

# Bloodborne Pathogens and Regulated Medical Waste



# OSHA

- Ensure employees can safely perform their normal duties without undue health risks
- Bloodborne Pathogen (BBP) Standard developed to protect employees with occupational exposure to bloodborne pathogens
  - HIV
  - Hepatitis B



**LOSING THIS  
MUCH BLOOD  
WON'T KILL  
YOU.**

**RECEIVING  
THIS MUCH  
COULD.**



# Bloodborne Pathogen Standard

Employers must:

- Ensure that Universal Precautions are observed
- Provide free Hepatitis-B vaccination series
- Provide all necessary PPE and ensure that it is used
- Provide initial BBP training, and annually thereafter
- Maintain records of all training
- Have a written Exposure Control Plan, update annually. Must be available for review
- Record exposure incidents and follow-up activities

# What are Bloodborne Pathogens

- Microorganisms that may be present in human blood and other potentially infectious materials (OPIM) that may cause disease in humans.



# Diseases Caused by Bloodborne Pathogens

- HIV / AIDS
- Hepatitis B
- Arboviral infections –  
La Crosse, St. Louis
- Brucellosis
- Creutzfeldt-Jakob  
Disease
- Hepatitis C
- Malaria
- Rabies
- Syphilis
- Tularemia
- Viral Hemorrhagic  
Fever – West Nile

# Hepatitis B

- A DNA virus that primarily affects the liver
- Transmitted by actual exposures to blood and other potentially infectious material
- Initial infection may have no symptoms to flu-like symptoms
  - Symptoms included: jaundice, dark urine, anorexia, nausea, point pain, rash, and fever
- Can develop into a chronic infection leading to cirrhosis, chronic active hepatitis, and liver cancer

# Hepatitis B

- The probability of being infected following an exposure to a known positive source is about 30%
- Nearly 1/3 of the world's population has been or is actively infected with HBV. This high prevalence leads to great potential for infection following exposure to blood or OPIM
- It is preventable through vaccination (85-97% effective) – a 3 shot series given over 6 months



Hepatitis B vaccine protects against serious disease causing inflammation and damage to the liver



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# HIV

- A retrovirus that causes AIDS (Acquired Immune Deficiency Syndrome) by infecting helper T cells of the immune system
- Transmitted by actual exposures to blood and other potentially infectious material, frequently a needlestick injury.
- Initial symptoms may be a mild flu-like illness developing within 1 to 6 weeks of exposure

# HIV

- After a latent period, which may last several years, AIDS develops and the disease is characterized by the loss of T cell function and prevalence of opportunistic infections
- The probability of being infected following an exposure to a known HIV positive source is about 0.4%
- While the onset of AIDS may be delayed through drug therapy and opportunistic infections may be treatable, AIDS is at this time incurable and fatal.

# Bloodborne Pathogen Exposures

Typically occur by one of the following ways:

- Puncture from contaminated needles, broken glass, or other sharps
- Contact between non-intact skin and infectious body fluids
  - cut/abrasion, scratch, acne, sunburn
- Direct contact between mucous membranes and infectious body fluids
  - splash in the eyes, nose, or mouth



# Disease Transmission

An exposure incident does not guarantee disease transmission. Several factors affect transmission:

- Infected Source - disease stage of the source
- Means of Entry - severity or depth of the puncture wound, broken skin, or direct contact with mucus membrane
- Infective Dose - the amount and type of fluid, as well as the amount of infectious agent in the fluid. Blood is the fluid of greatest concern
- Susceptible Host – immunocompromised at risk

# Exposure Prevention

- The single most effective measure to control the transmission of Bloodborne Pathogens is:

## Universal Precautions

- Treat all human blood and other potentially infectious materials like they are infectious for Hepatitis B and HIV



# Exposure Prevention

## ■ Engineering Controls

- Controls that isolate or remove the hazard
  - Sharps containers, biohazard bags, disinfectants, safer sharps

## ■ Administrative & Work Practice Controls

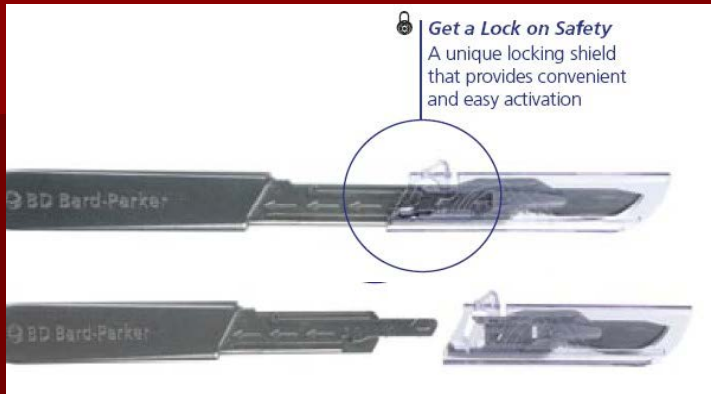
- Behaviors that protect the individual from exposure to potentially infectious substances
  - Handwashing and proper use of PPE
  - Alcohol sanitizers ok when no soap & water, wash hands ASAP

## ■ Personal Protective Equipment (PPE)

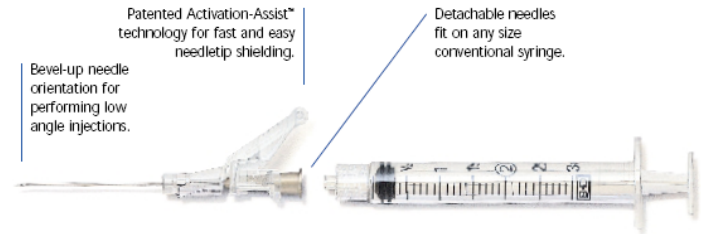
- Items worn to create a physical barrier between the person and the potentially infectious material.
  - Gloves, gowns, eye and face shields, respirators



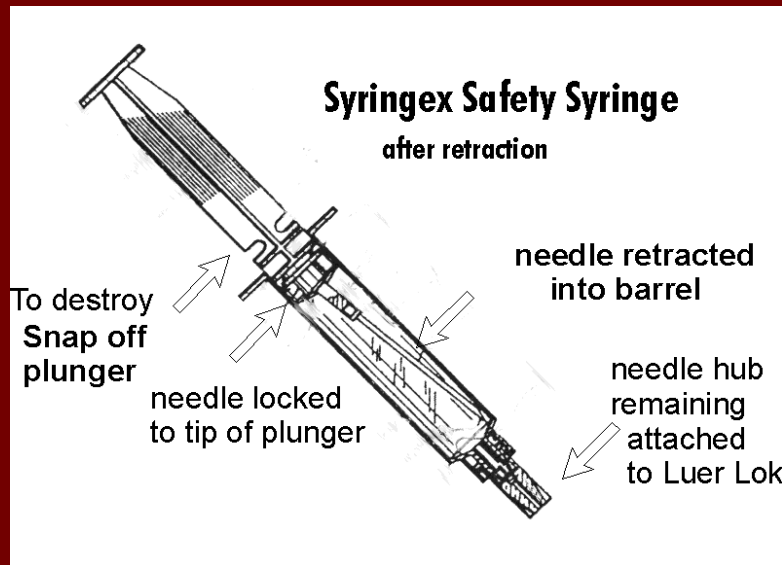
# Safer Sharps



## PRIOR TO ACTIVATION



## AFTER ACTIVATION





# Selecting PPE

- For Routine Work
  - Latex, Nitrile, or Vinyl Exam Gloves
    - All are single-use, cannot be decontaminated
    - Must be changed between patients
    - Should wash hands after removing gloves
  - May need face shield for squirting wounds
  - When blood is anticipated, should have outer clothing like scrubs that can be changed
- For spill cleanup and disinfection, may want a glove resistant to chemicals – nitrile is good
- Waste disposal is coming up

# Exposure Prevention

Guidelines to reduce the risk of exposure:

- ★ Frequent hand washing
- Use of PPE and Universal Precautions
- Regular cleaning and decontamination of work surfaces with a cleaning agent labeled as effective against HIB/HbV
- Vaccination against Hepatitis-B
- Proper Regulated Medical Waste disposal



# Exposure Incident Response

- Wash exposed area with soap and water
- Flush splashes to eyes, nose, mouth or skin with water for 15 minutes
- Report the exposure to supervisor
- Follow your facility's exposure response plan
  - Go straight to ER after washing, report that you've had a blood exposure
- Fill out an exposure incident report
- Report all exposures, regardless of severity

# Exposure Incident Response

- A confidential medical evaluation and follow-up will be made available to employees following an exposure incident.
  - Documenting route of exposure and circumstances of incident
  - Identifying and testing the source individual if feasible
  - Testing the exposed employee's blood if he/she consents
  - Post-exposure prophylaxis
  - Counseling
  - Evaluation of reported illnesses

# What is Regulated Medical Waste

- Medical waste capable of producing an infectious disease.

Waste is considered Infectious when it is:

- Contaminated by an organism that is pathogenic to healthy humans;
- The organism is not routinely available in the environment; and
- The organism is in significant quantity and virulence to transmit disease.

# Regulated Medical Wastes Include:

- Blood and blood products in a free flowing, unabsorbed state;
- Contaminated sharps,
- Laboratory wastes,
- Unfixed pathology tissues



# Bloodborne Pathogen Standard

Defines Regulated Medical Waste as:

- Liquid or semi-liquid blood or other potentially infectious materials (OPIM),
- Contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed,
- Items caked with dried blood or OPIM that would dislodge during handling,
- Contaminated sharps, and
- Pathological and microbial wastes containing blood or OPIM

# Other Potentially Infectious Material

## OPIIM

- Any body fluid with visible blood
- Amniotic fluid
- Cerebrospinal fluid
- Pericardial fluid
- Peritoneal fluid
- Pleural fluid
- Saliva in dental procedures
- Semen/vaginal secretions
- Synovial fluid
- Anywhere body fluids are indistinguishable





# Regulated Medical Waste Is Not

- Used personal hygiene products
  - tissues
  - feminine products
  - diapers
- Gauze and dressings containing small amounts of blood,
- Fixed pathological tissues,
- Uncontaminated medical tubing and devices

Tubing with any visible fluid blood must be disposed in the biohazard waste

# Is this Regulated Medical Waste?



# Collection of Regulated Waste

- Regulated medical wastes must be collected at the point of generation in the appropriate color coded bags
- Orange bags for autoclaved waste, Red bags for all other treatment methods
- Biohazard bags must be labeled with the international biohazard symbol and appropriate wording; "biohazard," "biomedical waste," "infectious medical waste," or "regulated medical waste"



# Sharps

- Must be collected at the point of generation, in a leak-proof and puncture-resistant container
- Containers must bear the international biohazard symbol and appropriate wording



- Containers should never be completely filled, nor filled above the full line indicated on box.
- Do not recap needles

# Packaging and Storage

Wastes collected in a lined, cardboard box or reusable plastic container; labeled with the biohazard symbol and appropriate wording.

- Once the box or container is full, the bag lining it is sealed and the container then sealed shut
- Boxes must be labeled with facility name, address, phone and fax numbers, and the date
- A full, sealed container can be stored on site for no more than 30 days



# Bloodborne Pathogen Spill Kit

All medical facilities must have a spill kit and employees should know where it is located.

It must contain:

- 2 Red bags
- 1 Pair of gloves
- 1 Face mask (surgical type or equivalent)
- 1 Pair of goggles or equivalent eye protection
- 1 Absorbent material capable of absorbing 1/2 gallon of liquid
- 1 Spray can of disinfectant effective against Tuberculosis / mycobacterium
- A disposable dust pan and broom for sweeping up sharps, or tongs

Items can be stored in a plastic tote, which can be used to contain wastes if boxes are not available.

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