AMG Bloodborne Pathogens and Preventing Employee Injuries
Every employee is responsible for wholehearted, genuine cooperation with all aspects of the safety program, including compliance with all rules and regulations, and for continuously practicing safety while performing his or her duties. Input from staff at all levels of the organization is essential to the success of the program.
Bloodborne Pathogen Standard

The Bloodborne Pathogen Standard is a regulation created by the Occupational Safety and Health Administration to protect employees who may come in contact with blood or other potentially contaminated material as a result of their work.
Bloodborne Pathogen Standard

- The Standard requires employers to:
  - Determine which jobs involve potential exposure to bloodborne pathogens
  - Train employees
  - Develop a written Exposure Control Plan
  - Provide personal protective equipment and engineering controls
  - Provide medical consultation if an exposure occurs
Bloodborne Pathogen Description

Bloodborne pathogens are disease causing organisms that can be acquired from another person’s blood.

Examples include Treponema pallidum (syphilis), Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV), Hepatitis C Virus (HCV), Plasmodium falciparum (malaria) and many more.
Hepatitis B (HBV)

- About 1/200 people infected as adults with HBV will die of fulminate liver disease within a few weeks of developing symptoms.
- Less than 1/10 people infected as adults will develop chronic HBV infection.
- Those with chronic HBV infection have a high risk of liver cancer and total liver failure.
- Children tend to have less severe acute infection and higher percentage of chronic infection.
There is no known cure for HIV although there are drugs that suppress the infection.

HIV causes destruction of the immune system.

The terminal stage of the infection is called acquired immunodeficiency syndrome (AIDS).

Symptoms include weight loss, secondary infections, fatigue.
Hepatitis C Virus (HCV)

HCV is the leading cause of liver failure in the U.S.

Will cause chronic long-term infection in over 50% of cases.

The treatment options at this time are limited. There is no vaccine, but can possibly be cured.
Bloodborne pathogens are transmitted when contaminated blood or body fluids enter the body of another person.

In the workplace setting, transmission is most likely to occur through:

- An accidental puncture by a sharp object, such as a needle, broken glass, or other “sharps” contaminated with the pathogen
- Contact between broken or damaged skin and infected body fluids
- Contact between mucous membranes and infected body fluids
Other Potentially Infection Materials (other than blood)

- Cerebrospinal fluid (around brain)
- Pleural fluid (lung)
- Pericardial fluid (heart)
- Synovial fluid (joints)
- Semen
- Vaginal fluid
Unbroken skin forms an impervious barrier against bloodborne pathogens. However, infected blood or body fluids can enter your system percutaneously through:

- Open Sores
- Cuts
- Abrasions
- Acne
- Any sort of damaged or broken skin such as sunburn or blisters
Exposure Incident Risk

Non-intact skin contact results in the lowest risk of infection

Direct injection carries the highest risk of infection

Mucous membrane contact risk is intermediate
Methods Used to Minimize Transmission

The Bloodborne Pathogen Standard specifies methods that are to be used to minimize the transmission of bloodborne pathogens in the workplace. These methods include:

- Universal Precautions
- Engineering and Work Practice Controls
- Personal Protective Equipment (PPE)
- Appropriate Housekeeping Measures
Universal Precautions

- Always assume that blood or other potentially contaminated materials contains bloodborne pathogens. Thus you always use the appropriate protective measures. This is termed using Universal Precautions.
Employers must select and implement appropriate engineering and work practice controls in situations where occupational exposures to blood or other potentially infectious materials may occur.

The objective of engineering controls and work practice controls is the same: to reduce or minimize employee exposure to bloodborne pathogens.

Engineering controls include: Sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems.
Work Practice Controls

Controls that reduce the likelihood of exposure by altering the manner in which a task is performed.

Example: Prohibiting recapping of needles by a two-handed technique.
Protect Yourself

Needles and other sharp objects are the most frequent cause of employment related BBP exposure.

ALWAYS discard sharps directly into an appropriate sharps container following use. Do not recap.
Personal Protective Equipment (PPE)

PPE is equipment that protects you from contact with blood or other potentially infectious materials. Examples include:

- Gloves protect non-intact skin
- Goggles and face shields protect mucous membranes
- Properly used Sharps containers limit exposure to injection accidents
Gloves

- Gloves should be made of latex, nitrile, rubber, or other water impervious materials.
- If gloves are particularly thin or flimsy, double gloving can provide an additional layer of protection.
- If you have cuts or sores on your hands, cover these with a bandage or similar protection as an additional precaution before donning your gloves.
- Always inspect your gloves thoroughly before putting them on. Never use gloves that are damaged, such as torn or punctured.
- Remove contaminated gloves carefully, avoiding touching the outside of the gloves with bare skin. Dispose of contaminated gloves in a proper container.
After removing gloves, always wash your hands.

Gloves are not a substitute for hand-washing.
Eye Protection

Bloodborne pathogens can be transmitted through the mucous membranes of the eye. Consequently, you should use eye protection whenever there is a risk of splashing or vaporization of contaminated fluid, such as while cleaning up spills or during certain laboratory procedures.
Biohazard Warning Labels

Signs and labels in the workplace communicate bloodborne pathogen hazards to employees.

The warning label must include the universal biohazard symbol and the term "biohazard" in a color that contrasts with the fluorescent orange, orange-red background.
Biohazard Warning Labels

Warning labels must be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material, and other containers used to store, transport, or ship blood or other potentially infectious materials. Red bags or red containers can be substituted for labels.
Regulated Waste

- Must be placed in closeable, leak-proof containers built to contain all materials during handling, storing, transporting or shipping and be appropriately labeled or color-coded.
If you are faced with a spill of blood or body fluids, here are some key points to keep in mind:

- Wear appropriate Personal Protective Equipment (PPE)
- Carefully cover the spill with an absorbent material, such as power towels, to prevent splashing
- Decontaminate the area of the spill using an appropriate disinfectant, such as a solution of one part bleach to ten parts water. When pouring disinfectant over the area, always pour gently and work from the edge of the spill towards the center to prevent the contamination from spreading out.
Response to Emergencies Involving Blood or Body Fluids Cont.

- A one to ten dilution of bleach is an effective disinfectant, but a fresh dilution must be made within 24 hours of use or it may not remain effective.
- Wait 10 minutes to ensure adequate decontamination, and then carefully wipe up the spilled material. Be very alert for broken glass or sharps in or around the spill.
- Disinfect all mops and cleaning tools after the job is done.
- Dispose of all contaminated materials appropriately.
- Wash your hands thoroughly with soap and water immediately after the clean up is complete.
Keeping the worksite clean and sanitary is a necessary part of controlling worker exposure to bloodborne pathogens.

Cleaning schedules and decontamination methods depend on the type of surface to be cleaned, the type of soil that is present, and the particular tasks or procedures that are being performed.
General Housekeeping Guidelines

- Clean and decontaminate all equipment and working surfaces after contact with blood or other potentially infectious materials.

- Contaminated work surfaces, such as counters, fume hoods, or biosafety cabinets, should be decontaminated with an appropriate disinfectant as follows:
  - After completing procedures.
  - Immediately or as soon as feasible if they are heavily contaminated or if there has been a spill of blood or other potentially infectious materials.
Disinfectants are tested under EPA protocols and must be certified to work against HIV and HBV.

HBV may remain viable in dried blood for up to one week unless it is effectively disinfected.
If You Are Exposed:

- Flush splashes to the nose or mouth with water. Splashes to the skin should be flushed with water and then washed with soap and water.
- Irrigate eyes well with clean water, saline or sterile irrigants.
- Report immediately to your supervisor and/or risk manager.
- Wash needle sticks and cuts with soap and water.
- The employee health nurse will facilitate staff members receiving appropriate treatment and follow-up.
There is no vaccine against HIV. The Public Health Service recommends a 4 week course of HIV meds for some HIV exposure to blood.

Post prophylaxis is not recommended for all occupational exposures to HIV as most exposures do not lead to HIV infection and because the drugs used to prevent infection may have serious side effects.

If appropriate anti-HIV drugs are given within a few hours of a serious exposure event, the risk of infection can be reduced by over 80%.
Protect Yourself

- The Hepatitis B vaccine is about 90% effective in preventing infection.
- According to the Bloodborne Pathogen Standard, all employees who have potential exposure to blood or other potentially contaminated material must be offered the vaccine at no charge to the employee.
- If appropriate treatment is given following an exposure to HBV, the risk of infection is seriously decreased.
- Employees who have declined the Hepatitis B Vaccine or are not immune to Hepatitis B after receiving the vaccine and are exposed to HBV infected blood, are given Hepatitis B Immune Globulin (HBIG) and the Hepatitis B Vaccine. Treatment should begin as soon as possible after the exposure and no later than 7 days after the exposure.
Management of Regulated Waste
There are four types of Medical Waste:

1. Regulated Medical Waste
2. Chemotherapy
3. Solid Waste (Trash)
4. Hazardous Waste
Regulated Medical Waste

- Red Biohazard Bag
  - Blood/blood products: Examples: Saturated or grossly soiled disposables, i.e., bloody gauze, dressings, etc.
  - Containers, catheters, or tubes with fluid blood or blood products not discarded or flushed i.e., blood sets, suction canisters and drainage sets
  - Dialyzers and tubing
  - Blood spill clean-up materials
**Regulated Medical Waste**

<table>
<thead>
<tr>
<th>Sharps Containers</th>
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<tbody>
<tr>
<td>• Needles and syringes</td>
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<tr>
<td>• Scalpels, blades and lancets</td>
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<tr>
<td>• Glass pipettes, slides and tubes</td>
</tr>
<tr>
<td>• Broken contaminated glass</td>
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<tr>
<td>• Staples and wires</td>
</tr>
<tr>
<td>• Disposable suture sets and biopsy forceps</td>
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Chemotherapy Waste

Chemotherapy Sharps Container or Bag

- Trace contaminated items generated in the preparation and administration of antineoplastic/cytotoxic drugs. Examples: Gowns, Gloves, Masks, Barriers, IV tubing, Empty drug vials, Needles and Syringes
<table>
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<tr>
<th>Examples:</th>
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<tbody>
<tr>
<td>• Paper and plastic wrappers, packaging, boxes, computer paper, office waste</td>
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<tr>
<td>• Unused medical products and supplies</td>
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<td>• PPE (worn, but not soiled)</td>
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<td>• Food products and waste (soda cans, paper plates)</td>
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<td>• Empty IV bags, bottles, and tubing without needles</td>
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<tr>
<td>• Empty urine cups, stool containers, Foley bags/tubing, diapers</td>
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<tr>
<td>• Exam and cleaning gloves</td>
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<td>• Disposable basins, bed pans, urinals</td>
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Hazardous Waste Container Examples:

- Outdated/unused chemotherapy drugs (bulk)
- Certain pharmaceuticals
- Mercury-filled devices, batteries, thermometers, and blood pressure cuffs and guages
- Used solvents, stains, paints and thinner
- Radioactive material
- Chemicals such as formaldehyde and formalin, acetone, toluene, mercury fixatives, barium, alcohol, disinfectants, chemical sterilizing agents
How to Package Medical Waste for Disposal

- All medical waste collected for disposal must be placed in a container that is LINED. The plastic bag used for lining must be of sufficient strength to prevent ripping or tearing. The bag must be marked according to federal, state and local regulations (i.e., red in color and/or biohazard symbol). Red bags should be no more than 2/3 full.
- Each bag must be sealed or tied
- Each container must be securely closed
Reminder: Report Safety Issues Immediately

If you discover a safety problem, report it immediately to the Safety Officer or to your supervisor. Every department is responsible for training their employees on department-specific hazards and safety issues. If you have a safety question, ask your supervisor about it.
Needlestick and Sharps Injury Prevention

- Sharps include any instrument or object capable of breaking the skin: needles, scalpels, rotating instruments, broken glass, wires etc.
- Every sharp should be treated as a dangerous instrument capable of transmitting a bloodborne disease.
- To avoid being injured by a sharp:
  - Handle sharps as little as possible. Do not bend or break contaminated sharps.
  - Always direct the sharp away from yourself.
  - Be aware of others around you when you are holding sharps.
Needlestick and Sharps Injury Prevention

- Always use syringes and needles with safety devices. If safety devices are not available, notify your supervisor.
- Do not recap a needle; use the one handed scoop method.
- Take time to properly dispose of used sharps by immediately placing them in a sharps container, making sure that it is dropped into the container. When the sharps container is 3/4 full (reaching the fill line), remove the container and replace it with a new one.
- Be alert for sharps discarded in waste containers or linens, or sharps that are lying on the floor, beds, shelves or tables. Never reach inside a waste container or push a waste/trash bag down with your hands.
- Carry trash or laundry bag as if it had a needle in it.

Take care when using needles, and dispose of them correctly to avoid injury and exposure to HIV.