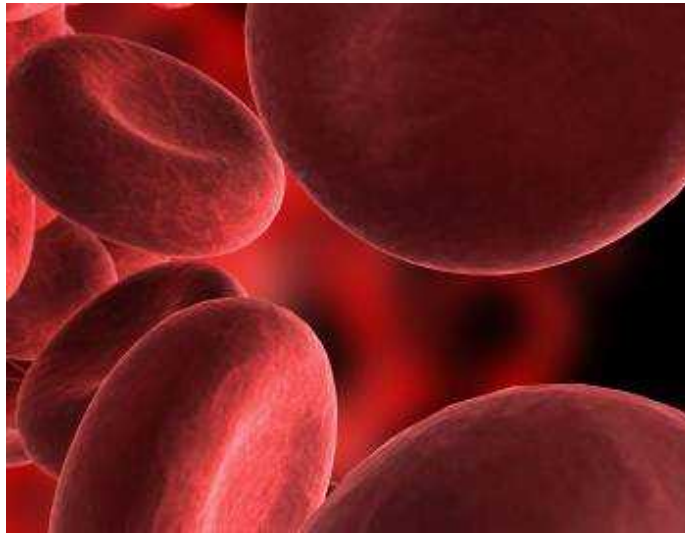




Blood

1910.1030(b)

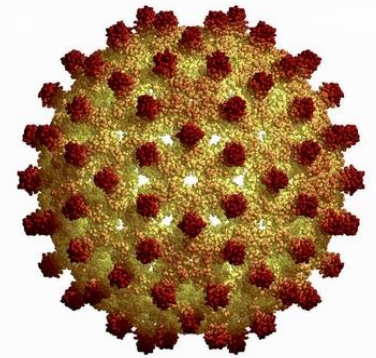
- Human blood
- Human blood components
- Products made from human blood



Bloodborne Pathogens

1910.1030(b)

- Pathogenic organisms that are present in human blood, ***and***
 - Can cause disease in humans
 - ***Includes but not limited to:***
 - Hepatitis B virus (HBV)
 - Hepatitis C virus (HCV)
 - Human immunodeficiency virus (HIV)
-



Hepatitis B virus



Hepatitis

- Inflammation of the liver, which may be caused by a viral infection, poisons, or the use of alcohol or other drugs
- Types of viral hepatitis
 - Hepatitis A, B, C, D, E, G
- Outcomes range from acute flu-like illness to jaundice, extreme fatigue and nausea to advanced hospitalization to death
- Types of viral bloodborne hepatitis
 - Hepatitis B, C, D, G





Human Immunodeficiency Virus

- Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immune Deficiency Syndrome (AIDS)
- AIDS is a serious condition that affects the body's immune system; the body's natural ability to fight infection

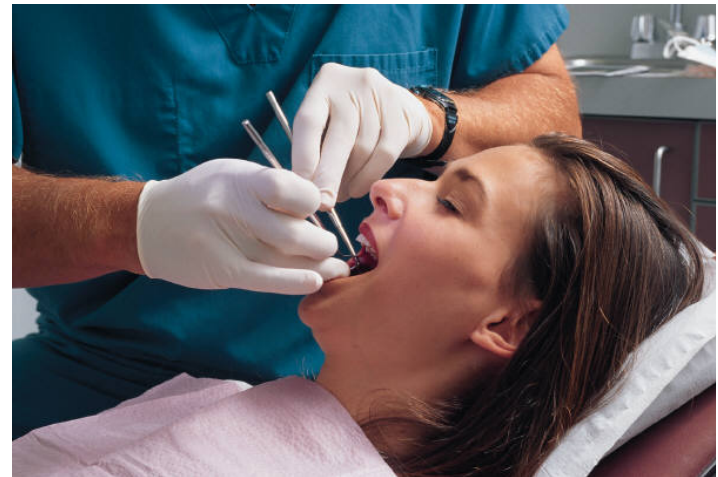


Other Bloodborne Pathogens

- Malaria
 - Syphilis
 - Babesiosis
 - Brucellosis
 - Leptospirosis
 - Arboviral infections
 - Relapsing fever
 - Creutzfeld-Jakob Disease
 - Human T-Lymphotropic Virus Type 1 and 2
 - Viral hemorrhagic fevers
-

● Other Potentially Infectious Materials (OPIIM)

- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Pericardial fluid
- Peritoneal fluid
- Amniotic fluid
- Saliva in dental procedures
- Any body fluid visibly contaminated with blood
- All body fluids in situations where it is difficult or impossible to differentiate between body fluids

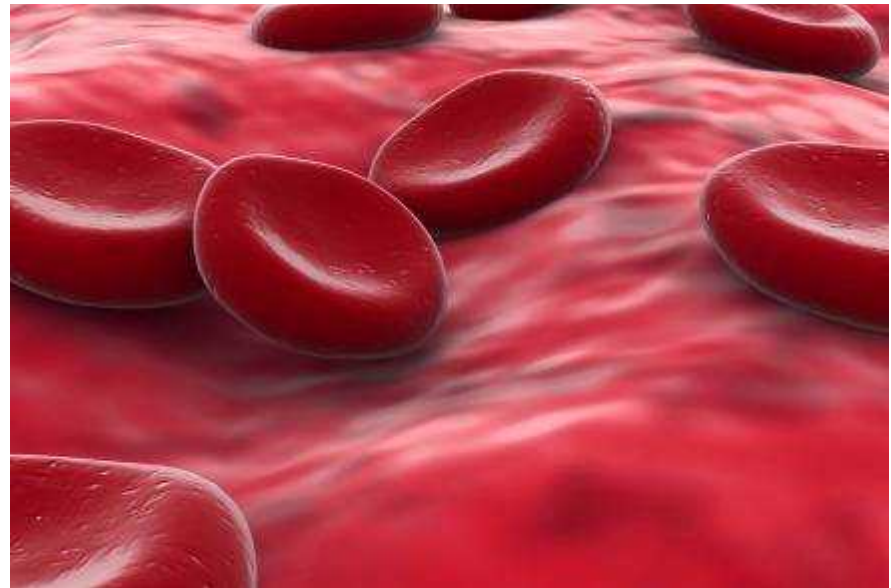




Contaminated

1910.1030(b)

- The presence or the reasonably anticipated presence of blood or OPIM on an item or surface



Occupational Exposure

1910.1030(b)

- Reasonably anticipated contact with blood or OPIM
- May result from the performance of an employee's duties
- Occurs by skin, eye, mucous membrane, or parenteral contact



Exposure Incident

1910.1030(b)

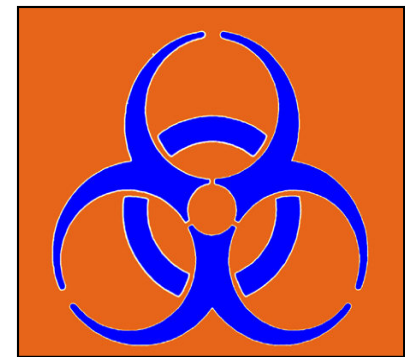
- A specific contact with:
 - Blood or OPIM
 - Results from the performance of an employee's duties
 - Contact with:
 - » Eye, mouth, or other mucous membrane
 - » Non-intact skin
 - » Parenteral contact



Regulated Waste

1910.1030(b)

- Items contaminated with blood or OPIM which would release these substances in a liquid or semi-liquid state if compressed
- Pathological and microbiological wastes containing blood or OPIM
- Contaminated sharps
- Items caked with dried blood or OPIM and capable of releasing these materials during handling
- Liquid or semi-liquid blood or OPIM



“SESIP”

1910.1030(b)

- “Sharps with Engineered Sharps Injury Protection”
- Non-needle sharp or a needle with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident



Hypodermic Syringes

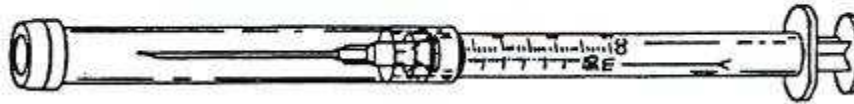
- “Self-Sheathing” safety feature

Before



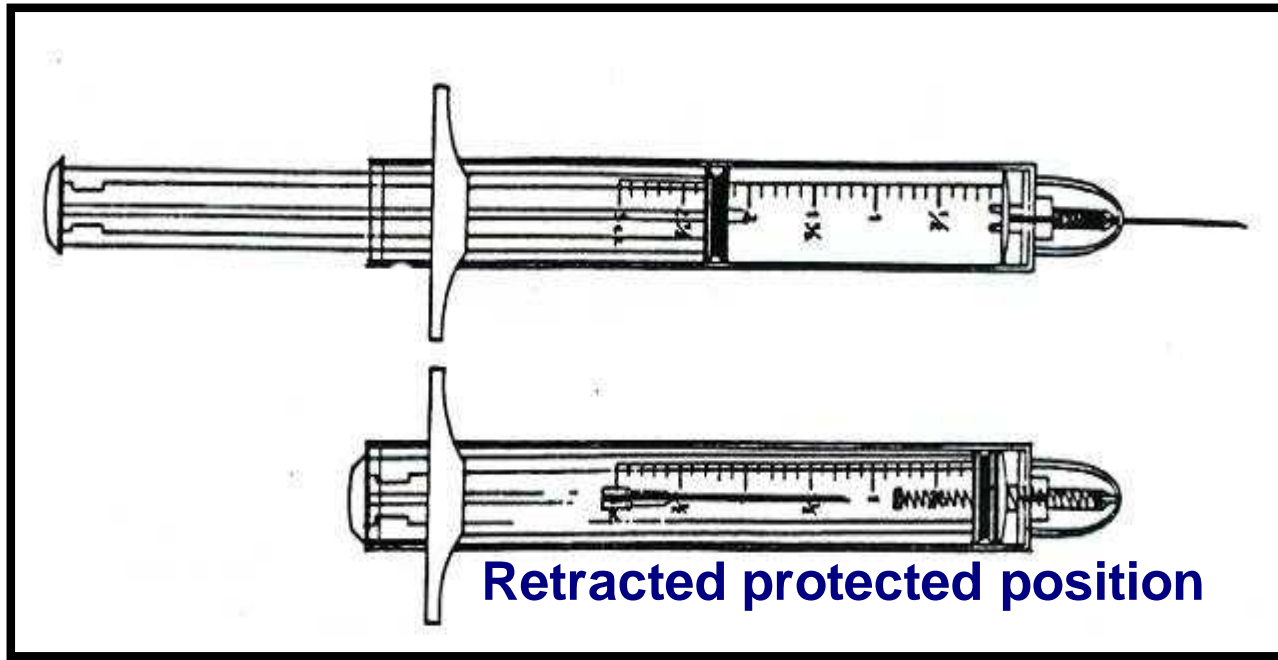
Self-sheathed protected position

After



Hypodermic Syringes

- “Retractable Technology” safety feature



Before

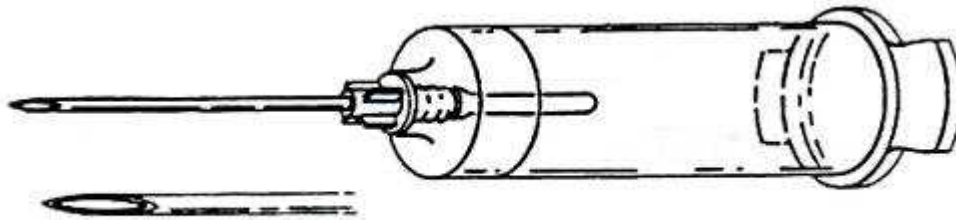
After

Retracted protected position

Phlebotomy Needle

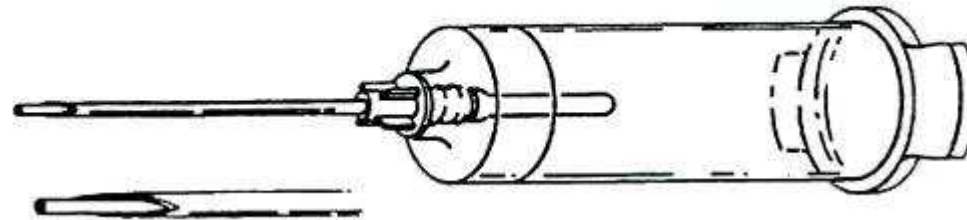
- “Self-Blunting” safety feature

Before

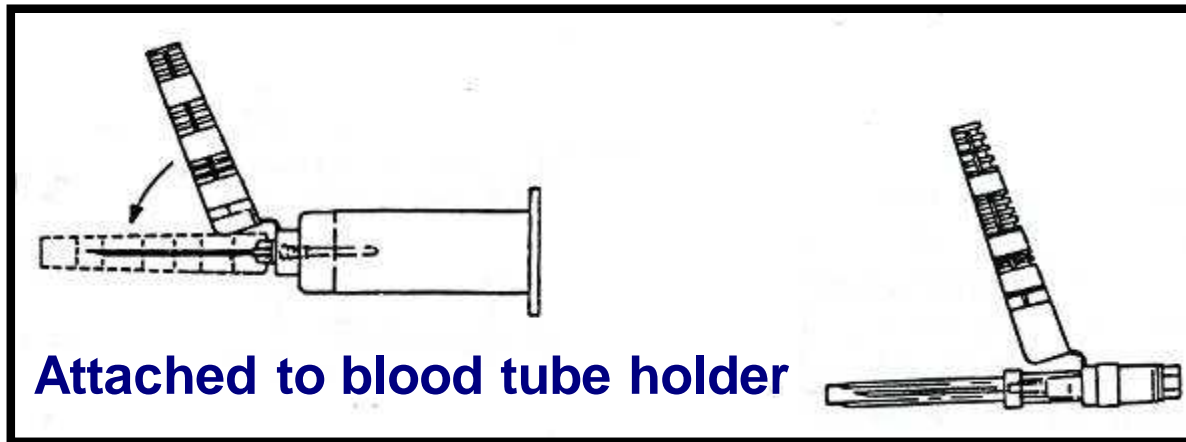
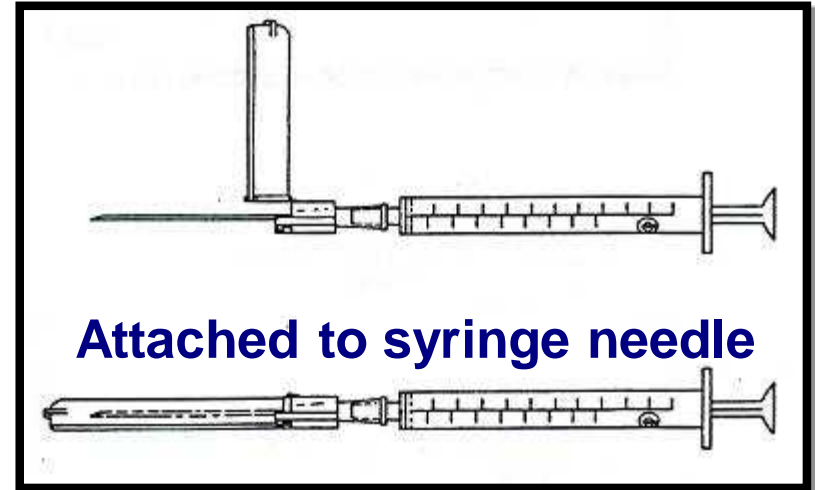


Blunted protected position

After

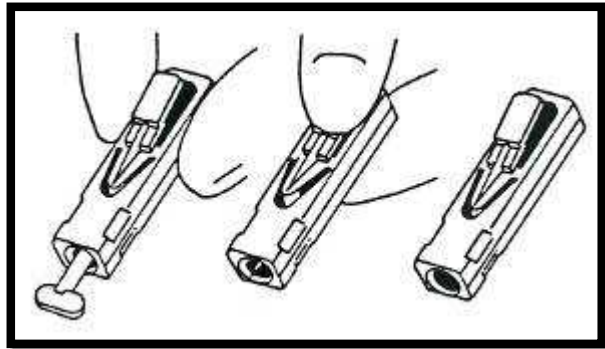


“Add-On” Safety Feature

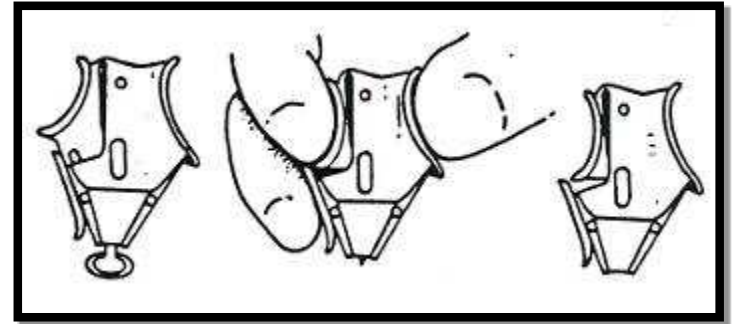


Retracting Lancets

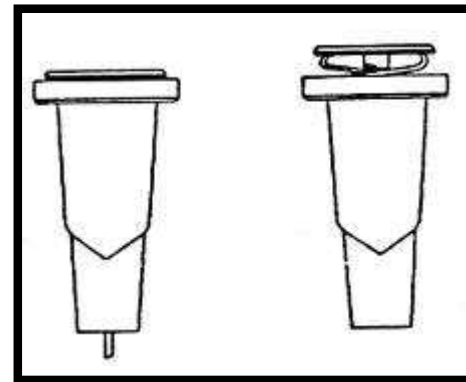
- Safety features



Before During After



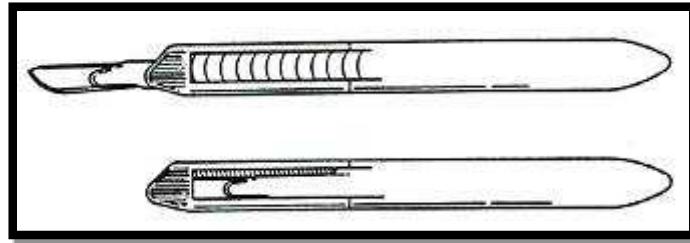
Before During After



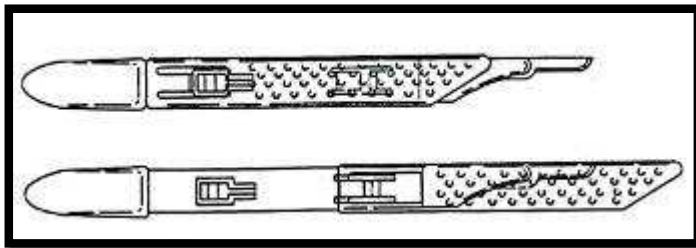
In use After use

Disposable Scalpels

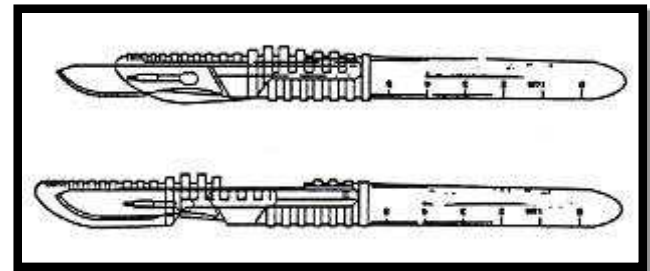
- Safety features



Retracted position



Protracted position



Protracted position



Needleless Systems

1910.1030(b)

- The most direct method of preventing needle-stick injuries





Needleless Systems

1910.1030(b)

- 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



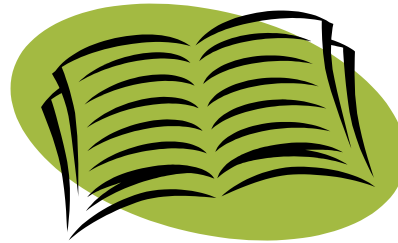
Exposure Control Plan (ECP) 1910.1030(c)



Exposure Control Plan

1910.1030(c)(1)(ii)

- Written plan designed to eliminate or minimize employee exposure that contains:
 - Exposure determination
 - Schedule and method of implementing paragraphs (d) through (h) of the standard
 - Procedures for evaluating circumstances surrounding an exposure incident



(cont...)



Exposure Control Plan

- Must be accessible to employees
- Reviewed and updated annually or more often if changes occur
- Available to OSHA and NIOSH representatives



New Provisions

1910.1030(c)(1)

- The ECP must also be updated to include:
 - Changes in technology that reduce/eliminate exposure
 - Annual documentation of consideration and implementation of safer medical devices
- Solicitation of non-managerial employees





Exposure Determination

1910.1030(c)(2)

- Employer is required to identify job classifications where occupational exposure can occur:
 - Job classification in which **ALL** have occupational exposure
 - Job classification in which **SOME** have occupational exposure
 - List of all tasks and procedures in which occupational exposure occurs
 - Must be made without regard to the use of PPE
-



Methods of Compliance

1910.1030(d)

- General - universal precautions
- Engineering and work practice controls
- Personal protective equipment
- Housekeeping



Universal Precautions

1910.1030(d)(1)

- An approach to infection control
- Originated by CDC
- Concept:
 - All human blood and certain human body fluids are to be treated as if known to be infectious for HIV, HBV, or other bloodborne pathogens



Engineering and Work Practice Controls 1910.1030(d)(2)

- Selection is dependent on the employer's exposure determination
- The employer must:
 - Identify worker exposures to blood and OPIM
 - Review all processes and procedures with exposure potential
 - Re-evaluate when new processes or procedures are being used

(cont...)



Engineering and Work Practice Controls

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

(cont...)



Engineering and Work Practice Controls

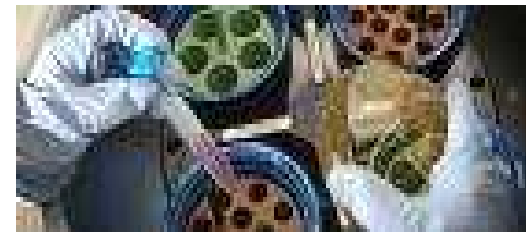
- The employer must:
 - Document evaluation and implementation in ECP
 - Review, update ECP annually
 - Review devices and new technologies on an annual basis
 - Implement *new* device use, as appropriate and available
 - Update employee training for new devices and/or procedures and document in ECP

(cont...)



Examples of Engineering Controls

- Needleless systems, e.g., IV connectors
- Sharps with sharps injury protection
- Puncture-resistant sharps containers
- Mechanical needle recapping devices
- Biosafety cabinets
- Mechanical pipetting devices



Work Practice Controls

1910.1030(d)(2)

- Altering behaviors
- Function
 - Protection is based on employer and employee behavior
 - Protection not dependent on installation of a physical device such as protective shield

(cont...)



Work Practice Controls

1910.1030(d)(2)

- Washing hands

- Employers shall provide readily accessible hand-washing facilities
- When not feasible, appropriate antiseptic hand cleansers shall be provided
- When gloves are removed
- ASAP after contact with body fluids

(cont...)

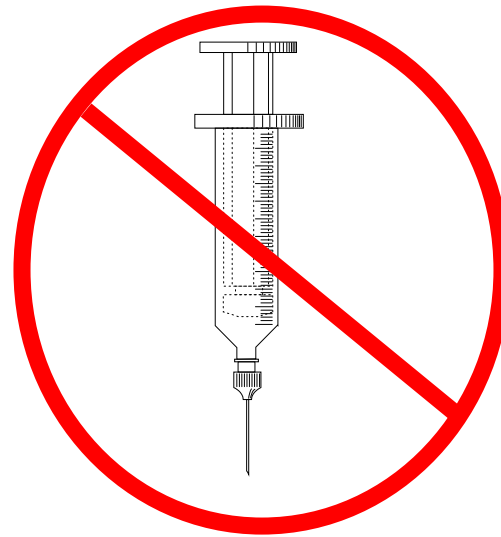




Work Practice Controls

1910.1030(d)(2)(vii)

Do Not Bend or Break



Contaminated Needles (cont...)

Work Practice Controls

1910.1030(d)(2)

- Place contaminated reusable sharps in appropriate container until processing, containers should be:
 - Puncture-resistant
 - Labeled or color-coded
 - Leak proof on sides and bottom
 - Stored or processed in a safe manner

(cont...)



Work Practice Controls

1910.1030(d)(2)

- Using mechanical devices or one-handed techniques to recap or remove contaminated needles when necessary
- Prohibiting eating, drinking, smoking, etc.
- Food and drink must not be kept in the same storage as potentially infectious material
- Performing all procedures involving blood or OPIM so as to minimize splashing, spattering, and droplet generation
- Prohibiting mouth pipetting or suctioning of blood or OPIM

(cont...)

Personal Protective Equipment

1910.1030(d)(3)

- Specialized clothing or equipment that is worn by an employee for protection against a hazard
 - General work clothes (uniforms, pants, shirts and blouses) not intended to function as protection against a hazard are not considered personal protective equipment (PPE)





Examples of Types of PPE

- Gloves
- Gowns
- Face shields
- Eye protection
- Mouthpieces and resuscitation devices



PPE Provisions

1910.1030(d)(3)

- Employer must provide appropriate PPE at no cost to the employee
- Employer must ensure that PPE is worn by employees
- Must be accessible and in appropriate sizes for employees at the worksite

(cont...)



PPE Provisions

1910.1030(d)(3)

- PPE must be cleaned, repaired, replaced, and disposed of by employer
- PPE must be removed before leaving work area and when becomes contaminated
 - Cannot wash PPE at home!!!





PPE - Gloves

1910.1030(d)(3)(ix)

- Gloves shall be worn when:
 - Potential contact with blood and OPIM, mucous membrane and non-intact skin
 - Performing vascular access procedures
 - Handling or touching contaminated surfaces



(cont...)



PPE - Gloves

1910.1030(d)(3)(ix)

- Disposable (single use) gloves must be replaced when contaminated, torn or punctured
- Disposable (single use) gloves shall not be washed or decontaminated for reuse
- Utility gloves may be cleaned and re-used as long as they continue to provide a barrier for employee



Housekeeping - General

1910.1030(d)(4)(i)

- Employer shall develop and implement a written schedule for cleaning and decontamination at the worksite
- Schedule is based on the:
 - Location within the facility
 - Type of surface to be cleaned
 - Type of soil present
 - Tasks or procedures being performed



Housekeeping Requirements

1910.1030(d)(4)(ii)[A]

- Contaminated work surfaces shall be decontaminated:
 - After completion of procedures
 - After contact with blood or OPIM *and*
 - At end of work shift



(cont...)

Appropriate Disinfectants

- Household bleach (5% NaOCl₂)
 - 1:10 - 1:100 in H₂O
 - EPA registered disinfectants
 - List A: EPA's registered antimicrobial products as sterilants
 - List B: EPA registered tuberculocidal products effective against *Mycobacterium spp*
 - List C: EPA's registered antimicrobial products effective against human HIV-1 Virus
 - List D: EPA's registered antimicrobial products effective against human HIV-1 and Hepatitis B virus
 - List E: EPA's registered antimicrobial products effective against *Mycobacterium spp*, human HIV-1 and Hepatitis B virus
 - List F: EPA's registered antimicrobial products against Hepatitis C virus
 - List G: EPA's registered antimicrobial products for medical waste treatment
-

Regulated Waste

1910.1030(d)(4)(iii)[1]

- Contaminated sharps disposal
 - Must be discarded in containers that are:
 - » Closable
 - » Puncture-resistant
 - » Leak proof (on sides and bottom)
 - » Labeled or color-coded
 - During use, the sharps container must be:
 - » Placed near the work area
 - » Maintained upright during use
 - » Routinely replaced



(cont...)

Regulated Waste

1910.1030(d)(4)(iii)[1]

- When moving, the sharps container must be:
 - » Closed immediately
 - » Placed in a secondary container if leaking
- Reusable sharps containers shall not be opened, emptied, or cleaned manually or in any manner which presents a risk of percutaneous injury to employees

(cont...)



Regulated Waste

1910.1030(d)(4)(iii)

- Other regulated waste containment

- Must be put into containers that are:

- » Closable
 - » Leak proof
 - » Labeled or color-coded
 - » Closed prior to removal



- If outside contamination occurs, it shall be placed in a secondary container that meets the criteria above

Contaminated Laundry

1910.1030(d)(4)(iv)

- Contaminated laundry must be handled as little as possible with a minimum of agitation
 - Bagged or containerized at its location of use
 - » It can NOT be rinsed there
 - Placed and transported in bags or containers that are labeled or color-coded
 - Placed in a container that will prevent soak-through to the exterior



HIV and HBV Research Laboratories and Production Facilities

1910.1030(e)

- Paragraph (e) applies to research laboratories and production facilities engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV
 - Does not apply to clinical or diagnostic laboratories
 - Requirements apply in addition to other requirements in the standard

(cont...)



HIV and HBV Research Laboratories and Production Facilities

1910.1030(e)

- HIV and HBV production facilities shall meet specific criteria as outlined in paragraph (e)
- HIV and HBV research laboratories and production facilities have additional training requirements for their employees



Hepatitis B Vaccination

1910.1030(f)

- The Hepatitis B vaccination and post-exposure evaluation and follow-up including prophylaxis shall be:
 - Available to employees at a reasonable time and place and without cost
 - Performed by or under the supervision of a licensed physician or healthcare professional
 - Provided according to current recommendations of the **U.S. Public Health Service**
-



No Cost to the Employee

- No out of pocket expense
- Employer may not require employee to use his/her health care insurance to pay for series ***unless:***
 - Employer pays all of the cost of health insurance, ***and***
 - No cost to employee in form of deductibles, co-payments, or other expenses

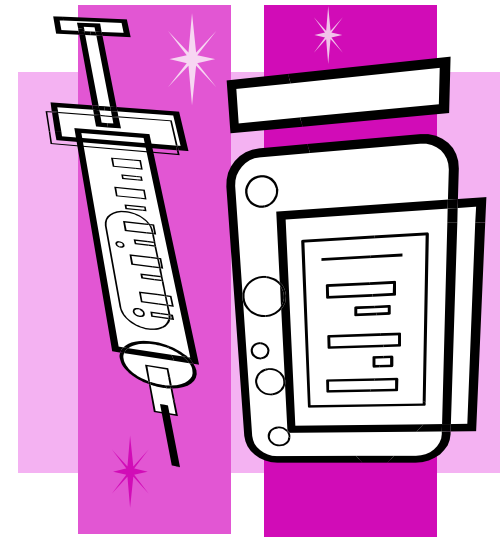


Hepatitis B Vaccination

1910.1030(f)(2)(i)

- Hepatitis B vaccination shall be made available:
 - After employee has received required training, **and**
 - Within 10 days of initial assignment to all employees with occupational exposure

(cont...)



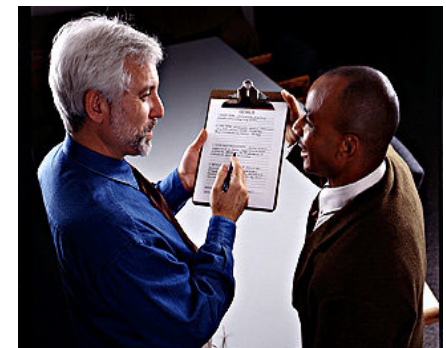


Hepatitis B Vaccination

1910.1030(f)(2)(i)

- Exceptions
 - If the employee has previously completed the complete Hepatitis B vaccination series, **or**
 - Immunity is confirmed through antibody testing, **or**
 - The vaccine is contraindicated for medical reasons

(cont...)





Hepatitis B Vaccination

1910.1030(f)(2)

- Participation in prescreening not prerequisite for receiving Hepatitis B vaccination
 - Hepatitis B vaccination provided even if employee declines but later accepts treatment
 - Employee must sign statement when declining Hepatitis B vaccination
 - Hepatitis B vaccination booster doses must be available to employees if recommended by the USPHS
-

Post-Exposure and Follow-Up

1910.1030(f)(3)

- Documentation of exposure routes and how exposure incident occurred
- Identification and documentation of source individual's infectivity, if possible
- Collection and testing of employee's blood for HBV and HIV serological status (employee's consent required)
- Post exposure prophylaxis when medically indicated
- Counseling
- Evaluation of reported illnesses



Source Individual

1910.1030(f)(3)(ii)[C]

- Source individual's test results shall be made available to the exposed employee (not the employer)
- Employee should also be given information about applicable disclosure laws and regulations concerning source individual's identity and infection status





Exposed Employee

1910.1030(f)(3)(iii)

- Exposed employee's blood shall be collected as soon as feasible after consent is obtained
- If employee consents to baseline blood collection, but not to HIV serological testing, sample shall be preserved for 90 days



Information Provided to Healthcare Professionals

1910.1030(f)(4)(ii)

- A copy of the Bloodborne Pathogens Standard
 - A description of the employee's duties relevant to the exposure incident
 - Documentation of the route of exposure and the circumstances under which the exposure incident occurred
 - Results of the source individual's blood test, if available
 - All appropriate medical records relevant to the employee
-



Healthcare Professional's Written Opinion

1910.1030(f)(5)

- Within 15 days after evaluation is completed
 - Written opinion for Hepatitis B vaccination is limited to whether the employee requires or has received the Hepatitis B vaccination
 - Written opinion for post-exposure evaluation and follow-up includes information that the employee has been:
 - Informed of the evaluation results, ***and***
 - Informed of any medical conditions that require further treatment
-



Communication of Hazards to Employees 1910.1030(g)

- Warning labels and signs
- Information and training



Warning Labels

1910.1030(g)(1)(i)[A]

- Must be affixed to:
 - Regulated waste containers
 - Refrigerators and freezers containing blood or OPIM
 - Other containers used to store, transport or ship blood or OPIM



Labels and Signs

1910.1030(g)(1)(i)

- Label shall include the following legend

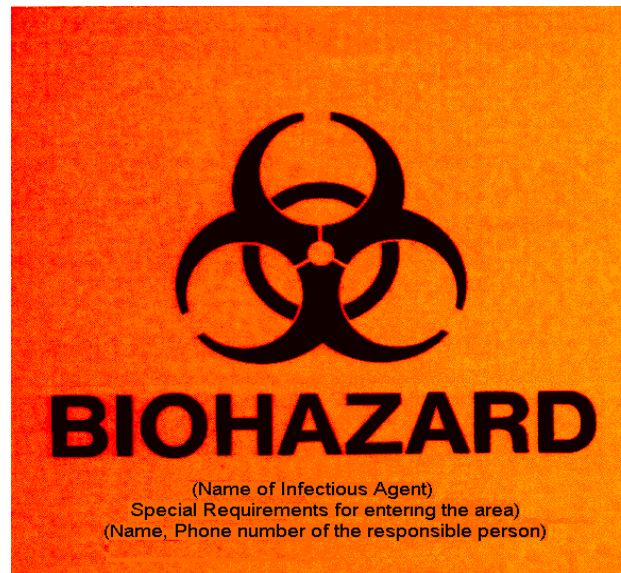


- Labels shall be fluorescent orange or orange-red or predominately so, with lettering and symbols in a contrasting color
-

Signs

1910.1030(g)(1)(ii)

- Must be posted at the entrance to HIV and HBV research laboratories and production facilities work area



- Same color scheme as for labels

Information and Training

1910.1030(g)(2)

- Training shall be provided:
 - At the time of initial assignment to tasks where occupational exposure may occur, **and**
 - At least annually thereafter



Training Program Elements 1910.1030(g)(2)(vii)

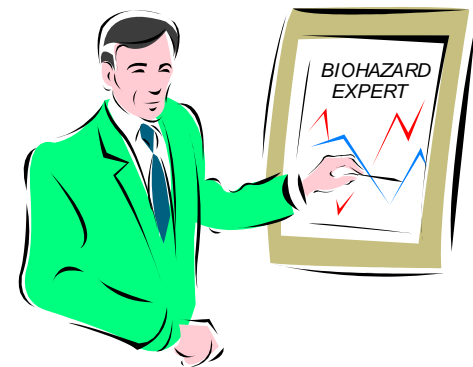
- Contents of standard
 - Epidemiology of bloodborne diseases
 - Modes of transmission
 - Exposure control plan
 - Job duties with exposure
 - Types of control
 - Protective equipment
 - Hepatitis B vaccination program
 - Emergency procedures
 - Post-exposure procedures
 - Signs/labels (color-coding)
 - Question session
-



Information and Training

1910.1030(g)(2)

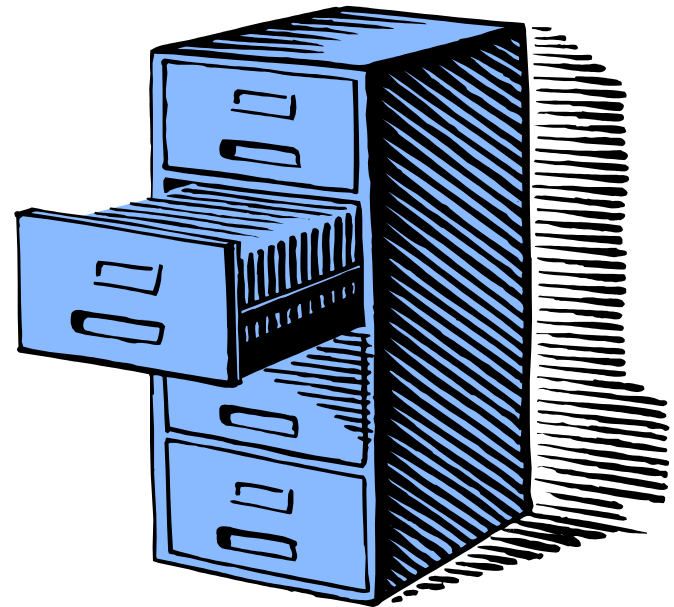
- Person conducting the training shall be knowledgeable in the subject matter covered in the training program as it relates to the workplace
- Employees in HIV and HBV laboratories and production facilities shall receive other initial training and demonstrate proficiency in handling human pathogens or tissue culture



Recordkeeping

1910.1030(h)

- Medical records
- Training records
- Sharps injury log



Medical Records

1910.1030(h)(1)

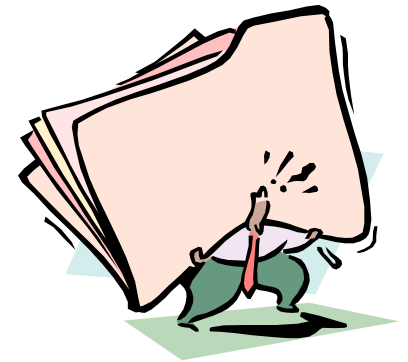
- Must contain:
 - Employee name and social security number
 - Employee Hepatitis B vaccination status
 - Examination results, medical testing, and post-exposure follow-up procedures
 - Healthcare professional's written opinion
 - Information provided to the healthcare professional
 - Be maintained for employment + 30 yrs
-



Training Records

1910.1030(h)(2)

- Training records shall include:
 - Training dates
 - Training session content and summary
 - Names and qualifications of trainers
 - Names and job titles of all trainees
- Be maintained for 3 years from the date of training



Sharps Injury Log

1910.1030(h)(5)(i)

- The employer shall create and maintain a sharps log
 - For documenting percutaneous injuries from contaminated needles
 - Must be recorded and maintained separate from the OSHA 300 log and must remain confidential
 - At a minimum, for each incident the log must contain:
 - » Type and brand of device involved (if known)
 - » Department or work area of incident
 - » Description of incident
 - Mandatory for those keeping records under 1904
-



Exemptions

- 29 CFR 1904, Appendix A to Subpart B:
 - List of partially exempt industries
- Not required to keep OSHA injury and illness records unless asked in writing by:
 - OSHA
 - BLS
 - State agency operating under authority of OSHA or BLS
- Does *not* exempt them from responsibility to report 1+ fatalities or 3+ hospitalized



Availability of Records

- Training records shall be provided upon request for examination and copying to:
 - Employees
 - Employee representatives
 - Director of NIOSH
 - OSHA



Availability of Records

- Medical records shall be provided upon request for examination and copying to:
 - Employee
 - Anyone with written consent of employee
 - NIOSH
 - OSHA

(cont...)





Summary

- Scope and application
 - Definitions
 - Exposure control
 - Methods of compliance
 - HIV/HBV Research laboratories and production facilities
 - Hepatitis B vaccination and post-exposure evaluation
 - Training
 - Recordkeeping
 - Dates
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Thank You For Attending!

Final Questions?
