1.0 Bloodborne Pathogens Introduction

Bloodborne pathogens pose a significant risk to employees in workplaces where the possibility of exposure exists. The Bloodborne Pathogens standard (CFR Part 29, 1910 Subpart Z) was established to protect those who work in occupations in which they can reasonably be anticipated to come into contact with blood or other potentially infectious material as a result of performing their job duties. With an intention of protecting the health and safety of employees, the standard includes requirements that an employer is to incorporate into their workplace safety programs to protect employees who may be at risk for being infected by bloodborne pathogens.

Exposures to blood and other bodily fluids may occur across a wide variety of occupations. Personnel in healthcare, public safety and sanitation, maintenance, housekeeping, and others can be exposed to bodily fluids through needlestick and other sharps injuries, mucous membranes, and skin exposures. The need for a bloodborne pathogens program may not be apparent in many industries; however, with this standard, it is important to note that if there is any such potential for occupational exposure, then it is in the best interest of an employer to consider the development of a bloodborne pathogen program for the promotion of the health and safety of their employees.

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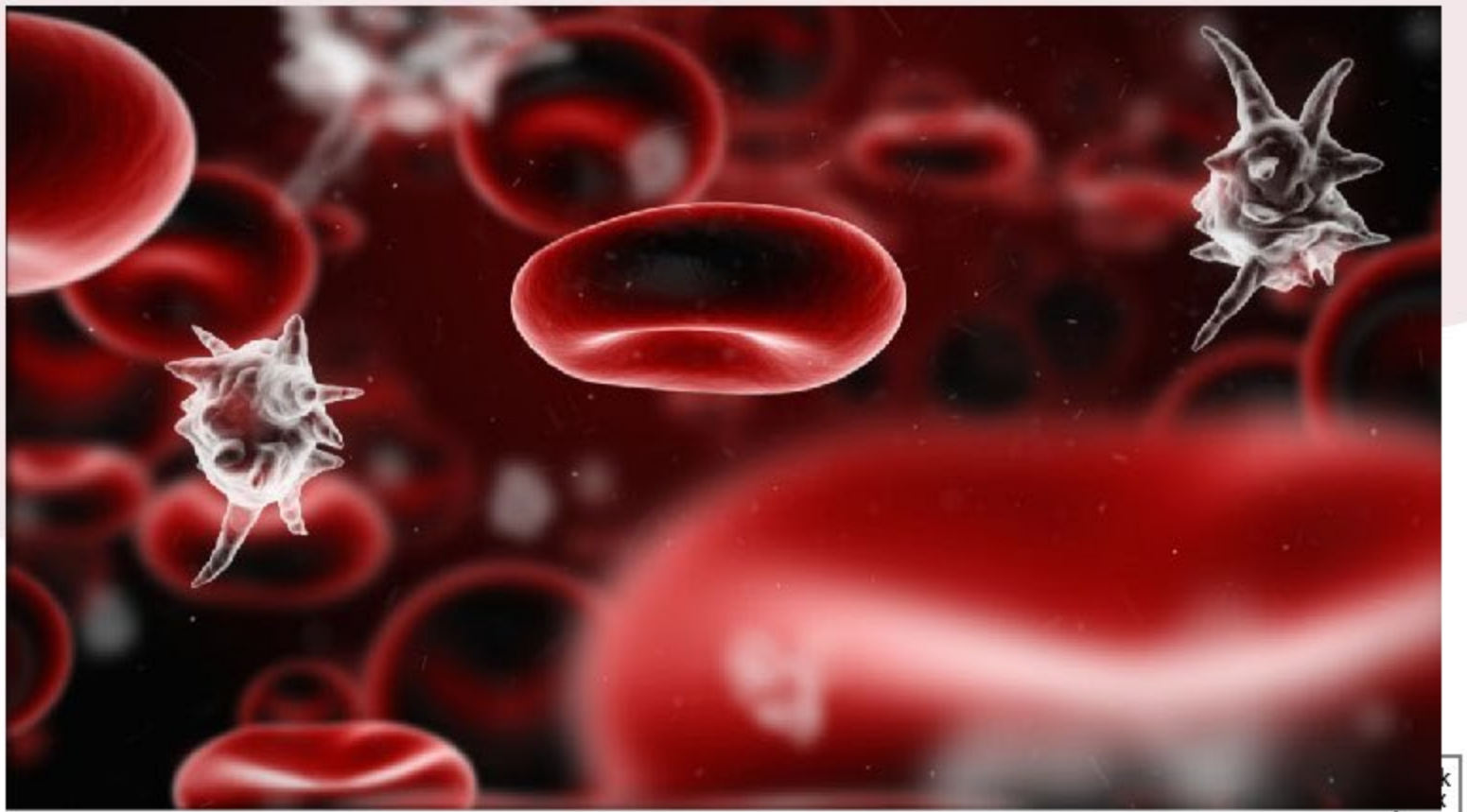
1.1 Definition

As a generic term, bloodborne pathogens, or “BBP”, are infectious microorganisms that are present and carried in human blood, human blood components, and/or products made from human blood. Bloodborne pathogens pose a significant risk, as they have the potential for causing serious disease in the human body that may eventually create an acute or chronic illness directly attributable to the workplace. Of utmost concern is that these illnesses have the potential for being fatal, creating the need for an employer to take the appropriate precautions to control the hazards associated with exposure to bloodborne pathogens. The threat is very real, with the Centers for Disease Control and Prevention estimating that over 5.6 million employees are currently at risk for occupational exposure to bloodborne pathogens throughout workplaces in the United States.



1.3 Transmission Methods

Bloodborne pathogens can live and exist in a variety of different bodily fluids. These bloodborne pathogen transmitters or "vehicles" are referred to as blood or **Otherwise Potentially Infectious Material (OPIM)**. Bloodborne pathogens are typically found in the following bodily fluids:

- Blood
- Semen
- Vaginal Secretions
- Other fluids such as cerebrospinal, synovial, pleural, pericardial, amniotic, and peritoneal fluid
- Saliva in dental procedures
- Body fluids that are visibly contaminated with blood
- Any bodily fluids in which it is difficult to differentiate between bodily fluids

Feces, nasal secretions, sputum, sweat, tears, urine, and vomitus are not considered OPIM unless they contain visible blood, since the risk of bloodborne pathogen transmission from these fluids is extremely low or nonexistent.

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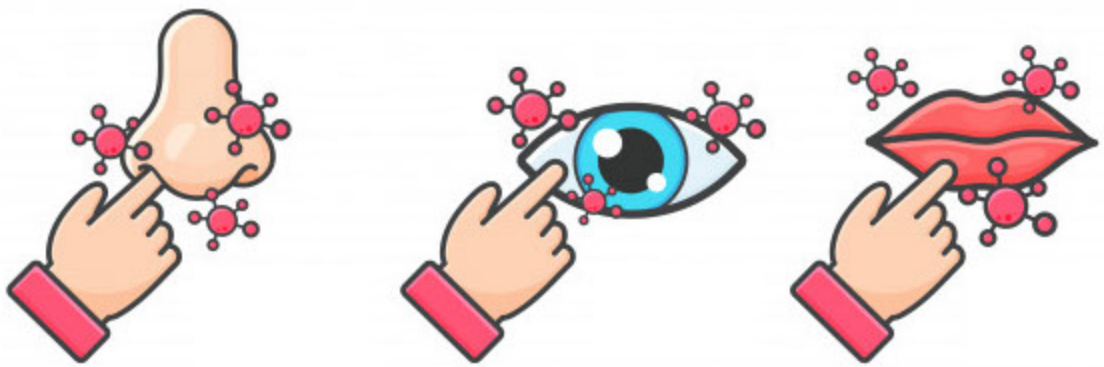
1.3 Transmission Methods

The methods by which a bloodborne pathogen can infect an otherwise healthy body occur when the following conditions exist as an employee is exposed during the course of the performance of their job or tasks:

- **Skin**, which normally forms an impervious barrier against the transmission of bloodborne pathogens, if the following are present:
  - Open sores
  - Break in skin such as a cut or an abrasion
  - Acne
  - Any type of damaged or broken skin, such as sunburn or blisters
- **Mucous membranes**, which, for example, are exposed by a splash, spatter, or vapor of contaminated materials to the following:
  - Eyes
  - Nose
  - Mouth



These transmission methods allow for an effective means of exposure should the appropriate precautions not be implemented in advance of a potential exposure incident. Therefore, as with any effective safety and health program, an acknowledgement of the dangerous risks and a plan to prevent illness or injury is important prior to an incident occurrence.

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1.4 Significance and Impact on the Workplace

The threat is real, and the consequences are serious for employees who are exposed to bloodborne pathogens while performing their duties. Given the statistics associated with the diseases as we have previously discussed, it is imperative that an employer develop and manage an effective exposure control program to ensure that employees in vulnerable occupations be provided appropriate protections for their safety and health. Specific statistics are difficult to come by for recorded injuries and illness associated with bloodborne pathogen compiled by the Bureau of Labor Statistics for many reasons, some of which are:

- Infections and diseases transmitted by bloodborne pathogens usually do not manifest symptoms for some time and to draw conclusions about root causes associated with the infections is a significant challenge

- Exposure incidents are rarely reported, as minimal treatments addressing immediate concerns such as first aid and handwashing are performed, then rarely followed up on to ensure the exposure has been properly addressed

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1.4 Significance and Impact on the Workplace

In support of this reporting challenge is the statement from the Centers for Disease Control and Prevention that as many as 10,000 new cases of Hepatitis B are reported in healthcare employees every year, with several hundred of them dying from the disease. However, the Bureau of Labor Statistics reports an injury and illness incidence rate of only 0.3 for healthcare practitioners for all viral diseases, of which Hepatitis B is only one.

Despite these challenges, the direct and indirect costs to address these potentially significant recordable injuries and illnesses can be overwhelming. Direct costs related to medical expenses for acute and chronic infections are considerable, while indirect costs associated with chronic absences, productivity and employee relations can be substantial.

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1.5 The Bloodborne Pathogen Standard

The OSHA Standard, Bloodborne Pathogens (29 CFR 1910 Subpart Z) was established in 1992 to address an ever-rising incident of injuries and illnesses associated with the transmission of contaminated bloodborne pathogens to employees in occupations where the exposure potential is significant. At its core, the standard attempts to limit the occupational exposure to blood and OPIM, as this exposure has the potential to lead to serious disease or death for those who may be exposed.

The National Association of Safety Professionals recommends that the standard be adopted as a minimum compliance effort only, as it is somewhat restrictive in its scope, addressing only certain bloodborne pathogens and occupational exposures. Violating a legal regulation and violating a moral or ethical principle is obviously not the same thing. Compliance requires that an employer not transgress the limits as defined by this standard; however, compliance to this standard will not guarantee a safe workplace. An employer should be driven by what is right to protect the safety and health of its employees. With this standard, managing a bloodborne pathogen program based on moral and ethical responsibility is the foundation for an effective safety culture in any workplace.

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1.5.1 Application and Scope

The Bloodborne Pathogens standard covers all employees who could be "reasonably anticipated", as the result of performing their occupational job duties, to face contact with blood and other potentially infectious materials. With this standard, OSHA has not attempted to list all occupations where exposures could occur, since a bloodborne pathogen exposure has the potential for occurring in just about any industry or occupation.

The standard covers all employees in the private sector, as well as civilian employees of federal entities. State and local government employees are covered if they are in one of the 25 states and two territories that operate their own OSHA-approved state plans who are required to enforce an "at least as effective" standard. Hospitals operated by state, territorial or local governments are required to provide the protection of the standard in the remaining jurisdictions where OSHA has authority.

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1.5.1 Application and Scope

While OSHA does not generally consider such as occupations as maintenance, janitorial, or housekeeping employed in non-healthcare facilities to have occupational exposure, it is the employer's responsibility to determine which job classifications or specific tasks and procedures involve occupational exposure. For example, with custodians responsible for maintaining sanitary conditions in restrooms, the employer must determine if an employee may come into contact with blood or other potentially infectious material during the course of handling materials, from initial pick-up through disposal in the outgoing trash. Given this, it is incumbent upon any employer to consider the proper protections necessary for their employees to ensure that their safety and health are not at risk in potentially hazardous conditions.

A “Good Samaritan” is typically someone who may be placed in a position to assist another person in an emergency situation and may or may not have the necessary trained response skills. A “Good Samaritan” act, such as assisting a coworker with a nosebleed, would not necessarily be considered an occupational exposure, unless the employee who assists in this instance is acknowledged in the workplace as having been trained in bloodborne pathogens and first aid treatment. When they do have the trained skills and are acknowledged by most as a possible first responder, it is incumbent upon the employer to consider them as “reasonably anticipated” to face contact with a bloodborne pathogens. In this case, the standard will come in to play since the employer has included the responder in a classification of potentially affected employees.

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1.5.2 Needlestick Safety and Prevention Act

Since occupational exposure to bloodborne pathogens from accidental sharps injuries in healthcare and other occupational settings continued to be a serious problem, Congress required modification of the Bloodborne Pathogen standard with the enactment of the "Needlestick Safety and Prevention Act" in 2000 which prompted OSHA to published a revised bloodborne pathogen standard the next year.

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1.5.2 Needlestick Safety and Prevention Act

The Act was intended to reduce further exposure to bloodborne pathogens by imposing additional requirements upon employers concerning the procedures associated with sharps in the workplace. At that time, OSHA estimated that over 300,000 percutaneous injuries would occur every year involving contaminated sharps. Consistent with the Act, OSHA incorporated requirements into the standard which include:

- Modification of the definition of "engineering controls" to identify, evaluate and implement safer medical devices such as needleless systems and sharps with engineered sharps protections. Safer sharps are considered appropriate engineering controls, the optimum strategy for employee protection.
- Consideration and implementation of new technologies when the employer updates the Exposure Control Plan (ECP) with an annual review.
- The solicitation of employee input with respect to appropriate engineering controls, involving them in the selection of safer devices. This process helps to ensure that employees who are actually utilizing the equipment or devices have the opportunity for input that would eventually support important purchasing decisions.
- A requirement to maintain a log of injuries from contaminated sharps known as a “Sharps Log”. These records assist both employees and employers in tracking all needlesticks such that problem areas or operations can be identified.

1.5.2 Needlestick Safety and Prevention Act

The Act not only clarified several of the Standard's provisions in greater detail, but also set forth new provisions that apply not only to healthcare settings, but also to non-healthcare settings as well. Provisions such as disposal procedures, container specifications, handling, decontamination, recordkeeping, and regulated waste management are now incorporated into the standard and are discussed in detail throughout this course. These provisions of the Act, while imposing additional requirements, were not intended to negatively affect the underlying flexible, performance-oriented nature of the initial bloodborne pathogen standard.

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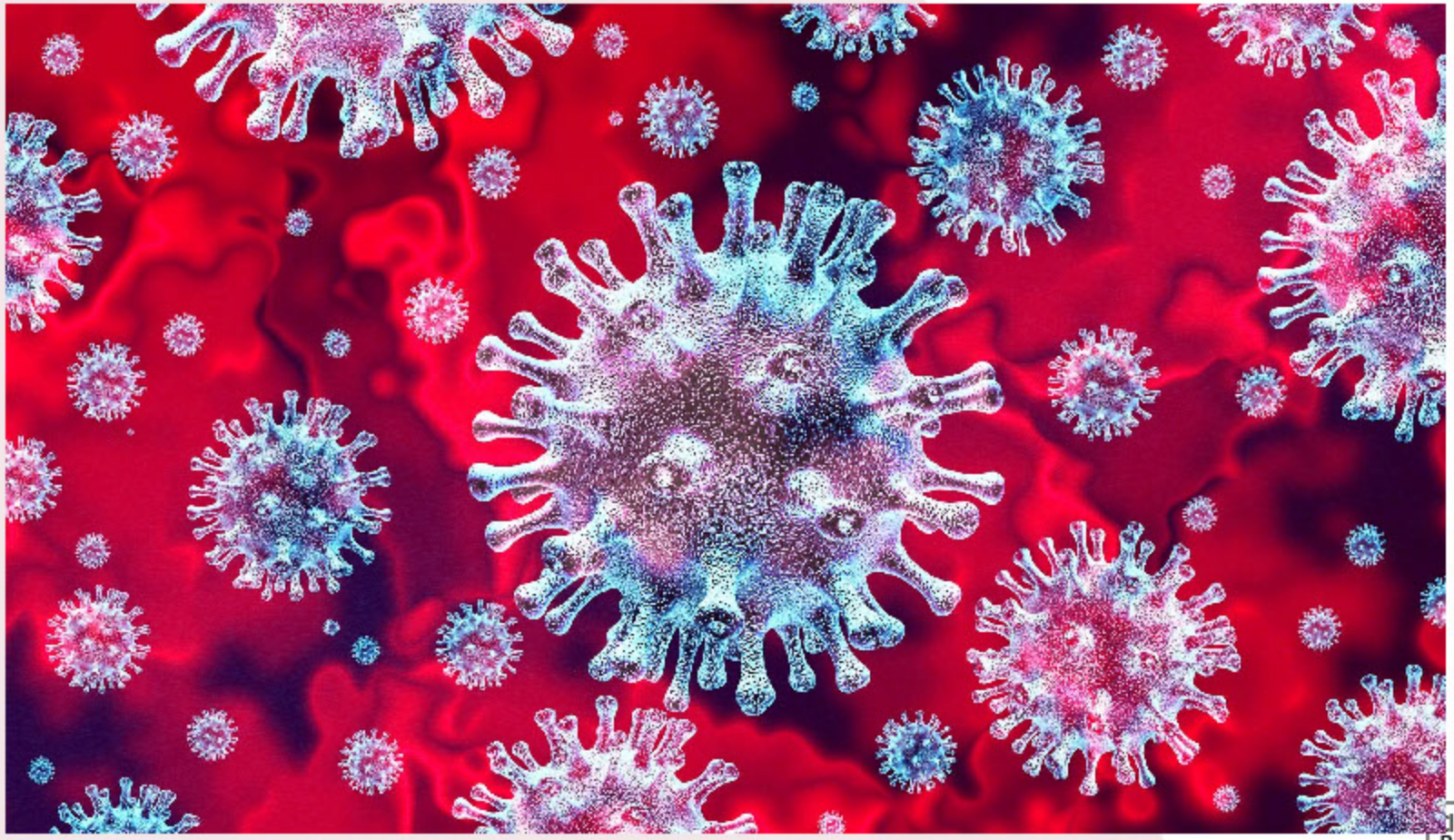
2.0 Hazard Recognition, Control Measures, and Exposure Control Plan

The CDC estimates that 5.6 million workers in the health care industry and related occupations are at risk of occupational exposure to bloodborne pathogens, including human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and others. All occupational exposure to blood or other potentially infectious materials (OPIM) places workers at risk for infection from bloodborne pathogens.

In this section, we will discuss how to properly recognize the hazards associated with Bloodborne Pathogens, how to implement the proper controls, and finally, the elements of a successful Exposure Control Plan.



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2.1 Hazard Recognition

The Bloodborne Pathogen standard is intended to be implemented as a means to prevent occupational injuries and illnesses associated with bloodborne pathogens. As with any safety program, it is first important to identify the hazards or potential hazards in the workplace in order to develop the control measures necessary to eliminate or reduce the hazards. In many respects, it is important that an employer think "outside the box" on this type of evaluation, as there is a need to consider a number of "what if" scenarios, given the possible random exposures or potential exposures that could be present. As an employer reviews the potential for exposure, consideration for each individual employee who may be exposed within each job classification at the workplace is required.

In the healthcare industry, it is recommended that a review of existing Job Hazard Analysis be conducted to ensure that with every job task listed, the potential bloodborne pathogen exposure hazard is depicted. For those not in the industry but who may have potential for exposure, such as housekeepers, caretakers, maintenance, correctional facilities staff and emergency responders, the Job Hazard Analysis should reflect the hazards at each step within a particular job task.

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2.1 Hazard Recognition

Hazard recognition is considered the foundation for the Exposure Control Plan (ECP). As a major element in the ECP, the employee exposure determination requires that an employer identify, in writing, the job classifications that occupational exposure to blood and OPIM may occur, without regard to personal protective clothing and equipment. Within the job classification, the tasks and procedures for each of the jobs listed are to be depicted. An example of such a listing appears below:

Employee Exposure Determination

Job Classification	Department/Location	Tasks/Procedures
Housekeeper	Building Services	Handle regulated contaminated waste daily
Maintenance Technician	Maintenance	Repair medical equipment in Intensive Care Unit as needed.

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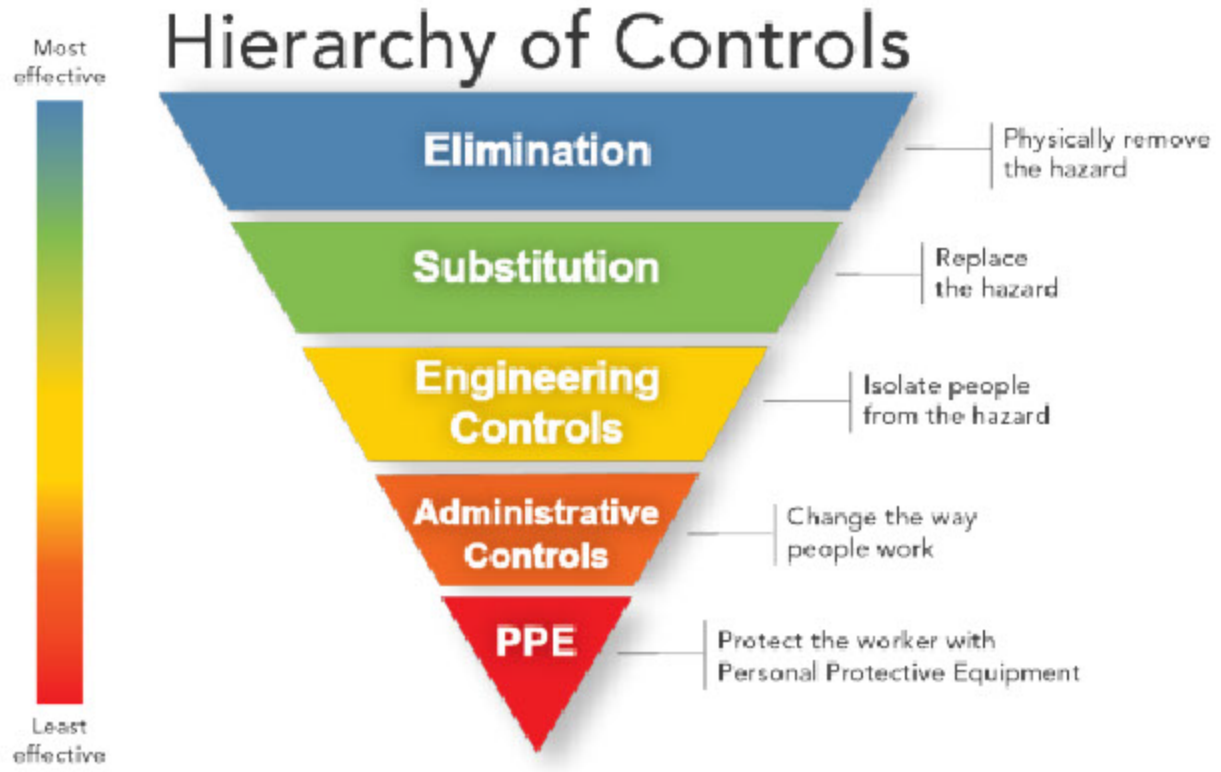
2.2 Hazard Control Measures

Analyzing jobs and tasks to identify exposure hazards lays the groundwork for developing ways to reduce or eliminate these hazards, ensuring that work is performed in a safe manner for all those with occupational exposure to bloodborne pathogens. The "hierarchy of controls" is widely accepted as an intervention strategy for controlling bloodborne pathogen workplace hazards.

The Bloodborne Pathogen Standard requires that engineering and administrative controls be implemented to eliminate or minimize employee exposure. Important to an assessment of the types of appropriate control measures is the involvement of front-line employees in the evaluation and selection process. The solicitation of employees who have been involved in such a process should be documented in the Exposure Control Plan (ECP).



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2.2.1 Engineering Controls

The most effective way to control hazards to protect employees in the workplace is to eliminate or remove the hazards altogether. Engineering controls are physical changes to a job or task that eliminates or materially reduces the exposure hazard. These controls are preferred over all others since they usually require permanent changes that may eliminate the exposure hazards at their source.

In terms of the workplace, the following engineering controls may be considered to eliminate or reduce the risk of exposure to bloodborne pathogens:

- Isolation techniques to limit exposure when feasible
- Handwashing facilities in close proximity to potential exposure sites for the prevention of injury and illness
- Appropriate and adequate ventilation in areas where bloodborne pathogens have the potential for being released into the air by vapors or droplets

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2.2.1 Engineering Controls

The Needlestick Safety and Prevention Act revised the Standard to define engineering controls as “controls that isolate or remove the bloodborne pathogen hazard from the workplace”. These controls are frequently technology-based and often incorporate safer designs of instruments and other medical devices. They may include:

- Sharps disposal containers
- Self-sheathing needles
- Rubber dams
- Sharps engineered with injury protections
- Needleless systems to eliminate the hazard altogether

These types of medical devices may reduce needlestick or other sharps exposures relative to the proper handling and disposal of needles and other sharps.

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2.2.1 Engineering Controls

It is important to note that OSHA does not approve and/or endorse any product associated with these controls. It is the employer's responsibility to identify and implement appropriate, commercially-available and effective safer medical devices for the specific medical procedures at their workplace designed to eliminate or minimize occupational exposure. A key element in choosing a safer device, other than its appropriateness to the procedure and its effectiveness, is its availability on the market. If there is no safer option to the device utilized for a particular procedure, an employer is not required to adopt a device different from the one currently being used.

In the Exposure Control Plan, an employer must document an *annual* consideration and implementation of appropriate, commercially-available and effective engineering controls designed to eliminate or minimize exposure. As stated previously, an employer is also required to solicit input for this process from employees other than their management team who are exposed or potentially exposed to occupational injuries from contaminated sharps. This feedback is to be documented in the Exposure Control Plan as well. These controls are to be assessed on a regular basis to ensure their effectiveness. With technological advances more common in the medical field, more devices are becoming available for a variety of different procedures. If there are no engineering controls available or feasible, administrative controls are to be utilized, followed by the use of personal protective equipment should the possibility of exposure remain present.

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2.2.2 Administrative Controls

Administrative controls address how the work is structured, with work practices changing the manner in which employees perform their jobs. Both are closely-related attempts to change employee behaviors and are management-driven initiatives to reduce or prevent exposures to bloodborne pathogen hazards. Although engineering controls are preferred, these controls can be effective as temporary measures until engineering controls can be implemented or when engineering controls are not technically feasible. Since these controls do not necessarily eliminate hazards, the employer must ensure that once these policies and practices are adopted, they are properly enforced. Since these practices reduce the possibility of exposure by changing the way a job/task is performed, such as appropriate practices for handling and disposing of contaminated sharps, handling specimens, treating laundry, and cleaning contaminated surfaces and items, it is imperative that the employer properly manage their implementation. The following are several required and/or recommended administrative controls to be considered for feasibility in the workplace.

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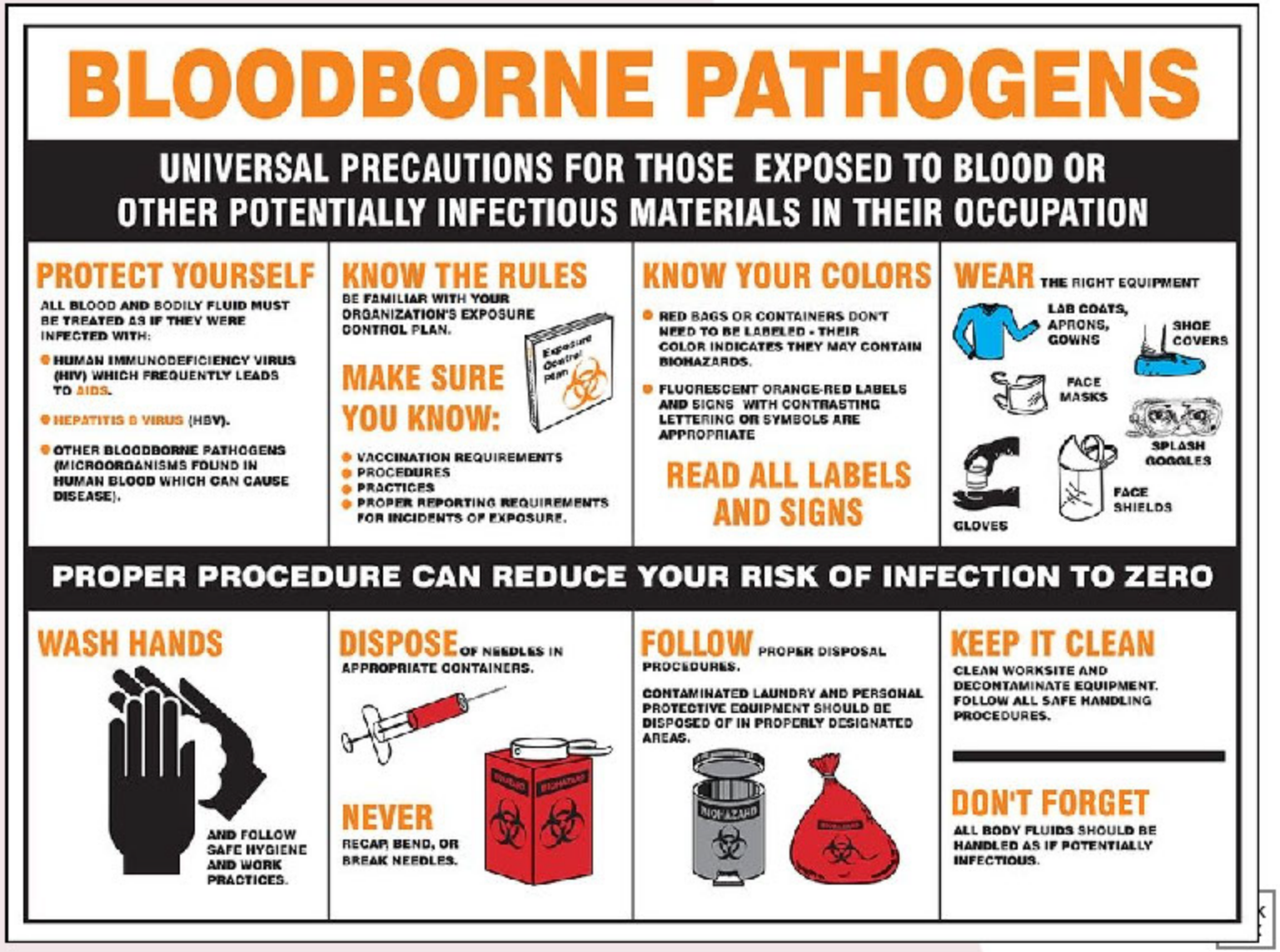
2.2.2 Administrative Controls

Universal Precautions

"Universal Precautions" is an approach to infection control to protect employees from exposure to bloodborne pathogens. According to the approach, all human blood and certain human body fluids are treated as if they are known to be infectious for bloodborne pathogens. When it is difficult to differentiate between the various bodily fluids, the best practice is to assume that all body fluids are considered potentially infectious. This approach was the first infection control technique that was adopted following the AIDS outbreak in the 1980's; every patient was treated as if infected and therefore, precautions were to be taken to minimize the risk to those that were exposed. Nowadays, adopting this approach has proven to be an effective method in controlling bloodborne pathogen hazards in the workplace.



2.2.2 Administrative Controls

The following are basic guidelines taking into consideration this approach, with more specific exposure controls listed in remaining sections of this lesson:

- Thorough hand washing with antibacterial soap, the most important and convenient method in the prevention of transmission, particularly once personal protective equipment is removed. The implementation of procedures to avoid or minimize exposure to airborne hazards (small particles in the air, droplet coughing, sneezing, or talking), or contact hazards (skin to skin or contact with surfaces)
- The proper use of personal protective equipment
- Prohibiting eating, drinking, smoking, applying cosmetics, or handling contact lenses in areas of likely exposure
- Handling any specimens with possible contamination appropriately, especially during their transportation
- Prohibiting food or drink in areas where blood or other OPIM may be stored or present, such as refrigerators or cabinets

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2.2.2 Administrative Controls

Labels and Signs

While the Bloodborne Pathogen Standard protects employees who work in occupations where they are at risk of exposure to blood or other potentially infectious materials, the Hazard Communication Standard protects employees who may be exposed to hazardous materials. Both standards require an employer to properly label hazardous materials for the purpose of notifying employees of the hazards in order to protect their health and safety when they may be exposed. The Bloodborne Pathogen Standard requires warning labels, including the fluorescent orange or orange-red universal biohazard symbol, affixed to containers of regulated waste, bags/containers of contaminated laundry, refrigerators and freezers, and other containers which are used to store or transport blood or other potentially infectious materials. Red bags or containers may be used instead of labeling as a universal notification of a biohazard. When a label is utilized, it must be either an integral part of the container or affixed to it in a method to prevent its loss or unintentional removal.

When a facility uses universal precautions (assumption that all items have the potential for contamination) in its handling of all contaminated or potentially contaminated materials, labeling is not required within the facility. Likewise, when all laundry is handled with universal precautions, the laundry need not be labeled. Finally, contaminated equipment serviced or shipped out of the workplace must have a readily observable label attached containing the biohazard symbol and the word "biohazard", along with a statement that reflects which portions of the equipment remain contaminated.

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2.2.2 Administrative Controls

Vaccinations

As stipulated in the description of the various infectious bloodborne pathogens, there are vaccines that can be offered and administered as tools in the prevention of the spread of these dangerous diseases. While the Bloodborne Pathogen Standard depicts requirements associated with the Hepatitis B virus only, it is highly recommended that an employer consider offering vaccinations for other infections and diseases as they become available or feasible.

The standard requires employers to offer, at a minimum, the Hepatitis B three-injection vaccination series free to all employees who are exposed to blood or other potentially infectious materials as part of their regular occupational duties. The administration of the vaccine covers a 6-month period of time. The vaccination must be offered once the employee has participated in the required bloodborne pathogen training and within 10 days of initial assignment to a job where occupational exposure to blood or other potentially infectious materials can be "reasonably anticipated." The protection of the vaccines lasts for at least nine years and is 85-97 % effective in healthy adults. The employer does not have to make the hepatitis B vaccination available to employees who have previously received the vaccination series, who are already immune as their antibody tests reveal, or for whom receiving the vaccine is contraindicated for medical reasons.

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2.2.2 Administrative Controls

As an employer, the following requirements apply relative to Hepatitis B vaccinations:

- Administered at no cost to the employee
- Scheduled at a reasonable time and place
- Offered within 10 working days of employment in the job for which an exposure hazard exists
- Offered only after bloodborne pathogen training has been conducted
- Administered by a licensed physician and in accordance with recommendations of the US Public Health Service
- Permit the employee to choose to have the vaccines at any time after they initially decline to receive it
- Require that employees who decline the HBV vaccination complete a declination form to be filed in their medical record folder
- If only a booster dose is recommended, make it available in the same manner as a standard vaccination

2.2.2 Administrative Controls

A mandatory Hepatitis B Vaccine Declination Statement to be used with all offerings is included in the Bloodborne Pathogen Standard as Appendix A and appears below:

"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."

An employer must maintain completed Vaccination Declination forms in the medical records of all affected employees and retain them with consideration to state and local laws for the retention of employment records.

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2.2.2 Administrative Controls

Housekeeping

As an employer, it is imperative that work areas are maintained in a clean and sanitary condition at all times. An employer is to develop a regular housekeeping schedule and abide by it through effective management processes. Incorporated into the schedule should be information relative to method of decontamination based upon the workplace location, the type of surfaces, the type of contaminated materials typically present, and the specific tasks to be performed. While applying universal precautions, any housekeeper, janitor or custodian should ensure that the appropriate personal protective equipment is utilized in the performance of their duties. Lastly, any broken glass with the potential for contamination should be cleaned up with brushes or tongs, rather than with the hands to prevent further injury from a puncture or cut hazard.

Work surfaces are to be cleaned with acceptable disinfectants, which are described as a solution of 5.25% sodium hypochlorite (household bleach) diluted with water at a ratio between 1:10 to 1:100. In medical and healthcare environments, other EPA registered tuberculoid disinfectants are acceptable.

The particular disinfectant used, as well as the frequency with which it is used, will depend upon the circumstances in which a given housekeeping task occurs (i.e., location within the facility, type of surface to be cleaned, type of soil present, and tasks and procedures being performed). The employer's written schedule for cleaning and decontamination should identify such specifics on a task-by-task basis.

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2.2.2 Administrative Controls

Laundry

As with any procedures, it is highly recommended that the universal precautions approach be adopted for any laundry facility, considering that all incoming soiled laundry is assumed to be contaminated with bloodborne pathogens. With this in mind, the following are guidelines for the laundry staff:

- Employees should handle contaminated laundry as little as possible. Any contaminated laundry should be bagged or placed in containers at the location where it is used, but not sorted or rinsed there, so as to minimize the exposure.
- Contaminated laundry bags should not be held close to the body or squeezed when transporting to avoid puncture from improperly discarded syringes.
- Contaminated laundry should be transported within the establishment or to outside laundries in labeled or red color-coded bags. When a facility utilizes Universal Precautions in the handling of all soiled laundry, alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with Universal Precautions. When a facility ships contaminated laundry off-site to a second facility which does not utilize Universal Precautions in the handling of all laundry, the facility generating the contaminated laundry must place such laundry in bags or containers which are properly labeled or color-coded.

2.2.2 Administrative Controls

- 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 which prevent soak-through and/or leakage of the fluids.
- The employer is to ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment.
- Proper barrier methods and air flow monitoring systems in laundry facilities assist in the prevention of the transmission of bloodborne pathogens.

As an important note, employees are not to be permitted to take their protective equipment home to launder it. It is the responsibility of the employer to provide, launder, clean, repair, replace, and dispose of personal protective equipment.

2.2.2 Administrative Controls

Decontamination
Every employer whose employees are exposed to blood or other potentially infectious materials must develop a written schedule for cleaning each area where exposures occur. The methods for decontaminating different surfaces must be specified, determined by the type of surface to be cleaned, the soil present and the tasks or procedures that occur in that area.

All work areas are to be cleaned and decontaminated after contact with blood or OPIM with the following in mind:

- The use of an appropriate disinfectant
- Upon completion of a procedure in which an exposure may have occurred, or as soon as feasible thereafter
- Removal and replacement of protective coverings used to cover equipment once contaminated
- Reusable containers that are contaminated are to be inspected and decontaminated on a regular basis
- Reusable sharps are to be stored appropriately so as not to create a hazardous situation for the next user
- Decontamination of any equipment, particularly when being serviced. If decontamination is not feasible, an appropriate label notifying the service technician(s) of its possible contamination state is required.

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2.2.2 Administrative Controls

Contaminated Waste and Proper Disposal

The definition of contaminated waste regulated under the Bloodborne Pathogen Standard that requires special handling is as follows:

- Any liquid or semi-liquid blood or OPIM
- Contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed
- Items that are caked with dried blood or other potentially infectious materials
- Contaminated sharps defined as “any contaminated object that is able to penetrate the skin including, but not limited to, needles, razors, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires”
- Any pathological or microbiological wastes containing blood or OPIM

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2.2.2 Administrative Controls

With these specific conditions, it is the employer's responsibility to determine the existence of regulated waste in the workplace. This determination is not to be based on actual volume of blood, but rather on the potential to release *any* blood or OPIM, an example being when contaminated materials are compacted in a waste container. It is best practice to take inventory either by observation or by employee interviews to determine if sufficient evidence of regulated waste exists so that the necessary provisions can be made to prevent the risks of exposure for those potentially affected employees.

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2.2.2 Administrative Controls

Proper handling of regulated waste is essential in the prevention of unnecessary exposure to blood and OPIM. As a result, regulated waste must be handled with great care. The following are guidelines for handling regulated waste:

- Regulated waste containers are to be located as near to the area of use as possible
- Employees are to be instructed to never reach into containers of contaminated sharps with their hands, even if they may be wearing protective equipment
- Reusable sharps containers must never be opened, emptied, or cleaned manually
- Containers should be readily available wherever sharps may be found
- Contaminated sharps should be disposed of immediately after use
- Containers must be replaced routinely and not be overfilled

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2.2.2 Administrative Controls

- Containers should be closed immediately to prevent spillage or protrusion
- Contaminated sharps must never be sheared or broken
- Recapping, bending, or removing needles is permissible only if there is no feasible alternative or if required for a specific medical procedure
- As containers are discarded, the lid should be firmly closed
- Employees must be instructed to use mechanical devices whenever feasible in the handling of contaminated waste

By following these simple work practices, employees may reduce their risk of exposure to bloodborne pathogens. Given the significance of the consequences associated with an exposure incident, an employer is to ensure that employees follow the established procedures associated with handling contaminated waste.

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2.2.2 Administrative Controls

Disposal Containers

While the Bloodborne Pathogen Standard depicts requirements regarding disposal containers for regulated wastes, there are recommended best practices for such containers in their purchase and use, some of which are obvious to those who may have contact with contaminated waste. Containers should be:

- Closable, with a well-constructed lid
- Puncture-resistant to reduce the risk of penetration
- Constructed to *contain* all contents and prevent leakage of fluids during handling, storage, transport, or shipping
- Labeled and/or color-coded to ensure that employees are aware of the potential hazards within them
- Closed before removed or discarded to prevent spillage or protrusion of contents

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2.2.2 Administrative Controls

- Utilized with a second container if outside contamination of the regulated waste container occurs
  - The second container should also meet the conditions of the original container
- Maintained in an upright fashion to retain liquids and sharps inside

As always, the disposal of all regulated contaminated waste is to be in accordance with applicable federal, state, and local regulations.

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2.2.3 Personal Protective Equipment

Personal protective equipment (PPE) provides a barrier between the employee and the source of the hazard to protect against the risk for exposure. It is the least effective control measure since its use acknowledges that all other types of controls have failed and that an employee needs some type of barrier to prevent them from being exposed to the hazard. Therefore, while more permanent controls are put in place or if the job cannot be structured differently to eliminate risks, personal protective equipment can and should be used as it is intended.

Whenever occupational exposure can readily be anticipated, an employer is to provide appropriate personal protective equipment which will not permit blood or other OPIM to pass through to or reach employee's clothes, skin, eyes, mouth, or other mucous membranes. While wearing gloves, gowns, masks, and eye protection can significantly reduce health risks for employees who may be exposed, suitable personal protective equipment requires that the level of protection must fit the expected exposure.

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2.2.3 Personal Protective Equipment

An employer is to follow requirements for personal protective equipment that include:

- Provide optional sizes to accommodate a variety of employees
- Ensure that it easily accessible
- Provide at no cost to employees
- Laundered appropriately
- Repaired or replaced as needed to ensure effectiveness

When personal protective equipment becomes contaminated, it is critical that the proper decontamination procedures are followed. First and foremost, the employer is to ensure that employees immediately remove personal protective equipment before leaving the work area, particularly if the equipment is obviously contaminated. Once it is removed, the employee must place it in a designated area or properly labeled container for storage, cleaning, decontamination or disposal. Lastly, employees must also wash their hands immediately upon removal of gloves or other personal protective equipment for an added measure of protection.

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2.2.3 Personal Protective Equipment

The following are guidelines for specific personal protective equipment utilized in the prevention of an exposure incident:

Protective Gloves

- Replace gloves, particularly disposable gloves, as soon as practical after contamination or if they are torn, punctured, or cease functioning as a barrier
- Never wash or reuse single-use disposable gloves
- Gloves should be made of latex, rubber, or other water-impervious materials
- Provide hypo-allergenic gloves as needed for those employees with allergies to standard glove materials
- Inspect gloves before every use
- Double gloving can provide an additional layer of protection

- Cover any cuts or sores with a bandage or similar protection as an additional precaution before donning gloves
- Remove gloves in such a way that the outside of the used glove is not in contact with otherwise clean skin

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2.2.3 Personal Protective Equipment

Masks, Eye Protection, and Face Shields

- Provide when the potential for occupational exposure to splashes, sprays, spatter, vaporization, or droplets of blood or OPIM pose a hazard to the eyes, nose, or mouth
- Ensure that masks in conjunction with eye protection (such as goggles or glasses with solid side shields) or chin-length face shields are worn as needed

Gowns, Aprons, and Other Protective Clothing

- Provide when this type of personal protective equipment creates the intended barrier to the exposure associated with the specific task and the degree of exposure to minimize hazards that put the body at risk
- Provide caps, hoods, and shoe covers or boots when the possibility for gross contamination may be present

Click Box

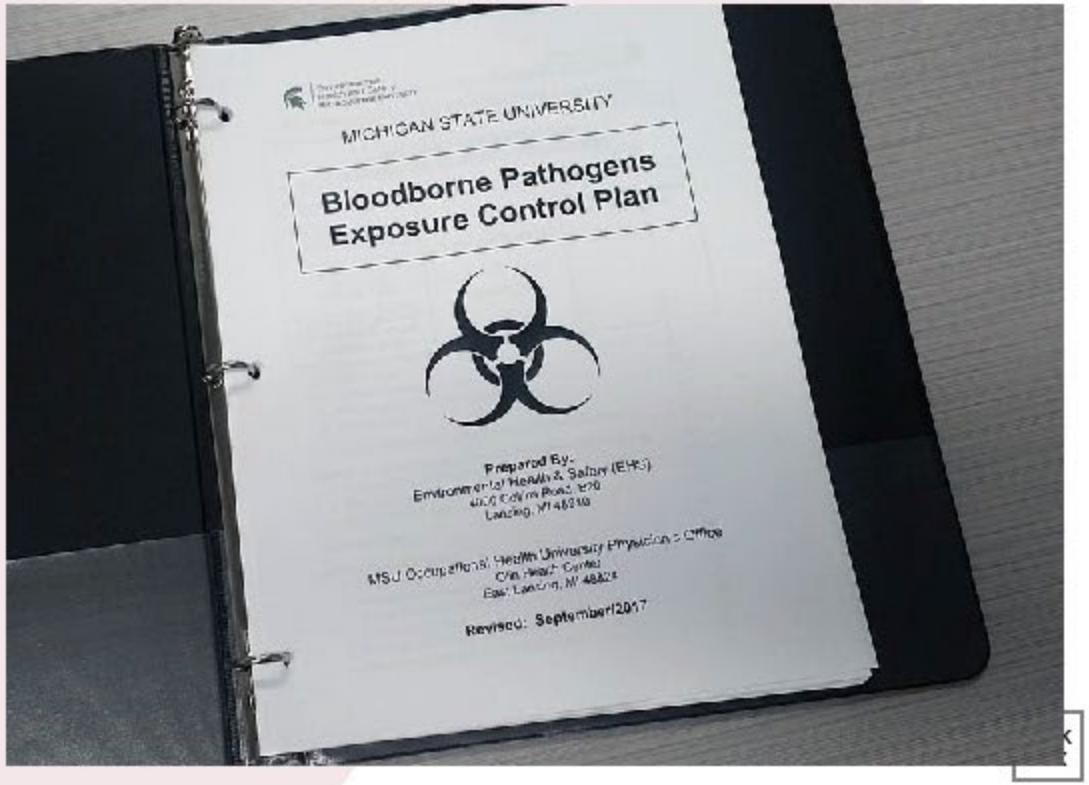
2.3 Exposure Control Plan (ECP)

In order to address all of the requirements set forth in the Bloodborne Pathogen standard, an employer is to document a plan for the control of occupational exposures to bloodborne pathogens in the workplace. The Exposure Control Plan (ECP) is a site-specific document that demonstrates the employer's commitment to providing a safe and healthy work environment. The following elements are to be included in this important safety plan which not only reflect the many requirements in the standard, but also incorporate best practices in ensuring the safety and health of all potentially affected employees.

- A determination of employee exposure, identifying the tasks and procedures within job classifications where occupational exposure can be reasonably anticipated without regard to personal protective equipment
- Communication of the occupational exposure hazards to affected employees through appropriate training provisions

2.3 Exposure Control Plan (ECP)

- The annual evaluation and implementation procedures of various methods of exposure control, including engineering, administrative and personal protective equipment controls, considering optimum use of technology and effectiveness
- The process by which employees are involved in identifying, evaluating, and selecting effective exposure controls
- Procedures to ensure the application of universal precautions whenever feasible
- Established housekeeping, decontamination, and regulated waste removal procedures.
- The Hepatitis B Vaccination Program
- Post-exposure incident evaluation and follow-up procedures
- Injury, medical, and training recordkeeping



2.3 Exposure Control Plan (ECP)

The Exposure Control Plan is to be made available to all affected employees, as well as to other regulatory personnel as needed. It is to be reviewed annually to ensure that procedures are properly implemented and programs are effectively managed. Whenever changes in tasks, procedures, or employee positions affect or create new occupational exposure, the existing plan must be reviewed and updated accordingly.

The Exposure Control Plan may be part of another document, such as the facility's Health and Safety Plan, as long as all of the above components are included. However, in order for the plan to be accessible to employees, it should be a cohesive document from which an employee can review, minimally stating the overall policy and referencing the elements of existing separate policies that comprise the plan. The Exposure Control Plan elements as described above are individually discussed in subsequent sections of coursework.

For a sample template of an effective Exposure Control Plan, please refer to the Appendix.

Click Box

3.0 Exposure Incidents, Recordkeeping, and Training

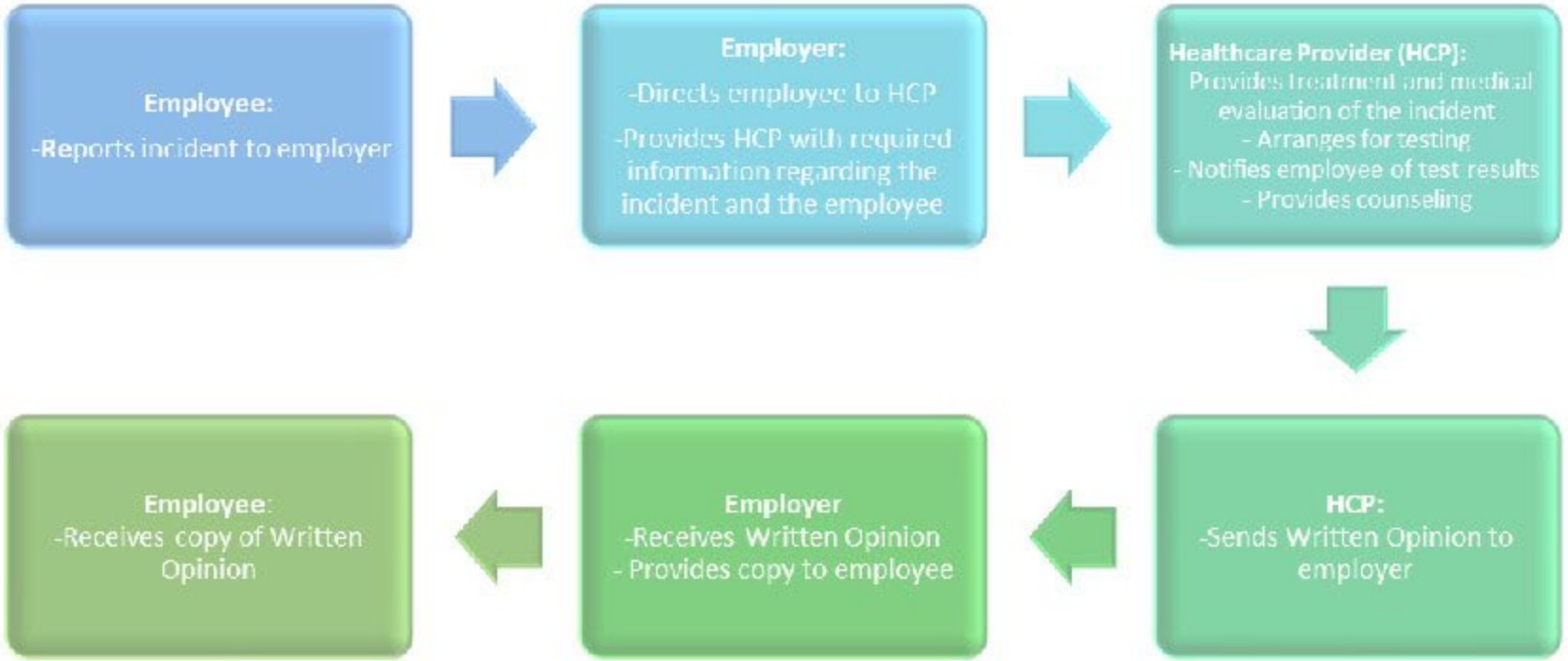
While the most obvious exposure incident associated with a bloodborne pathogen can be a needlestick, any specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood or other potentially infectious materials is considered an exposure incident if it occurs as a result of the performance of an employee's duties. Universal Precautions, as previously discussed, are recommended as an approach when processing any exposure incident. In this section, we will discuss exposure incidents, how to properly keep record of incidents, and what training should include under the standard.

Click Box

3.1 Exposure Incidents

A critical element in an effective bloodborne pathogens safety plan is an employer's established post-exposure incident procedures for the appropriate evaluation and follow-up of the incident. Since the steps following an exposure incident are not depicted in an orderly fashion in the bloodborne pathogen standard, the following flow chart is provided, along with accompanying details of each step that appear in the sections following the chart below.

Exposure Incident Flow Chart



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3.1.1 Reporting

Exposure incidents should be reported immediately by the employee since they may have serious consequences to the health and well-being of the employee. Early reporting is crucial for beginning immediate intervention to address possible infection and help to avoid further spreading of infection to others. An employer is to ensure that employees have had the appropriate training in order to recognize such a potentially serious exposure and the importance of reporting the incident. Moreover, employees should also be familiar with the established standard procedures for reporting such an incident, as required by the employer. Since a lack of timely reporting has a direct correlation to the recordable illness rates provided by the Bureau of Labor Statistics, reporting exposure incidents is crucial in not only the provision of appropriate treatment, but also in the tracking of illnesses associated with bloodborne pathogens in the workplace.

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3.1.2 Post Exposure Incident Procedures

Once an exposure incident occurs and is reported to the employer, the employer is to refer the employee to the Healthcare Provider for treatment and further evaluation. Immediately upon exposure, the employee should:

- Wash the exposed area thoroughly with non-abrasive, antibacterial soapand running water
- Flush the mouth, nose, eyes for 15 minutes if blood or OPIM is splashed or spattered in mucous membranes

Click Box

3.1.2 Post Exposure Incident Procedures

With this referral, the employer is to provide important information to the Healthcare Provider to further support their medical evaluation and treatment. This includes the following requirements and/or suggestions:

- A copy of the Bloodborne Pathogen Standard
- A copy of the written Exposure Control Plan (ECP), depicting established site-specific procedures to be followed
- A copy of the job description of the affected employee, highlighting the job duties as they relate to the exposure incident
- Identification of the “source” individual and their blood testing, if available, given any state or local regulations
- Documentation of the route(s) of exposure and circumstances under which the exposure occurred*
- All applicable relevant employee records, including medical records relevant to the appropriate treatment of the employee, such as vaccination status which are the employer’s responsibility to maintain

Click Box

3.1.2 Post Exposure Incident Procedures

** As a critical element in any safety program, the employer should perform a timely evaluation of the circumstances surrounding the exposure incident, with an analysis much like a standard accident investigation. The information supplied to the healthcare provider could very well be a copy of the initial accident investigation which may also include:*

- *The engineering controls in use at the time, including any mechanical devices*
- *The administrative procedures followed when the incident occurred*
- *The personal protective equipment or clothing used at the time of incident*
- *The location of the incident*
- *The training that an employee had up to the point in time of the incident*

Once this information is collected, documented and provided to the healthcare provider, an employer should then evaluate the policies and "control failures" at the time of the exposure incident to implement the necessary actions that may prevent future exposure incidents.

3.1.3 Medical Evaluations and Follow Up Evaluations

An employer is to ensure that the Health Care Provider is instructed to not only provide treatment to the injured employee, but also to conduct a thorough medical evaluation of the employee. This evaluation and follow up evaluations are to be made available to the employee free of charge and at a reasonable time and place. They must be performed by or under the supervision of a licensed physician or other licensed healthcare provider. The Healthcare Provider's initial medical evaluation and any follow-up evaluations are to remain confidential.

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3.1.3 Medical Evaluations and Follow Up Evaluations

The following elements are to be included in the medical evaluation:

- Documentation of the circumstances under which the incident occurred
- Documentation of the route(s) of exposure
- Identification and testing documentation of the "**source**" individual (unless this identification is not feasible or prohibited by state or local law):
  - Individual's blood to be tested immediately to determine infection status by an accredited laboratory:
    - Acquire consent if required by state or local law
    - If not able to secure consent, establish legality of securing it without consent
    - If consent is not required by state or local law, blood to be tested if available
    - If known to be infected, testing need not be repeated
  - Make available results of the source blood tests to the employee

Click Box

3.1.3 Medical Evaluations and Follow Up Evaluations

- Evaluation and testing documentation of the "**exposed**" employee:
  - Post-exposure treatment is to be provided as recommended
  - Information to be made available regarding state and local laws related to the identification and testing of the source individual
  - Individual's blood to be tested immediately to determine infection status by an accredited laboratory:
    - Acquire consent if required by state or local law
    - If the exposed employee consents to baseline blood testing, but not to HIV testing, sample is preserved for a minimum of 90 days in case the employee changes their mind should symptoms develop as they relate to HIV or HBV infection
    - If, within 90 days, employee elects baseline test, conduct as soon as feasible
  - Make available results of the exposed employee blood tests to the employee

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3.1.3 Medical Evaluations and Follow Up Evaluations

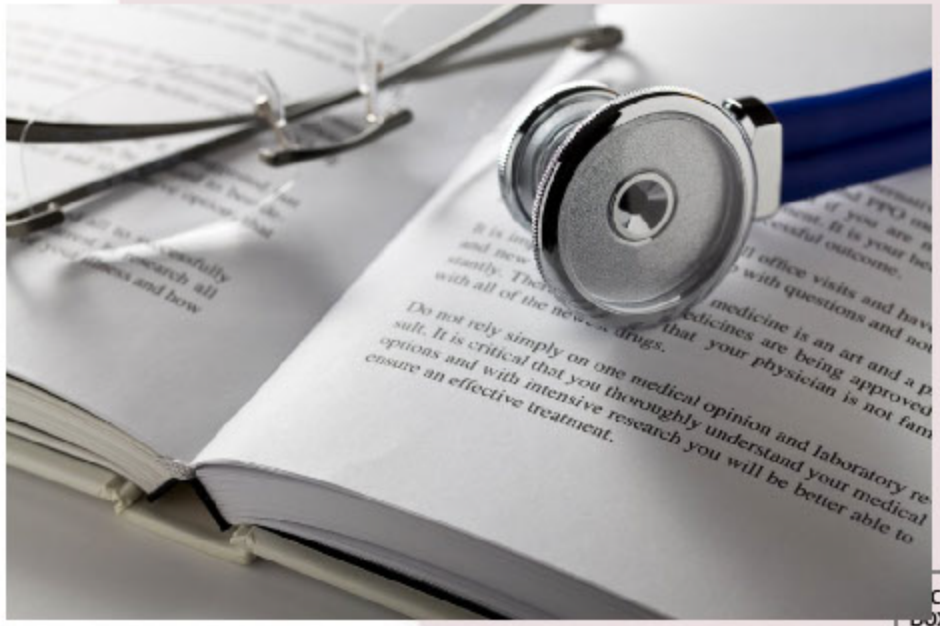
- Provision of post-exposure prophylaxis, when medically indicated as recommended by the US Public Health System. If the source employee was HBV positive or in a high-risk category, the exposed employee may be given Hepatitis B immune globulin and vaccination under this provision.
- Documented offer of the provision of the HBV Vaccination, particularly if there is no information on the source individual or the test is negative, and the employee has not been vaccinated or does not have immunity based on his or her test
- Provision of counseling from the licensed healthcare professional that includes infection status, including results and interpretation of all tests that will assist the employee in understanding the potential risk of infection and in making decisions regarding the protection of personal contacts and prevention techniques regarding any further spread of a potential infection. Counseling must be made available regardless of the employee's decision to accept any testing.
- Evaluation of any reported illnesses to determine if the symptoms may be related to the development of any infections

3.1.4 Written Opinion

Within 15 days of the completion of the above medical evaluation, the *employer* must obtain and provide to the *employee* a copy of the evaluating healthcare provider's limited Written Opinion. The Written Opinion must include the following information:

- A Written Opinion for Hepatitis B is to be limited to whether the Hepatitis B vaccination is indicated and if the employee received the vaccination.
- A Written Opinion for post-exposure evaluation must include information that the employee has been informed of the results of the evaluation and advised about any medical conditions resulting from exposure that may require further evaluation and treatment.
- All other findings or diagnoses must be kept confidential and not included in the Written Opinion report.

An employer is to document that the employee has been informed, by the employer, of the limited Written Opinion and the conditions resulting from exposure which require further evaluation or treatment. Any added findings must be kept confidential, with the ongoing maintenance of the medical records associated with the exposure incident the responsibility of the healthcare provider.



3.2 Recordkeeping

Recordkeeping is an essential element of an Exposure Control Plan, as the risk for the contraction of potentially fatal infections from bloodborne pathogens is significant. Analysis of the documentation that appears in the following records assists and further supports the prevention of exposures in the future at the workplace.

Click Box

3.2.1 Injury Records

An eligible employer must record all work-related injuries on the OSHA 300 Log of Occupational Injuries and Illnesses under the Recordkeeping standard (29 CFR Part 1904). Such injuries could include:

- Employees splashed or exposed to blood or OPIM without being cut or punctured
- Employees with cuts from objects that are contaminated with another person's blood or OPIM

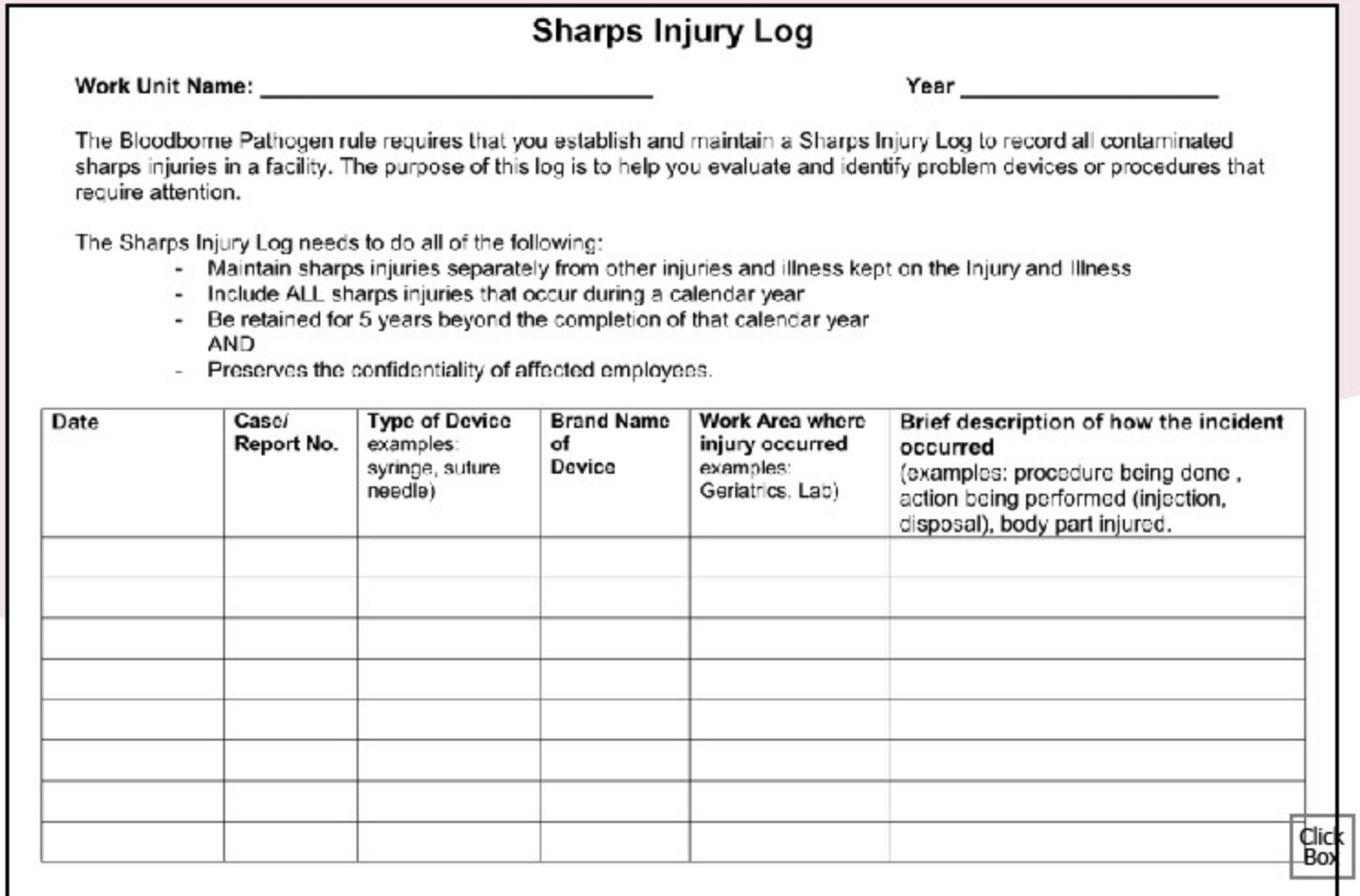
Click Box

3.2.1 Injury Records

Sharps Injury Log

In addition to this requirement, employers must also establish and maintain a Sharps Injury Log for recording percutaneous injuries from contaminated sharps. The Sharps Injury Log is to contain:

- The type and brand of device involved in the injury (if known)
- The department or work area where the exposure incident occurred
- an explanation of how the incident occurred



Sharps Injury Log

Work Unit Name: _____ **Year** _____

The Bloodborne Pathogen rule requires that you establish and maintain a Sharps Injury Log to record all contaminated sharps injuries in a facility. The purpose of this log is to help you evaluate and identify problem devices or procedures that require attention.

The Sharps Injury Log needs to do all of the following:

- Maintain sharps injuries separately from other injuries and illness kept on the Injury and Illness
- Include ALL sharps injuries that occur during a calendar year
- Be retained for 5 years beyond the completion of that calendar year
  AND
- Preserves the confidentiality of affected employees.

Date	**Case/ Report No.**	**Type of Device** examples: syringe, suture needle)	**Brand Name of Device**	**Work Area where injury occurred** examples: Geriatrics, Lab)	**Brief description of how the incident occurred** (examples: procedure being done , action being performed (injection, disposal), body part injured.

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3.2.1 Injury Records

An employer may use the OSHA 300 Log to meet the requirements of the Sharps Injury Log provided that the same information is entered that is required for the Sharps Injury Log on the OSHA 300 Log and that the records are maintained in such a way that segregates sharps injuries from other types of work-related injuries and illnesses or allows sharps injuries to be easily separated. An employer must enter sharps injury cases on the OSHA 300 Log and on the Sharps Injury Log without entering the employee's name as the log must be recorded and maintained in a manner that protects the confidentiality of the injured employee, removing any personal identifiers. If an employer is exempted from the OSHA Recordkeeping rule, the employer is not required to maintain a Sharps Injury Log.

The Sharps Log is to be maintained for 5 years from the end of the year that it covers.

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3.2.2 Medical Records

An employer is responsible for the establishment and maintenance of medical records. Medical records must be preserved and maintained for each employee with an occupational exposure to bloodborne pathogens for at least the duration of employment plus 30 years. If an employee works less than 1 year, they may be given the records at termination and the employer would be exempt from the 30-year maintenance requirement. As with any other medical records, they are to be filed separately from other personnel records.

An employer must ensure that the medical records are kept confidential and are not reported or disclosed to anyone without the express written consent of the employee, except as required by the Bloodborne Pathogen Standard or as may be required by state or local laws. They are not available to the employer unless the employee grants specific written consent.

Click Box

3.2.2 Medical Records

The medical record is to include:

- The name and social security number of the employee
- A copy of the employee's Hepatitis B (HBV) vaccination status, including the dates of all the Hepatitis B vaccinations administered
- Any medical records relative to the employee's ability to receive the vaccination
- Copies of all results of examinations, medical testing, and follow-up procedures
- Copies of the Healthcare Provider's Written Opinion
- Copies of the information provided to the Healthcare Provider

Should an employee complete the Vaccination Declination form, it is to be filed along with other medical records and retained with consideration of any relevant federal, state, and local laws for the retention of employment records.

Click Box

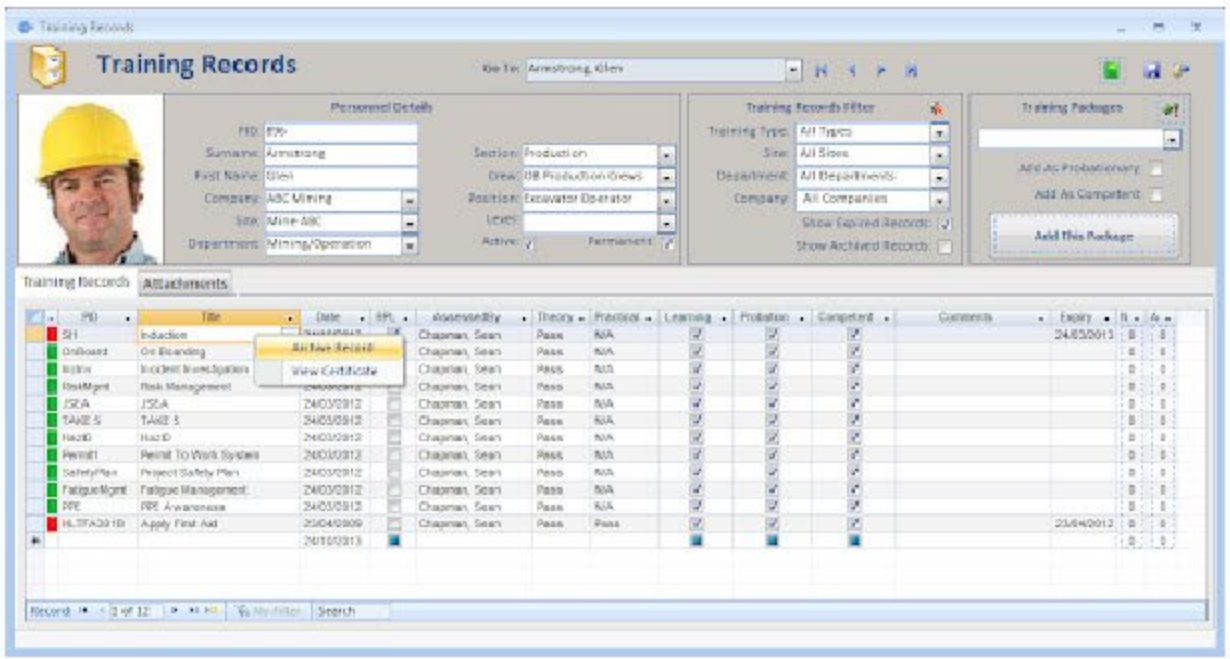
3.2.3 Training Records

Training Records are to be established for all employees for whom an employer has deemed can reasonably be anticipated to come into contact with blood or OPIM as a result of performing their job duties. The records are to be retained for a minimum of three years from the date the training occurred. They must include:

- The names and job titles of all persons attending the training sessions
- The dates of the training provided
- The content or a summary of the training provided
- The names and qualifications of all trainers or persons conducting the training

3.3 Employee Training

An employer is to provide information and regular training to all those employees with the potential for occupational exposure to bloodborne pathogens. The training should be offered during work hours and at no cost to the employee.



It is best practice that an employer ensures that attendance is mandatory for those affected employees and that their participation in the training is documented.

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3.3 Employee Training

Educational training should incorporate the following important elements:

- A copy of the Bloodborne Pathogen Standard and an explanation of its contents
- A general discussion of bloodborne pathogens diseases and their transmission
- The site-specific Exposure Control Plan (ECP), including information in the use and limitations of methods that will prevent or reduce exposure. Appropriate engineering controls (include instruction on any new techniques and practices), administrative controls, and personal protective equipment should be thoroughly reviewed.
- Information regarding the Hepatitis B vaccine and its availability
- Post-exposure medical evaluations and follow-up procedures
- The selection basis and proper utilization of personal protective equipment
- The management of exposure incidents and response procedures to emergencies involving blood or OPIM
- The workplace signs/labels/color-coding utilized in the prevention of exposure

3.3 Employee Training

This site-specific bloodborne pathogen training should be provided by a qualified trainer who is acknowledged as having expertise in occupational hazards for bloodborne pathogens and be familiar with workplace's Exposure Control Plan. In developing the course, the trainer should consider the various educational levels and languages of the participants to ensure the proper level of understanding of this important material. Training participants must have the opportunity to ask the qualified trainer questions to ensure comprehension and site-specific concerns.

An employer is to offer this training upon initial assignment, at least annually thereafter, and when new or modified tasks or procedures affect an employee's occupational exposure. Employees who have received appropriate training within the past year need only receive additional training in items not previously covered. For specific laboratories and production facilities, employees must receive specialized initial training in addition to the training provided to all employees with occupational exposure.

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3.3 Employee Training

For specific **personal protective equipment** training conducted for the prevention of exposure, the training should be conducted with a live classroom approach with an instructor qualified to present the material, demonstrating personal protective equipment usage, and answering all questions regarding personal protective equipment and bloodborne pathogens in general. The use of online coursework is not recommended as a sole training tool for this type of specific training. Employees need to demonstrate their understanding of the topic and this can only be accomplished in a live format. Personal protective equipment training for bloodborne pathogens should include:

- When personal protective equipment is required
- What personal protective equipment is needed for each specific task/job
- How to properly don, doff, adjust, and wear the personal protective equipment
- A discussion of the limitations of personal protective equipment
- A discussion of the care, maintenance, useful life, and proper disposal of the personal protective equipment

Click Box

3.3 Employee Training

Training records, as stipulated earlier, should include the following information:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of all persons attending the training sessions

Training records are to be retained for three years from the date on which the training had occurred.

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4.0 First Aid Treatment

OSHA's mission is to ensure that employees be provided a safe and healthy workplace that is reasonably free of occupational hazards. However, it is unrealistic to expect that accidents will not happen. The primary requirement under the OSHA first aid standard for general industry is that an employer must ensure prompt first aid treatment for injured employees, either by providing for the availability of a trained first aid provider at the worksite, or by ensuring that emergency treatment services are within reasonable proximity of the worksite. The intent is also to ensure that adequate first aid is available in the critical minutes between the occurrence of an injury and the availability of physician or hospital care for the injured employee if more critical medical treatment is necessary.

First aid refers to emergency medical attention that is usually administered immediately after an injury or sudden illness occurs and at the location where it occurred. It often consists of a one-time, short-term treatment and requires little technology or training to administer. First aid may include cleaning minor cuts, scrapes, or scratches; treating a minor burn; applying bandages and dressings; the use of non-prescription medicine; draining blisters; removing debris from the eyes; massage; and drinking fluids to relieve heat stress.

4.1 Standards and Regulations

Workplace Health and Safety and the provision and utilization of safe working practices is generally regulated by OSHA – The Occupational Safety and Health Administration.

The body who oversees the actual equipment used for first aid applications in the workplace is ANSI – The American National Standards Institute.

It is important to understand how these two Federal bodies interact and how they impact Occupational Health and Safety Requirements.

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4.1.1 OSHA Standards

The OSHA standard for general industry, Medical and First Aid, specifically requires the employer to “ensure the ready availability of medical personnel for advice and consultation” on matters of the health of the workplace. In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, “a person or persons shall be adequately trained to render first aid”. Additionally, as stated in the standard, “adequate first aid supplies shall be readily available”, with provisions for the supplies to be commensurate with the hazards of their workplace.

An employer may elect not to provide first aid services if, and only if, all such services will be provided by other medical services in near proximity to the workplace. On the other hand, an employer is required by this standard to have a person or persons adequately trained to render first aid for their workplaces that are not in near proximity to other medical services. If an employer has persons who are trained in first aid, supplies must be available that are most appropriate to respond to incidents at their workplaces.

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4.1.1 OSHA Standards

Other First Aid Standards

In addition to the first aid provisions of the Medical and First Aid standard for general industry, several other important OSHA standards also include specific requirements that apply to their individual industries in such areas as first aid procedures, first aid kits and first aid training in cardiopulmonary resuscitation (CPR), given that sudden cardiac arrest from asphyxiation, electrocution, or exertion is more likely to occur in certain environments. The following are several OSHA standards that have specific first aid requirements for compliance:

- Logging operations (29 CFR 1910.266)
- Electric power generation, transmission, and distribution (29 CFR 1910.269)
- Commercial Diving (29 CFR 1910.421)
- Shipyard Employment (29 CFR 1915)
- Marine Terminals (29 CFR 1917)
- Longshoring (29 CFR 1918)
- Construction Industry (29 CFR 1926)

4.1.1 OSHA Standards

Bloodborne Pathogens Standard (29 CFR 1910.1030)

If an employee is expected to render first aid as part of his or her job duties, the employee is covered by the requirements of the occupational exposure to Bloodborne Pathogens standard as described in the first section of this module. This standard requires employers to provide training to any employees who have occupational exposure to blood or other potentially infectious materials, such as employees assigned medical or first aid duties by their employers. If an employee is trained in first aid and identified by the employer as responsible for rendering medical assistance as part of his/her job duties, that employee is covered by the Bloodborne Pathogens standard. If it is reasonably anticipated that employees will be exposed to blood or other potentially infectious materials while using first aid supplies, employers are required to provide appropriate personal protective equipment (PPE) in compliance with the standard provisions.

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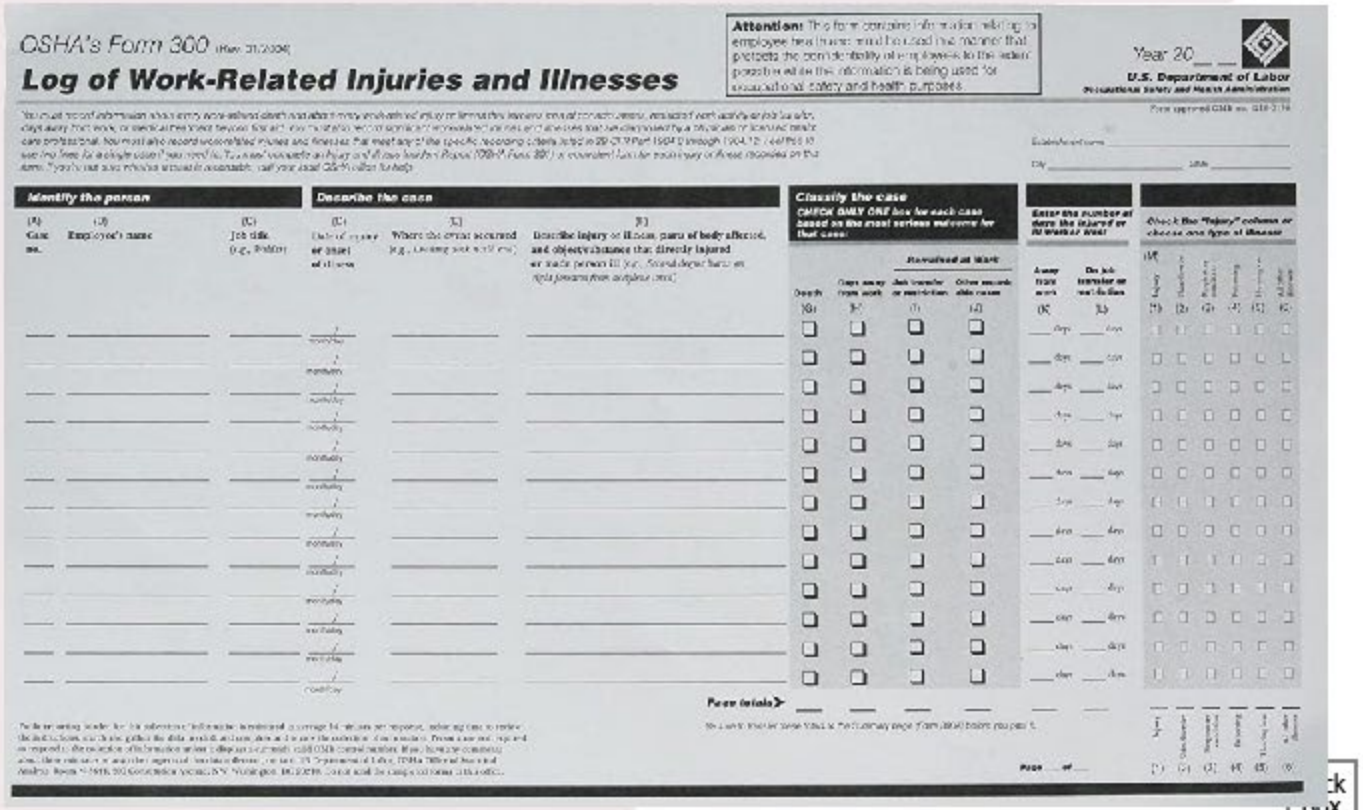
4.1.1 OSHA Standards

Recording and Reporting Occupational Injuries and Illnesses Standard (29 CFR 1904)

Interpretation of the OSHA standard, Recording and Reporting Occupational Injuries and Illnesses suggests that first aid treatment can be distinguished from medical treatment, since first aid treatment usually meets the following conditions:

- Administered after the injury or illness occurs and at the workplace where the injury or illness occurred
- Consists of a one-time or short-term treatment
- Administered utilizing simple processes that require little or no technology
- Administered by individuals with little training (beyond first aid training) and oftentimes by the injured or ill employee themselves
- Administered to keep the condition from worsening, while the injured or ill employee is awaiting medical treatment



OSHA's Form 300

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20__

U.S. Department of Labor

Occupational Safety and Health Administration

Identify the person | Describe the case | Classify the case

CHECK ONLY ONE box for each case based on the most serious outcome for that case:

Enter the number of days the injured or ill worker was:

Check the "Injury" column or choose one type of illness:

4.1.1 OSHA Standards

"First Aid" is defined by OSHA based upon a single list of (14) first aid treatments that appear below:

- Using a nonprescription medication at nonprescription strength
- Administering tetanus immunizations. Other immunizations, such as hepatitis B vaccine or rabies vaccine, are considered medical treatment.
- Cleaning, flushing or soaking wounds on the surface of the skin
- Using wound coverings, such as bandages. Wound closing devices, such as sutures, staples, or surgical glues *are* considered medical treatment.
- Using hot or cold therapy
- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. Orthopedic devices such as splints or casts are considered medical treatment

4.1.1 OSHA Standards

- Using temporary immobilization devices while transporting an accident victim, such as splints, slings, neck collars, and back boards
- Drilling of a fingernail or toenail to relieve pressure or draining fluid from a blister
- Using eye patches
- Removing foreign bodies from the eye using only irrigation or a cotton swab
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means
- Using finger guards
- Using massages. Physical therapy or chiropractic treatments *are* considered medical treatments.
- Drinking fluids for relief of heat stress. Intravenous administration of fluids *is* a medical treatment.

The above list is considered comprehensive; any treatment *not* included on this list is *not* considered first aid for OSHA recordkeeping purposes.

Click Box

4.1.2 ANSI Standards

ANSI sets down a regulatory standard which relates to minimum acceptable performance standards for workplace first aid kits and supplies (ANSI/ISEA Z308.1-2021). In this standard, an assessment has been made of the typical type of workplace injury which might occur, and a minimum standard for applicable first aid supplies and equipment has been determined. From the perspective of plant management, safety managers, company management or business owners, this is the standard which must be adopted when determining what equipment to make available in the workplace to deal with accidents and injury to personnel.

Click Box

4.1.2 ANSI Standards

2021 Standards

The new standards include several updates and additions to the 2015 ANSI standards. The ANSI 2021 Standards includes two classes of kits: Class A for most common types of workplace injuries and Class B for a broader range and quantity of supplies for complex and high-risk environments. The 2021 standards now require a foil blanket for both classes of first aid kits. This measure was enacted after assessing similar international standards and recognizing “the multiple purposes that the item can serve to respond to first aid emergencies.”

The updated standards also distinguish more guidance on required types of tourniquets for Class B kits, with specific guidelines to be most effective at preventing blood loss (ex: "The equipment intended to prevent blood loss should be at least 1.5 inches wide and be effective for limb sizes 7-33 inches around"). Additionally, the updated standards include more guidance on separately packed bleeding control kits with more advanced guidance for identifying workplace hazards. According to ISEA, "These contain more advanced first aid supplies to immediately treat life-threatening external bleeding.”

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4.1.2 ANSI Standards

First Aid Kits

Appendix A of the OSHA Medical and First Aid standard (29 CFR 1910, Subpart K) standard contains non-mandatory requirements for first aid kits. While OSHA does not provide specifications for first aid kit contents, it does define mandatory requirements for availability of kits on worksites and permits employers to provide first aid supplies specific to the needs of their workplace. In Appendix A, the American National Standards Institute (ANSI) is referenced as the originator of first aid kit specifications and minimum contents requirements and OSHA considers ANSI as a source of guidance for the minimum requirements for first aid kits.

The ANSI/ISEA Z308.1 standard, Minimum Requirements for Workplace First Aid Kits and Supplies, is a voluntary standard intended to help employers address these needs and be in compliance with OSHA first aid requirements. The standard specifies products that must be contained in any workplace first aid kit in order to address injuries that are likely to occur, namely major and minor wounds, minor burns, sprains, strains and eye injuries.

Click Box

4.1.2 ANSI Standards

This ANSI standard should be viewed as a starting point for an organization's first aid kit. Many workplaces have job-specific risks that should be addressed on a case-by-case basis with the addition of products necessary to meet those unique needs. The standard includes two classes of first aid kits:

- **Class A** kits are for the most common workplace injuries, like minor cuts, abrasions and sprains and are to be used in non-industrial situations with small numbers of employees.
- **Class B** kits contain more variety and quantity of supplies for injuries that might occur in more complex or high-risk environments.

Both classes are designed to provide a basic range of products to deal with most types of injuries encountered in the workplace. Since first aid kits in compliance with this standard are an important tool in the prevention of further injury or illness, they should be periodically assessed, with supplies replaced as needed.

Click Box

4.1.2 ANSI Standards

ANSI also designates first aid kits by Type (I, II, III, or IV). The Type is determined by the work environment where the kit will be used and are classified by portability, ability to be mounted, resistance to water, and corrosion and impact resistance:

Table 1: Classes of First Aid Kits and Required Supplies

	ANSI 2021 Minimum Quantity		ANSI 2021 Minimum Size or Volume	
First Aid Supplies	Class A Kits	Class B Kits	(US)	(metric)
Adhesive Bandage	16	50	1 x 3 in.	2.5 x 7.5 cm
Adhesive Tape	1	2	2.5 yd (total)	2.3 m (total)
Antibiotic Application	10	25	1/57 oz	0.5 gm
Antiseptic	10	50	1/57 oz	0.5 gm
Burn Dressing (gel soaked)	1	2	4 x 4 in.	10 x 10 cm
Burn Treatment	10	25	1/32 oz	0.9 gm
Cold Pack	1	2	4 x 5 in.	10 x 12.5 cm
CPR Breathing Barrier	1	1	N/A	N/A
Eye Covering, w/means of attachment	2	2	2.9 sq. in.	19 sq. com
Eye/Skin Wash				
1 fl oz total	1		1 fl oz	29.6 ml
4 fl oz total		1	4 fl oz	118.3 ml
First Aid Guide	1	1	N/A	N/A
***Foil Blanket**	1	1	52x84 in	132x213 cm
***Hand Sanitizer**	10	20	1/32 oz	0.9 g
Medical Exam Gloves	2 pair	4 pair	N/A	N/A
Roller Bandage				
2 inch	1	2	2 in. x 4 yd	5 cm x 3.66 m
4 inch		1	4 in. x 4 yd	10 cm x 3.66 m
Scissors	1	1	N/A	N/A
Splint		1	4 x 24 in.	10.2 x 61 cm
Sterile Pad	2	4	3 x 3 in.	7.5 x 7.5 cm
***Tourniquet (Windlass or Ratchet)**		1	1.5 in. (width)	2.5cm (width)
Trauma Pad	2	4	5 x 9 in.	12.7 x 22.9 cm
Triangular Bandage	1	2	40 x 40 x 56 in.	101 x 101 x 142 cm

**Updated for 2021*

Changes from 2015 Standard

*Foil Blanket	1	2	-	-
*Hand Sanitizer	10	20	6	10
Tourniquet (Latex or Nitrile)	-	-	-	1
*Tourniquiet (Windless or Ratchet)	-	1	-	-

Table 2: Characteristics of Types of First Aid Kits

Type	Use	Portable	Mountable	Water Resistant	Waterproof	Performance
I	Indoor	-	●	-	-	-
II	Indoor	●	-	-	-	-
III	Indoor/Outdoor	●	●	●	-	-
IV	Indoor/Outdoor	●	●	-	●	Section 5.2.5

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4.1.2 ANSI Standards

Type I: Intended for use in stationary, indoor applications where kit contents have minimal potential for damage due to environmental factors and rough handling. These kits are not intended to be portable and should have a means for mounting in a fixed position. Type 1 applications include kits for general indoor use, office use or use in a manufacturing facility, with first aid cabinets generally categorized in this type.

Type II: Intended for use in portable indoor applications where the potential for damage due to environmental factors and rough handling is minimal. These kits should be equipped with a carrying handle. Type II applications include kits for general indoor use, or use in office or manufacturing environments.

Type III: Intended for portable use in mobile indoor and/or outdoor settings where the potential for damage due to environmental factors is not probable. Kits should have the means to be mounted and have a water-resistant seal. Typical applications include general indoor use and sheltered outdoor use.

Type IV: Intended for portable use in mobile industries and/or outdoor applications where the potential for damage due to environmental factors and rough handling is significant. Typical applications include the transportation industry, utility industry, construction industry and the armed forces.

4.1.2 ANSI Standards

Other considerations for an employer regarding first aid kits include:

- Providing and maintaining adequate first aid supplies, readily accessible to each worksite
- Ensuring that the placement, content, and amount of first aid supplies are adequate for the size and location of each worksite, the number of employees at each worksite, the hazards present at each worksite, and the distance of each worksite from hospitals, clinics, and rescue squads
- Maintaining first aid supplies in a dry, sterile, and serviceable condition
- Replenishing first aid supplies as necessary to ensure that there is an adequate supply when needed
- Inspecting first aid supplies at sufficient intervals to ensure that they are adequate and in a serviceable condition

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4.1.2 ANSI Standards

Eyewash and Shower Stations

The OSHA requirements for emergency eyewashes and showers as depicted in the standard, specify that "where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use". As the standard implies, an eyewash and/or safety shower is required where an employee's eyes or body could be exposed to injurious corrosive substances. If none of the hazardous substances used in a work area is considered corrosive, as indicated on the Safety Data Sheet (SDS), then an emergency eyewash or shower station is not required under the standard.

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4.1.2 ANSI Standards

In addition to this condition, an employer must determine if employees can or will be exposed during the course of their duties to these hazardous materials in such a way that the protections of an eyewash or emergency shower would be necessary. If hazardous materials are present at a worksite in which an exposure could not occur (i.e. in sealed containers that will not be opened, or caustic materials in enclosed building piping), then an eyewash or emergency shower would not be necessary. However, if the building piping containing caustic materials has, at certain locations, a spigot or tap from which the contents are to be sampled or withdrawn and employees are expected to perform such tasks, then an eyewash and/or emergency shower would be required where this task is to occur.

While not having the force of a regulation under OSHA, the current ANSI standard, Emergency Eyewash and Shower Equipment (ANSI/ISEA Z358) provides for eyewash and shower equipment in appropriate situations when employees are exposed to hazardous materials. ANSI's definition of "hazardous material" includes caustics, as well as additional substances and compounds that have the capability of producing adverse effects on the health and safety of employees. ANSI's standard also provides detail with respect to the location, installation, nature, and maintenance of eyewash and shower equipment. Specifications such as the water supply psi and gallons-per-minute flow performance are an integral part of the standard. When required, first aid eyewash and shower stations should be located within 10 seconds unobstructed travel of the work area of potential exposure.

4.2 Considerations

Employees in any industry are susceptible to being injured on the job. However, those in high-risk environments—such as manufacturing, mining, construction, and transportation—are even more prone to work-related injuries, illnesses, and fatalities. This highlights the need for first-aid practices that include ensuring that first-aid kits are appropriately stocked at the job site and having individuals on site who can administer first aid. All employers, regardless of industry, should have these protocols in place. In this section, we will discuss some considerations such as training frequency, response times, and the implementation of a workplace first aid program, that may help you strengthen your existing programs.

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4.2.1 First Aid Provider

One option the Medical and First Aid standard provides employers is to ensure that a member of the workforce has been trained in first aid. This option is, for most employers, a feasible and low-cost way to protect employees, as well ensuring that an employer is clearly in compliance with the standard. The first-aid provider in the workplace is an employee who is trained in the delivery of initial medical emergency procedures, using a limited amount of equipment to perform a primary assessment and intervention while awaiting arrival of emergency medical service (EMS) personnel, if needed. OSHA recommends, but does not require, that every workplace include one or more employees who are trained and certified in first aid, including cardiopulmonary resuscitation (CPR).

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4.2.2 Training

The first aid training standards vary from one industry to another, with the general industry standard broad enough to encompass most workplaces. Other standards which apply to certain specific hazards or industries make employee first aid training mandatory, and reliance on outside emergency responders is not an allowable alternative. For example, first aid standards for the logging industry and for electric power industry require employees are trained in first aid at the various work locations, given the hazards that exist in these industries. It is recommended that even if medical services can be demonstrated as being in close proximity, thereby eliminating the need to have a trained first aid provider available, an employer consider the having a first aid provider anyway, since the purpose of first aid under the standard is to give injured employees some level of medical attention as quickly as possible to bridge the gap between the accident and the provision of critical medical treatment.

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4.2.2 Training

First-aid training courses should include instruction in general and workplace hazard-specific knowledge and skills. First aid training is primarily offered by the American Heart Association, American Red Cross, National Safety Council (NSC), and other nationally recognized and private educational organizations. Program elements typically include an emphasis on quick response to first aid situations, basic first aid intervention, basic adult cardiopulmonary resuscitation (CPR), and universal precautions for self-protection. Specific program elements may include training specific to the type of injury, such as shock, bleeding, poisoning, burns, temperature extremes, musculoskeletal injuries, bites and stings, medical emergencies, and confined spaces.

Whenever possible, first aid courses should be customized to meet the needs of the individual workplace. The first aid training program should be periodically reviewed and updated with the most current first aid techniques and knowledge. Basic adult CPR recertification should occur every year and first aid skills and knowledge should be recertified every three years. OSHA recommends that CPR training include having students develop 'hands-on' skills through the use of mannequins and partner practice.

4.2.3 Response Time

The other option an employer has from the OSHA standard is to rely upon the reasonable proximity of an infirmary, clinic or hospital, rather than on a trained first aid provider. OSHA views the reasonable availability of a trained emergency service provider, such as fire department paramedics or EMS responders, as an equivalent to the "infirmary, clinic, or hospital" specified by the literal wording of the standard. Emergency medical services can be provided either on-site or by evacuating the employee to an off-site facility in cases in which that can be done safely.

An employer should make an effort to obtain estimates of EMS response times for all permanent and temporary locations and for all times of the day and night at which employees are on duty, and this information should be utilized in the planning stages of a first aid program. Consultation with the local fire and rescue service or emergency medical professionals may be helpful for response time information and other program issues.

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4.2.3 Response Time

While the standard does not prescribe a number of minutes, OSHA has interpreted the term 'near proximity' to mean that emergency care must be available within no more than 3-4 minutes from the workplace. Medical literature establishes that, for serious injuries such as those involving stopped breathing, cardiac arrest, or uncontrolled bleeding, first aid treatment must be provided within the first few minutes to avoid permanent medical impairment or death. Accordingly, in workplaces where serious accidents such as those involving falls, suffocation, electrocution, or amputation are possible, emergency medical services must be available within 3-4 minutes, if there is no employee on the site who is trained to render first aid."

OSHA does exercise discretion in enforcing the first aid requirements in particular cases, since the requirements that emergency medical services must be "reasonably accessible" or "in near proximity to the workplace" are stated only in general terms. For example, the agency recognizes that in workplaces, such as offices, where the possibility of such serious work-related injuries is less likely, a longer response time of up to 15 minutes may be reasonable. An employer who relies on assistance from outside emergency responders as an alternative to providing a first-aid-trained employee must take a number of factors into account, to include taking appropriate steps prior to any accident (such as making arrangements with the service provider) to ascertain that emergency medical assistance will be promptly available when an injury occurs.

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4.2.4 First Aid Workplace Program

A workplace first-aid program should be a part of a comprehensive safety and health management system that includes essential elements such as a worksite analysis, hazard prevention and control, and safety and health training. As always, management commitment and employee involvement is vital in developing, implementing and assessing the program. An effective program includes known and anticipated hazards and risks of the specific work environment, given that every workplace comes with a variety of conditions and types of employees. Consultation with local emergency medical experts and providers of first aid training is encouraged during the development of the program to ensure that all the necessary provisions are incorporated.

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