



**Arizona State University**

**Bloodborne Pathogens  
Exposure Control Plan**

**Arizona State University  
Department of Environmental Health & Safety  
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## **INTRODUCTION AND SCOPE**

On December 6, 1991, the Occupational Safety and Health Administration (OSHA) promulgated the final rule (29 CFR § 1910.1030) for occupational exposure to bloodborne pathogens. The rule, commonly referred to as the [Bloodborne Pathogens Standard](#), was promulgated under the authority of the Occupational Safety and Health Act of 1970 and was designed to eliminate or minimize occupational exposure to hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and other bloodborne pathogens. In addition, Congress passed the [Needlestick Safety and Prevention Act](#) that became law on November 6, 2000. To meet the requirements of this act, OSHA has revised its Bloodborne Pathogens Standard.

The rule making effort was based on an OSHA determination that employees face a significant health risk from occupational exposure to blood and other potentially infectious materials considering that these materials may contain bloodborne pathogens, including hepatitis B virus which causes hepatitis B, a serious liver disease, and human immunodeficiency virus, which causes Acquired Immunodeficiency Syndrome (AIDS). In an effort to eliminate or minimize exposure to bloodborne pathogens, the standard requires employers to institute a program of engineering and work practice controls, personal protective clothing and equipment, informational training, hepatitis B vaccination, post exposure evaluation and follow-up, sign and label programs, and other provisions for employees who may be reasonably anticipated to come into contact with blood or other potentially infectious materials during the performance of their duties.

The preamble to the final rule for occupational exposure to bloodborne pathogens, published in the Federal Register on December 6, 1991 (56 FR 64004), describes the rationale behind the standard and discusses provisions of the standard. The text to the final rule is presented with these key elements:

- Scope and application of the rule
- Definitions
- Exposure control
  - Exposure control plan
  - Exposure determination
- Methods of compliance
  - Universal precautions
  - Engineering and work practice controls
  - Personal protective equipment
  - Housekeeping
- HIV and HBV Research Laboratories and Production Facilities
- Hepatitis B vaccination and post exposure evaluation and follow-up
- Communication of hazards to employees
  - Labels and signs
  - Informational training
  - Record keeping
  - Medical and training records
- Compliance dates

OSHA identified occupational settings where individuals are reasonably anticipated to come into contact with blood or other potentially infectious materials during the performance of their duties, these include in part, health care facilities, health clinics, research laboratories, linen services, law enforcement, fire and rescue, schools, life saving, and regulated waste removal. Considering the scope of applicability of the standard and the fact that Arizona State University conducts activities utilizing or involving blood and other potentially infectious materials and employs individuals identified as employees who may be

reasonably anticipated to come into contact with blood or other potentially infectious materials during the performance of their duties, the university is required to comply with the requirements established in the standard.

Environmental Health & Safety (EH&S) is charged with the overall responsibility for the development and implementation of a university bloodborne pathogens compliance program. The program is designed to provide and achieve regulatory compliance and, most importantly, will provide a means in which university employees will be better informed and protected from exposures to blood and other potentially infectious materials during the performance of their duties. Environmental Health & Safety will provide technical assistance to individual university departments in their effort to address the mandates established in the standard.

It is the responsibility of each Principal Investigator to identify each student/researcher/employee with the potential for exposure to bloodborne pathogens or other potentially infectious material (OPIM) and keep a current list in the laboratory. This list should contain the following information: Include in the list, tasks and procedures, or groups of closely related tasks and procedures, in which occupational exposure may occur for these individuals.

## **RESPONSIBILITIES**

Although EH&S is charged with the overall responsibility to develop and implement the university's bloodborne pathogens compliance program, several other university departments and units will provide vital support in the effort to adequately protect university employees with occupational exposure and to achieve regulatory compliance with the OSHA requirements.

Individual departments and units will be responsible for ensuring that the provisions of the university's exposure control plan and the mandates of the OSHA standard are carried out. Departments and units which have been identified as potentially having employees with occupational exposure include, but are not necessarily limited to:

- Department of Animal Care and Technologies
- College of Nursing
- Department of Anthropology
- School of Life Sciences
- Biodesign Institute
- Police Department
- Exercise and Sport Research Institute
- Facilities Management
- Family Resources and Human Development
- Intercollegiate Athletics
- Environmental Health & Safety
- Campus Health Service
- Student Recreation Complex
- Public Events

The bloodborne pathogens compliance program responsibility matrix summarizes key provisions of the plan and corresponds those responsibilities with the affected department or unit. The matrix should only be used as a quick reference. The text of this plan contains the specific details of those responsibilities and should be referenced accordingly.

**Bloodborne Pathogens Compliance Program  
Responsibility Matrix**

<b>Responsibility</b>	<b>Departments/ Principal Investigators</b>	<b>Environmental Health &amp; Safety</b>	<b>Campus Health</b>	<b>Human Resources</b>	<b>Employee</b>
Exposure Control Plan for Bloodborne Pathogens	Comply with the provisions of the plan and the OSHA requirements.	Develop and implement an Exposure Control Plan for Bloodborne Pathogens for the impacted university community. Comply with the provisions of the plan and the OSHA requirements. Serve as custodian of the written plan.	Comply with the provisions of the plan and the OSHA requirements.	Comply with the provisions of the plan and the OSHA requirements.	Understand the provisions of the plan and the protection afforded by the OSHA standard. Comply with the provisions of the plan and the OSHA requirements.
Exposure Determination	Identify and document employees with occupational exposure and the associated tasks and responsibilities of those positions. Provide this information to EH&S.	Compile and maintain data on employees with occupational exposure and the associated tasks and responsibilities of those positions.	Identify and document employees with occupational exposure and the associated tasks and responsibilities of those positions. Provide this information to EH&S.	Assist in identifying and documenting employees with occupational exposure and the associated tasks and responsibilities of those positions. Provide this information to EH&S.	Notify department and EH&S if job tasks and responsibilities present occupational exposure concerns that have not been previously identified.

<b>Responsibility</b>	<b>Departments/ Principal Investigators</b>	<b>Environmental Health &amp; Safety</b>	<b>Campus Health</b>	<b>Human Resources</b>	<b>Employee</b>
Universal Precautions	Ensure that universal precautions are understood and executed by employees with occupational exposure. Promote practices, procedures, and methods that conform to the concept of universal precautions.	Ensure that universal precautions are observed by employees with occupational exposure. Promote practices, procedures, and methods that conform to the concept of universal precautions.	Ensure that universal precautions are understood and executed by employees with occupational exposure. Promote practices, procedures, and methods that conform to the concept of universal precautions.		Observe universal precautions when handling blood or other potentially infectious materials.
Engineering and Work Practice Controls	Design and implement engineering controls and institute work practice control procedures which will eliminate or minimize employee exposure to blood and other potentially infectious materials.	Provide guidance and technical assistance to departments in the design and selection of appropriate engineering and work practice controls.	Design and implement engineering controls and institute work practice control procedures which will eliminate or minimize employee exposure to blood and other potentially infectious materials.		Be aware of engineering controls in the work place and the proper use of those controls. Follow established work practice controls to eliminate of minimize occupational exposure.

<b>Responsibility</b>	<b>Departments/ Principal Investigators</b>	<b>Environmental Health &amp; Safety</b>	<b>Campus Health</b>	<b>Human Resources</b>	<b>Employee</b>
Personal Protective Equipment	Provide appropriate personal protective equipment to employees that have occupational exposure.	Provide guidance and technical assistance to departments in the selection of the most appropriate types and quantities of personal protective equipment.	Provide appropriate personal protective equipment to employees that have occupational exposure.		Be aware of the proper use, limitations and location of available personal protective equipment. Use appropriate personal protective equipment to eliminate or minimize occupational exposure.
Housekeeping	Maintain a clean and sanitary workplace environment. Develop and implement cleaning schedules as deemed appropriate for the types of activities and facilities involved.	Provide guidance and technical assistance to departments in the development and implementation of appropriate housekeeping methods.	Maintain a clean and sanitary workplace environment. Develop and implement cleaning schedules as deemed appropriate for the types of activities and facilities involved.		Be aware of and observe established housekeeping procedures, e.g., use mechanical devices to clean up broken glass not bare hands. Maintain work area in a clean and sanitary manner.
HIV and HBV Laboratories	Comply with additional criteria established for HIV and HBV laboratories.	Provide additional guidance and technical assistance to laboratories engaged in HIV or HBV research.			Understand the additional requirements and protection for employees working with HIV and HBV and follow established procedures.

<b>Responsibility</b>	<b>Departments/ Principal Investigators</b>	<b>Environmental Health &amp; Safety</b>	<b>Campus Health</b>	<b>Human Resources</b>	<b>Employee</b>
Hepatitis B Vaccination	Make available the hepatitis B vaccination to all employees identified through the process of exposure determination to have occupational exposure. Maintain declination statements.	Assist departments in the identification of employees that have occupational exposure. Maintain all employee declination statements.	Make available the hepatitis B vaccination to all employees identified through the process of exposure determination to have occupational exposure. Maintain declination statements.	Maintain employee declination statements in permanent personnel file.	Accept or decline optional hepatitis B vaccination. For those who decline, a mandatory declination statement must be signed.
Post Exposure Evaluation and Follow-up	Make immediately available to an exposed employee, following and exposure incident, a confidential medical evaluation and follow-up.	Provide direction on approved medical facilities capable of providing the confidential post exposure evaluation and follow-up.	Make immediately available to an exposed employee, following and exposure incident, a confidential medical evaluation and follow-up.		Immediately or as soon as feasible report all exposure incidents to the immediate supervisor.
Informing and Training	Contact EH&S to provide and/or assist in the presentation of the information and training program.	Develop and implement a university-wide Bloodborne Pathogens Information and Training Program. Provide and/or assist in the presentations of the information and training program.	Contact EH&S to provide and/or assist in the presentation of the information and training program.		Attend initial and annual training program.

<b>Responsibility</b>	<b>Departments/ Principal Investigators</b>	<b>Environmental Health &amp; Safety</b>	<b>Campus Health</b>	<b>Human Resources</b>	<b>Employee</b>
Training Records	Compile and maintain employee training records. Retain records for a minimum of three years. Submit copies to EH&S.	Compile and maintain all training records relative to the OSHA standard for all university departments. Retain records for a minimum of three years.	Compile and maintain employee training records. Retain records for a minimum of three years. Submit copies to EH&S.		Sign in on appropriate training roster during information and training sessions.
Medical Records			Maintain confidential medical records in accordance with OSHA mandates for all university employees with occupational exposure and exposure incidents. Records shall be maintained for the duration of employment plus thirty years.		

<b>Responsibility</b>	<b>Departments/ Principal Investigators</b>	<b>Environmental Health &amp; Safety</b>	<b>Campus Health</b>	<b>Human Resources</b>	<b>Employee</b>
Labels and Signs	Affix appropriate labels to containers of regulated waste, refrigerators, and freezers containing blood or other potentially infectious materials; and other containers of blood or potentially infectious materials. HIV and HBV research laboratories will have signs posted at the entrances to the laboratory facilities.	Provide labels to requesting department; disposal bags and containers must be procured by the departments.	Affix appropriate labels to containers of regulated waste, refrigerators, and freezers containing blood or other potentially infectious materials; and other containers of blood or potentially infectious materials.		Make certain that labels are appropriately affixed; notify supervisor to report labeling problems.
Regulatory Compliance	Comply with all applicable requirements established in the OSHA Bloodborne Pathogens (BBP) Standard.	Serve as university liaison to regulatory authorities. Promote university compliance with the OSHA BBP Standard. Provide a means in which employees can direct suggestions, complaints, and concerns regarding the university BBP Compliance Program.	Comply with all applicable requirements established in the OSHA Bloodborne Pathogens Standard.	Comply with all applicable requirements established in the OSHA Bloodborne Pathogens Standard.	Comply with all applicable requirements established in the OSHA Bloodborne Pathogens Standard.

## **EXPOSURE CONTROL**

Employees incur risk each time they are exposed to blood or other potentially infectious materials. Any exposure incident may result in infection and subsequent illness. Considering the possibility of becoming infected from a single exposure incident, exposure incidents must be prevented whenever possible. The goal of the bloodborne pathogens standard is to reduce the significant risk of infection by:

- Eliminating or minimizing occupational exposure to blood and other potentially infectious materials
- Providing the hepatitis B vaccine
- Providing post exposure medical evaluation and follow-up

Identifying the tasks and procedures where occupational exposure may occur and the positions whose duties include those tasks and procedures is a critical element of exposure control. By identifying those job classifications with occupational exposure, employees who are entitled to the provisions of the standard can be identified. All personnel who hold positions determined to have occupational exposure are entitled to the protection afforded by the standard.

### **Exposure Control Plan**

The key provision of the bloodborne pathogens standard is the written Exposure Control Plan. The Exposure Control Plan identifies individuals who will receive training, protective equipment, vaccinations, and other provisions of the standard. The written Exposure Control Plan is designed to eliminate or minimize employee exposure and:

- Provide a means in which employees are able to find out what provisions are in place in his or her workplace
- Provide a document for regulatory officials to evaluate the university's compliance status
- Can be used for the employee training effort.

Based on the requirements established by the standard, the Arizona State University Exposure Control Plan for Bloodborne Pathogens has been developed and designed to eliminate or minimize university employee occupational exposure to bloodborne pathogens during the performance of their duties, and to achieve regulatory compliance with the OSHA Bloodborne Pathogens Standard.

The university's plan contains the following elements:

- Exposure determination
- Schedule and methods of implementation for
  - o Universal precautions, engineering and work practice controls, personal protective equipment, and housekeeping
  - o HIV and HBV research laboratories
  - o Hepatitis B vaccination and post-exposure evaluation and follow-up
  - o Communication of hazards to employees
  - o Record keeping
- Procedure for the evaluation of circumstances surrounding exposure

The plan will be reviewed and updated annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. The plan will be provided upon request for examination and copying to all university employees, employee representatives, and regulatory authorities. Environmental Health & Safety is the university custodian of the document.

Arrangements to examine or copy the document can be made by contacting EH&S at (480)965-1823 or by mail request to:

Environmental Health & Safety  
P.O. Box 873804  
Arizona State University  
Tempe, Arizona 85287-3804

### **Exposure Determination**

A review of all employee positions at the university has been conducted to determine which employees have occupational exposure to blood or other potentially infectious materials during the performance of their duties. The review was completed by Environmental Health & Safety and individual university departments and units. The review identified job classifications in which all employees in those job classifications have occupational exposure and job classifications in which some employees have occupational exposure. In addition, for those job classifications in which some employees have occupational exposure, tasks and procedures or groups of closely related tasks and procedures in which occupational exposure occurs were identified. The exposure determination was conducted without regard to the use of personal protective equipment.

Job classifications in which all university employees in the specific job classification have occupational exposure pursuant to 29 CFR § 1910.1030:

Athletic Trainer  
Hazardous Waste Specialist/Supervisor  
Histotechnologist  
Lifeguard  
Medical Assistant  
Medical Technologist  
Nurse Practitioner/Registered Nurse  
Physician

Job classifications in which some university employees in the specific job classifications have occupational exposure pursuant to 29 CFR § 1910.1030:

Animal Care Personnel	Research Faculty Associate
Custodial Personnel	Research Laboratory Assistant
Full/Associate/Assistant/Adjunct Professor	Research Specialist/Technician
Health/Safety Specialist	Senior Office Assistant
Health/Safety Officer	Student Worker
Health Services Clinic Manager	Teaching Assistant
Laboratory Coordinator	Veterinarian
Police Officer	

Tasks and procedures or groups of closely related tasks and procedures in which occupational exposure occurs in job classifications in which some employees have occupational exposure is somewhat of a difficult task to document accurately. This belief is based, in part, on the specific nature and variety of exposure activities conducted at the university. Therefore, it is the responsibility of each Principal Investigator to identify each student/researcher/employee with the potential for exposure to bloodborne pathogens or other potentially infectious material (OPIM) and keep a current list in the laboratory. This list should contain the following information: Include in the list, tasks and procedures, or groups of closely related tasks and procedures, in which occupational exposure may occur for these individuals.

## METHODS OF COMPLIANCE

### Universal Precautions

Universal precautions will be observed by all university employees to prevent contact with blood and other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids will be considered potentially infectious.

Universal precautions are methods of preventing disease by preventing transfer of blood and contain body fluids, e.g., semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, and saliva in dental procedures. The underlying concept of universal precautions is that all blood and certain body fluids are considered to be infectious for bloodborne pathogens. In most situations, an employee will treat all blood and certain body fluids as though they contained bloodborne pathogens and would accomplish this through a variety of measures including, but not necessary limited to:

- Engineering controls
- Work practice controls
- Personal protective equipment
- Housekeeping

The only exception to the use of universal precautions is in rare instances, such as unexpected medical emergencies, where employees may not be able to put on gloves, don a gown, or tie on a face mask immediately. In those situations where leeway must be accorded the provider of health care or public safety services, the employees must not ignore the underlying concept of universal precautions nor should he or she decline to use any personal protective equipment simply because it is not practical to use all the equipment appropriate to the task. Only under unexpected extraordinary circumstances will employees have the option of deciding not to use personal protective equipment if they feel such equipment will prevent the proper delivery of health care or public safety services or will create a greater hazard to their personal safety if they used such equipment.

The universal precaution exemption provided in the standard applies not to the general concept of universal precautions, but only to the use of personal protective equipment under rare and relatively limited circumstances.

### Engineering and Work Practice Controls

Engineering and work practice controls serve to reduce employees' exposure in the workplace by either removing the hazard or isolating the worker from exposure. In fact, these control measures are viewed as the primary means of eliminating or minimizing employee exposure. These controls may include process or equipment redesign, e.g., self-sheathing needles, process or equipment enclosure, e.g., biosafety cabinets, and employee isolation. In general, engineering controls act on the source of the hazard and eliminate or reduce employee exposure without reliance on the employee to take self-protective action. Once implemented, engineering controls protect the employee permanently, subject only, in some cases, to periodic replacement or preventative maintenance. By comparison, work practice controls reduce the likelihood of exposure through alteration of the manner in which a task is performed. While work practice controls also act on the source of the hazard, the protection they provide is based upon the behavior of the employer and employee behavior rather than installation of a physical device such as a protective shield.

The two control methodologies frequently work in tandem because it is often necessary to employ work practice controls to assure effective operation of engineering controls. Where occupational exposure remains after institution of these controls, departments must provide and assure employees use personal

protective equipment as supplemental protection. Primary reliance on engineering controls and work practices for controlling exposure is consistent with good industrial hygiene practice and with the OSHA traditional adherence to a hierarchy of controls. The hierarchy specifies that engineering controls and work practices are to be used in preference to personal protective equipment.

Engineering and work practice controls will be used by university facilities and employees to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment will also be used. Engineering controls will be examined and maintained or replaced on a regular schedule to ensure their effectiveness. The following engineering and work practice controls have been designed and are in place at all university facilities that present potential bloodborne pathogens exposure issues.

Hand washing facilities are readily accessible in the workplace to employees that are reasonably anticipated to contact blood or other potentially infectious materials during the performance of their duties. In the event that hand washing facilities are not feasible, provisions will be provided for the placement of either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, employees have been instructed to wash their hands with soap and running water as soon as feasible.

Employees are required to wash their hands immediately or as soon as feasible after removal of gloves or other personal protective equipment. And, most importantly, employees are required to wash their hands and any other skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following contact of such body areas with blood or other potentially infectious materials.

Contaminated needles and other contaminated sharps will not be recapped or removed unless it can be demonstrated by the department that no alternative is feasible or that such action is required by a specific medical procedure. Under these circumstances, recapping or needle removal shall be accomplished through the use of a mechanical device or a one-handed technique.

Immediately or as soon as possible after use, contaminated reusable sharps shall be placed in appropriate containers until properly reprocessed. These containers shall be:

- Puncture resistant
- Appropriately labeled or color-coded
- Leak proof on the sides and bottoms
- Shall not be handled in a manner that requires employees to reach by hand into containers where these sharps have been placed

Eating, smoking, drinking, applying cosmetics or lip balm, and handling contact lenses is prohibited in work areas where there is reasonable likelihood of occupational exposure. Food and drink will not be stored in refrigerators, freezers, shelves, cabinets, or on cabinet tops or bench tops where blood or other potentially infectious materials are present.

All procedures involving blood or other potentially infectious materials shall be performed in a manner to minimize splashing, spraying, spattering, and generation of droplets of these substances.

Mouth pipetting/suctioning of blood or other potentially infectious materials is strictly prohibited.

Specimens of blood or other potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping. The container for storage, transport, or shipping shall be labeled or appropriately color-coded and closed prior to being stored,

transported, or shipped. When universal precautions are utilized in the handling of specimens, the labeling/color-coding of specimens is not necessary provided containers are recognizable as containing specimens. This exception only applies while such specimens/containers remain within the facility. Appropriate labeling/color-coding is required when such specimens/containers leave the facility.

In the event that outside contamination of the container occurs, the primary container will be placed within a second container which prevents leakage during handling, processing, storage, transport, or shipping and will be appropriately labeled or color-coded. If the specimen could puncture the primary container, in addition to the aforementioned required container characteristics, the primary container will be placed within a secondary container which is puncture-resistant.

Equipment which may become contaminated with blood or other potentially infectious materials will be examined prior to servicing or shipping and will be decontaminated as deemed necessary, unless it can be demonstrated that decontamination of such equipment or portions of such equipment is not feasible. An appropriate readily observable label will be attached to the equipment stating which portions remain contaminated. The department is responsible to ensure that this information is conveyed to all affected employees, the servicing representative and/or the manufacturer as appropriate, prior to handling, servicing, or shipping so that appropriate precautions will be taken.

### **Needlestick Safety and Prevention**

Needlesticks and other percutaneous injuries resulting in exposure to blood or other potentially infectious materials are of concern due to the high frequency of their occurrence and the severity of the health effects associated with exposure. The Centers for Disease Control and Prevention has estimated that healthcare workers in hospital settings sustain 384,325 percutaneous injuries involving contaminated sharps annually. When non-hospital healthcare workers are included, the best estimate of the number of percutaneous injuries involving contaminated sharps is significantly increased. When these injuries involve exposure to infectious agents, the affected workers are at risk of contracting disease. Workers may also suffer from adverse side effects of drugs used for post-exposure prophylaxis and from psychological stress due to the threat of infection following an exposure incident.

The definition of "Engineering Controls" has been modified to include examples of safer medical devices, such as sharps with engineered sharps injury protections and needleless systems. This change clarifies that safer medical devices are considered to be engineering controls under the standard. The term "Engineering Controls" includes all control measures that isolate or remove a hazard from the workplace, encompassing not only sharps with engineered sharps injury protections and needleless systems but also other medical devices designed to reduce the risk of percutaneous exposure to bloodborne pathogens. Examples include blunt suture needles and plastic or mylar-wrapped glass capillary tubes, as well as controls that are not medical devices, such as sharps disposal containers and biosafety cabinets. A wide variety of medical devices have been developed to reduce the risk of needlestick and other sharps injuries. These "safer medical devices" replace sharps with non-needle devices or incorporate safety features designed to reduce the likelihood of injury.

**Sharps with Engineered Sharps Injury Protections:** a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident. This term encompasses a broad array of devices that make injury involving a contaminated sharp less likely, and includes, but is not limited to, syringes with a sliding sheath that shields the attached needle after use; needles that retract into a syringe after use; shielded or retracting catheters used to access the bloodstream for intravenous administration of medication or fluids; and intravenous medication delivery systems that administer medication or fluids through a catheter port or connector site using a needle that is housed in a protective covering.

**Needleless Systems:** a device that does not use needles for the collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established; the administration of medication or fluids; or any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps. Needleless systems provide an alternative to needles for the specified procedures, thereby reducing the risk of percutaneous injury involving contaminated sharps (e.g., intravenous medication delivery systems that administer medication or fluids through a catheter port or connector site using a blunt cannula or other non-needle connection, and jet injection systems that deliver subcutaneous or intramuscular injections of liquid medication through the skin without use of a needle).

ASU departments and units must implement appropriate safer medical devices that are commercially available and effective. No one medical device is appropriate in all circumstances of use. For compliance purposes, an "appropriate" safer medical device includes only devices whose use, based on reasonable judgment in individual cases, will not jeopardize patient or employee safety or be medically contraindicated. Although new devices are being continually introduced, OSHA recognizes that a safer device may not be available for every situation. If a safer device is not available in the marketplace, ASU is not required to develop any such device. Furthermore, an "effective" safer medical device is a device that, based on reasonable judgment, will make an exposure incident involving a contaminated sharp less likely to occur in the application in which it is used.

Non-managerial employees **responsible for direct patient care who are potentially exposed to injuries from contaminated sharps** in the identification, evaluation, and selection of effective engineering and work practice controls are encouraged to provide input to their management and Environmental Health & Safety.

### **Personal Protective Equipment**

When there is occupational exposure, the department will provide at no cost to the employee, appropriate personal protective equipment such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices. Personal protective equipment will be considered "appropriate" only if it does not permit blood or other potentially infectious materials to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

The department will ensure that the employee uses appropriate personal protective equipment unless it can be demonstrated that the employee temporarily and briefly declined to use personal protective equipment when, under rare and extraordinary circumstances, it was the employee's professional judgment that in the specific instance its use would have prevented the delivery of health care or public safety services or would have posed an increased hazard to the safety of the worker or co-worker. When the employee makes this judgment, the circumstances shall be investigated and documented in order to determine whether changes can be instituted to prevent such occurrences in the future.

The department will ensure that appropriate personal protective equipment in the appropriate sizes is readily accessible at the worksite or is issued to employees. Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives will be readily accessible to those employees who are allergic to the gloves normally provided.

The department will clean, launder, and dispose of personal protective equipment at no cost to the employee. The department will repair or replace personal protective equipment as needed to maintain its effectiveness, at no cost to the employee.

If a garment is penetrated by blood or other potentially infectious materials, the garment will be removed immediately or as soon as feasible. All personal protective equipment will be removed prior to leaving the work area. When personal protective equipment is removed it will be placed in an appropriately designated area or container for storage, washing, decontamination or disposal.

Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials, mucous membranes, and non-intact skin; when performing vascular access procedures; and when handling or touching contaminated items or surfaces.

Disposable, single use, gloves such as surgical or examination gloves, will be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or when their ability to function as a barrier is compromised. Disposable, single use, gloves will not be washed or decontaminated for reuse. Utility gloves may be decontaminated for reuse if the integrity of the glove is not compromised. However, they must be discarded if they are cracked, peeling, torn, punctured or exhibits other signs of deterioration or when their ability to function as a barrier is compromised.

Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, will be worn whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments will be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated. Surgical caps or hoods and/or shoe covers or boots will be worn in instances when gross contamination can reasonably be anticipated, e.g., autopsies, orthopedic surgery.

### **Housekeeping**

Departments will maintain worksites in a clean and sanitary condition. The department will determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.

All equipment and environmental and working surfaces will be cleaned and decontaminated after contact with blood or other potentially infectious materials. Contaminated work surfaces will be decontaminated with an appropriate disinfectant after completion of procedures; immediately or as soon as feasible when surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials; and at the end of the work shift if the surface may have become contaminated following the last cleaning. Protective coverings, e.g., plastic wrap, aluminum foil, or imperviously-backed absorbent paper, used to cover equipment and environmental surfaces, will be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the work shift if they may have become contaminated during the shift.

All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials will be inspected and

decontaminated on a regular scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

Broken glassware which may be contaminated will not be picked up directly with the hands. The spill and/or debris will be cleaned up using mechanical means such as a brush and dust pan, tongs, or forceps.

Reusable sharps that are contaminated with blood or other potentially infectious materials will not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

Contaminated sharps will be discarded immediately or as soon as feasible in containers that are:

- Closable
- Puncture resistant
- Leak proof on sides and bottom
- Appropriately labeled or color-coded

During use, containers for contaminated sharps will be:

- Easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found, e.g., laundries
- Maintained upright throughout use
- Replaced routinely and not be allowed to overflow

When moving containers of contaminated sharps from the area of use, the containers will be:

- Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping
- Placed in a secondary container if leakage is possible. The second container will be:
  - Closable
  - Constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping
  - Appropriately labeled or color-coded
- Disposed of as regulated waste

Reusable containers will not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.

Regulated waste is defined as any liquid or semi-liquid blood or other potentially infectious materials; 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 and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Regulated waste will be placed in containers which are:

- Closable
- Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping
- Appropriately labeled or color-coded
- Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping

If outside contamination of the regulated waste container occurs, it will be placed in a second container. The second container will be:

- Closable
- Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping
- Appropriately labeled or color-coded
- Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping

Disposal of all regulated waste will be in accordance with applicable regulations of the United States, State of Arizona, and political subdivisions of the state.

Contaminated laundry will be handled as little as possible with a minimum of agitation. Contaminated laundry will be bagged or containerized at the location where it was used and will not be sorted or rinsed in the location of use. Contaminated laundry will be placed and transported in bags or containers appropriately labeled or color-coded. When a department 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.

Whenever contaminated laundry is wet and presents a reasonable likelihood of soak-through of or leakage from the bag or container, the laundry will be placed and transported in bags or containers which prevent soak-through and/or leakage of fluids to the exterior.

The department will provide employees who have contact with contaminated laundry wear with protective gloves and other appropriate personal protective equipment.

When a department ships contaminated laundry off-site to a second facility which does not utilize universal precautions in the handling of all laundry, the department generating the contaminated laundry will place such laundry in bags or containers which are appropriately labeled or color-coded.

#### **HIV AND HBV RESEARCH LABORATORIES**

HIV and HBV research laboratories engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV are required to comply with the special provisions outlined in this section in addition to the other requirements contained in this plan and guidelines established by the National Institutes of Health and the Centers for Disease Control and Prevention. These special provisions do not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissue, or organs.

Research laboratories will meet the following criteria:

- All regulated waste will either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens
- Laboratory doors will be kept closed when work involving HIV or HBV is in progress
- Contaminated materials that are to be decontaminated at a site away from the work area will be placed in a durable, leak proof, labeled or color-coded container that is closed before being removed from the work area
- Access to the work area will be limited to authorized persons. Written policies and procedures will be established whereby only persons who have been advised of the potential biohazard, who meet any specific entry requirements, and who comply with all entry and exit procedures will be allowed to enter the work areas and animal rooms
- When other potentially infectious materials or infected animals are present in the work area or containment module, a hazard warning sign incorporating the universal biohazard symbol will be

posted on all access doors. The hazard warning sign will comply with established requirements (refer to the Signs section of this plan)

- All activities involving other potentially infectious materials will be conducted in biological safety cabinets or other physical-containment devices within the containment module. No work with these other potentially infectious materials will be conducted on the open bench
- Laboratory coats, gowns, smocks, uniforms, or other appropriate personal protective clothing will be used in the work area and animal rooms. Personal protective clothing will not be worn outside of the work area and will be decontaminated before being laundered
- Special care will be taken to avoid skin contact with other potentially infectious materials. Gloves will be worn when handling infected animals and when making hand contact with other potentially infectious materials is unavoidable
- Before disposal all waste from work areas and from animal rooms will either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens
- Vacuum lines will be protected with liquid disinfectant traps and high-efficiency particulate air (HEPA) filters or filters of equivalent or superior efficiency and which are checked routinely and maintained or replaced as necessary
- Hypodermic needles and syringes will be used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles. Only needle-locking syringes or disposable syringe-needle units, i.e., where the needle is integral to the syringe, will be used for the injection or aspiration of other potentially infectious materials. Extreme caution will be used when handling needles and syringes. A needle will not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. The needle and syringe will be promptly placed in a puncture-resistant container and autoclaved or decontaminated before reuse or disposal
- All spills will be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially concentrated infectious materials
- A spill or accident that results in an exposure incident will be immediately reported to the laboratory director or other responsible person
- A biosafety manual will be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel will be advised of potential hazards, will be required to read instructions on practices and procedures, and will be required to follow them
- Certified biological safety cabinets or other appropriate combinations of personal protection or physical containment devices, such as special protective clothing, respirators, centrifuge safety cups, sealed centrifuge rotors, and containment caging for animals will be used for all activities with other potentially infectious materials that pose a threat of exposure to droplets, splashes, spills, or aerosols
- Biological safety cabinets will be certified when installed, when moved, and at least annually
- HIV and HBV research laboratories will meet the following criteria:
  - Each laboratory will contain a facility for hand washing and an eye wash facility which is readily available within the work area
  - An autoclave for decontamination of regulated waste will be available

### **HEPATITIS B VACCINATION AND POST-EXPOSURE EVALUATION AND FOLLOW-UP**

The department will make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident. The department will ensure that all medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis are:

- Made available at no cost to the employee
- Made available to the employee at a reasonable time and place
  - Performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional
  - Available to an employee that initially declined the vaccination
- Provided according to recommendations of the U.S. Public Health Service current at the time these evaluations and procedures take place

All diagnostic laboratory tests will be conducted by an accredited laboratory at no cost to the employee.

### **Hepatitis B Vaccination**

A hepatitis B vaccination will be made available after the employee has received the required training and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons. The department will not make participation in a prescreening program a prerequisite for receiving hepatitis B vaccination.

If the employee initially declines hepatitis B vaccination but at a later date while still covered under the standard decides to accept the vaccination, the department will make available hepatitis B vaccination at that time.

The department will require employees who decline to accept hepatitis B vaccination offered by the department to sign the statement in [Appendix 1](#). The original signed statement will be maintained in the employee's permanent personnel file and copies will be provided to the employee, the employee's department and Environmental Health & Safety.

If a routine booster dose(s) of hepatitis B vaccine is recommended by the U.S. Public Health Service at a future date, such booster dose(s) will be available.

### **Post-exposure Evaluation and Follow-up**

Following a report of an exposure incident, the department will make immediately available to the exposed employee a confidential medical evaluation and follow-up, including at least the following elements:

- Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred
- Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law
  - The source individual's blood will be tested as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the department will establish that legally required consent cannot be obtained. When the source individual's consent is not required by law, the source individual's blood, if available, will be tested and the results documented
  - When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated
  - Results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual
- Collection and testing of blood for HBV and HIV serological status
  - The exposed employee's blood will be collected as soon as feasible and tested after

- consent is obtained
  - If the employee consents to baseline blood collection, but does not give consent at that time for HIV serologic testing, the sample will be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing will be done as soon as feasible
- Post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service
- Counseling
- Evaluation of reported illness

**Information Provided to the Healthcare Professional**

The healthcare professional responsible for the employee's hepatitis B vaccination will be provided a copy of the bloodborne pathogens standard regulation. The department will provide the healthcare professional evaluating an employee after an exposure incident is provided the following information:

- A copy of the bloodborne pathogens standard regulation
- A description of the exposed employee's duties as they relate to the exposure incident
- Documentation of the route(s) of exposure and circumstances under which exposure occurred
- Results of the source individual's blood testing, if available
- All medical records relevant to the appropriate treatment of the employee including vaccination status which are the university's responsibility to maintain

**Healthcare Professionals Written Opinion**

The department will obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation. The healthcare professional's written opinion for hepatitis B vaccination will be limited to whether hepatitis B vaccination is indicated for an employee, and if the employee has received such vaccination. The healthcare professional's written opinion for post-exposure evaluation and follow-up will be limited to the following information:

- That the employee has been informed of the results of the evaluation
- That the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment

All other findings or diagnoses will remain confidential and will not be included in the written report.

**Medical Recordkeeping**

The Student Health Center will establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR § 1910.20. The record shall include:

- Name and social security number of the employee
- A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination
- A copy of all results of examinations, medical testing, and follow-up procedures required
- The copy of the healthcare professional's written opinion as required
- A copy of the information provided to the healthcare professional as required

Campus Health Service will ensure that employee medical records required are kept confidential and not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by the standard or as may be required by law. Campus Health Service will maintain the records required for at least the duration of employment plus thirty years in accordance with 29 CFR § 1910.20.

## **COMMUNICATION OF HAZARDS TO EMPLOYEE**

Efforts directed at communicating hazards of bloodborne pathogens to university employees through the use of labels, signs, and information and training are intended to provide employees with adequate warning to eliminate or minimize their exposure.

### **Information and Training**

All university employees with occupational exposure to blood or other potentially infectious materials will participate in a bloodborne pathogens information and training program which is provided at no cost to the employee and conducted during their normal working hours.

Training will be provided at the time of initial assignment to tasks where occupational exposure may take place and at least annually thereafter.

Employees who have received training on bloodborne pathogens in the year preceding the effective date of the standard, i.e., March 6, 1992, only need further training with respect to the provisions of the standard which were not included in previous training.

Annual training will be provided for all employees with occupational exposure within one year of their previous training. Employees will receive additional training when changes or modifications of tasks or procedures occur or when new tasks or procedures affect the employee's occupational exposure. The additional training will be limited in scope by only addressing the new exposure created.

Material will be used that is appropriate in content and vocabulary to educational level, literacy, and language of employees undergoing the training program.

The training program will contain the following elements:

- An accessible copy of the regulatory text of the bloodborne pathogens standard and an explanation of its contents
- A general explanation of the epidemiology and symptoms of bloodborne diseases
- An explanation of the modes of transmission of bloodborne pathogens
- An explanation of ASU's Exposure Control Plan and the means by which the employee can obtain a copy of the written plan
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
- An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment
- Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment
- An explanation of the basis for selection of personal protective equipment
- Information on the hepatitis B vaccine, including information on its efficiency, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge
- Information on appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available
- Information of the post-exposure evaluation and follow-up that the department is required to provide for the employee following an exposure incident
- An explanation of the signs and labels and/or color coding required by the standard
- An opportunity for interactive questions and answers with the person conducting the training

Training will be conducted by individuals knowledgeable in the subject matter covered in the training program as it relates to the specific workplace being addressed.

Laboratory employees in HIV or HBV research laboratories will receive specialized initial training in addition to the established bloodborne pathogens training program. Additional elements of the expanded HIV and HBV training program will include:

- Provisions for the university to verify that employees demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to work with HIV or HBV
- Provisions for the university to verify that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV
- Provisions for the university to provide a training program to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. The university will ensure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated

### **Training Records**

Training records will 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

Environmental Health & Safety provides Bloodborne Pathogens training and will serve as the custodian of all bloodborne pathogens standard training records. All training records relative to the bloodborne pathogens standard will be maintained for a minimum of three years from the date on which the training occurred. All training records required by this standard will be provided upon request for examination and copying to all employees, employee representatives, the Director of the National Institute for Occupational Safety and Health (NIOSH), and the Assistant Secretary of the U.S. Department of Labor in accordance with 29 CFR § 1910.20.

ASU must comply with the requirements involving transfer of records set forth in 29 CFR § 1910.20(h). Should ASU cease to do business and there is no successor employer to receive or retain the records for the prescribed period, the university will notify the NIOSH Director at least three months prior to their disposal and transmit them to the NIOSH Director, if required by the Director to do so, within the three month period.

### **Labels**

Warning labels will be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious materials; and other containers used to store, transport, or ship blood or other potentially infectious materials.

There are several exemptions to the labeling requirement:

- Containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use do not need to be labeled in accordance with the provisions outlined in this section
- Individual containers of blood or other potentially infectious materials that are placed in a labeled

container during storage, transport, shipment, or disposal do not need to be labeled in accordance with the provisions outlined in this section

- Regulated waste that has been decontaminated does not need to be labeled
- Red bags can be substituted for labels on bags or container of regulated waste

Warning labels will include the following legend:



The label will be fluorescent orange, orange-red, or predominantly so, with lettering or symbols in a contrasting color. Labels will be affixed as close as feasible to the container by string, wire, adhesive, or other method.

In order to maintain consistent labeling throughout the university, Environmental Health & Safety will provide all required labeling devices to individual departments upon request. This does not include bags or containers.

Contaminated equipment scheduled for maintenance or repair will be labeled in accordance with the provisions in this section and the label will also state which portions of the equipment remain contaminated.

### **Signs**

Signs will be posted at the entrance to HIV or HBV research laboratories and will bear the following legend and information:



[Name of Infectious Agent]

[Special requirements for entering the area]

[Name and telephone number of the laboratory director or other responsible person]

These signs will be fluorescent orange-red or predominately so, with lettering or symbols in a contrasting color.

# APPENDIX 1

	<p><b>Arizona State University Environmental Health &amp; Safety Hepatitis B Declination Form (Mandatory)</b> Pursuant to 29 CFR § 1910.1030(f)(2)(iv) [Bloodborne Pathogens]</p>
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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 vaccination, 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.

Employee Name (print)

\_\_\_\_\_

Employee's Department

\_\_\_\_\_

Employee Signature

\_\_\_\_\_ Date \_\_\_\_\_

Original: Campus Health Service Medical Records

Copy: Environmental Health & Safety  
Employee