

BLOODBORNE PATHOGENS PLAN

The following information can be used as a guideline to develop your own EXPOSURE CONTROL MANUAL. If you have First Aid and CPR trained personnel, you should have an exposure control policy and those employees should be properly trained in Bloodborne Pathogens exposures. As a minimum, all employees should be provided some type of training relating to HIV and HBV exposures. Regardless whether you are required by OSHA to provide this training, it's extremely important because if someone is exposed at work and develops HIV or Hepatitis B, your worker compensation liability is enormous.

The potential for contracting acquired immunodeficiency syndrome, AIDS, has increased as the disease has expanded to all segments of society. AIDS is only one of about a dozen diseases caused by pathogenic bloodborne microorganisms. Others include malaria, syphilis, brucellosis and hepatitis B (HBV). Many people, including doctors, dentists, healthcare workers, paramedics and research scientists, have been exposed to bloodborne pathogens for years. However, exposure to the AIDS virus is particularly horrendous since the resulting disease is almost always fatal. OSHA has developed specific standards to reduce the exposure and contraction of the diseases in the workplace by issuing these standards. While the primary occupational exposure rests with Healthcare Professionals, any employee who is "reasonably anticipated" to be exposed to these hazards is covered under this standard. This could include Police, Fire, Emergency Medical Technicians, First Aid/CPR providers, etc.

INFECTIOUS MATERIALS

Although blood and blood products are the most widely publicized repositories for these pathogenic microorganisms, they may be present in other media, including:

- HIV or HBV containing cell or tissue cultures.
- Organ cultures, culture media or similar solutions.
- Blood, organs and tissues from experimental animals infected with HIV OR HBV.
- Unfixed tissues or organs, other than intact skin, from living or dead humans.
- Other body fluids, including semen, vaginal fluid, cerebrospinal fluid, synovial fluid, amniotic fluid, saliva in dental procedures, pleural fluid, pericardial fluid, peritoneal fluid and any other body fluids visibly contaminated with blood.
- Additionally, any body fluids in situations where it is difficult or impossible to differentiate between body fluids.

BLOODBORNE PATHOGEN EPIDEMIOLOGY

The symptoms of hepatitis B are well known in the early stages, the disease resembles the flu. More severe clinical illness is characterized by lack of appetite, dark urine, jaundice, nausea, vomiting, abdominal pain and diarrhea. Hepatitis B infection may also place other family members at risk, and there is a 30 percent chance that an acutely infected individual's sexual partner will also become infected. If the person is a carrier, the partner's risk of infection is even higher.

HUMAN IMMUNODEFICIENCY VIRUS (HIV)

The human immunodeficiency virus (HIV) causes death and disease by attacking the body's immune system. In the early stages, the individual experiences acute retroviral syndrome similar to mononucleosis. As the disease progresses, the patient suffers from fever, diarrhea and fatigue. HIV-infected individuals who develop AIDS may also develop neurological problems, cancer and other opportunistic infections in the esophagus, trachea, bronchi and lungs. Current epidemiological information indicates that most people who are infected with HIV will eventually develop AIDS. While the disease can be managed by treating the clinical symptoms, the immunodeficiency is irreversible. There is presently no vaccine available to prevent infection and no known cure for the disease.

WORKPLACE TRANSMISSION

While intact skin offers some protection against bloodborne pathogens, they may be transmitted through the skin via accidental injection with needles, scalpels, shreds of glass, broken capillary tubes and other sharp objects. They may also enter the body through open cuts, nicks and skin abrasions. Recent evidence also suggests that they may be transmitted by splashes to the eyes and mucous membranes.

INFECTION CONTROL

Since it is possible to become infected through a single exposure, opportunities for exposure must be prevented to the greatest degree possible. This goal can be achieved by developing an infection control program, which identifies tasks that may result in exposure and prescribes precautions that can be taken to minimize exposure risks.

HAZARD INVENTORY

The first step in developing an infection control program is to identify processes or procedures where occupational exposures to bloodborne pathogens may occur. Next, the tasks associated with each of these potential exposures must be characterized. Factors to consider in characterizing tasks include:

- The type of body fluid involved.
- The volume of material likely to be encountered.
- The probability of exposure.
- The potential routes of exposure.

Specific tasks performed by lab technicians, nurses, maintenance workers and administrative personnel will vary. They may generally be divided into three categories, although not mandatory by current OSHA standards.

- CATEGORY I exposures are those where employees may be ROUTINELY exposed to bloodborne pathogens. Typical jobs include operating room personnel, dentists, emergency medical technicians,

fire, police, correctional institution workers, phlebotomists, cosmetologists and barbers.

- CATEGORY II exposures are those where workers are not usually exposed, but may be exposed under certain conditions. For example, a hospital maintenance worker who is not usually exposed to bloodborne pathogens may be exposed when servicing a piece of contaminated equipment. Another example would be a supervisor who performs First Aid and CPR to injured employees.
- CATEGORY III exposures are those where employees are never exposed. Hospital administrative staffs, office clerks, receptionists, crane operators and assembly workers are a few examples.

CONTROL STRATEGIES

Once the tasks have been categorized, a strategy for controlling the hazards and reducing the risks of exposure can be developed. This strategy may incorporate a variety of methods, including engineering controls, work practices and personal protective equipment.

DOCUMENTATION

Finally, the infection control plan must be reduced to writing and be available in the workplace for employee review. It must also be updated as necessary to reflect changes in methods, procedures or control techniques.

CONTROL METHODS

Risks posed by bloodborne pathogens may be reduced through engineering controls, employee work practices, personal protective equipment, housekeeping and administration of the hepatitis B vaccine. It should be noted that controls, which depend on human behavior, such as work practices and protective equipment, are less reliable than properly maintained mechanical systems.

STANDARD PRECAUTIONS (formerly termed "Universal Precautions")

The term "Standard precautions" refers to an infection control method in which all human blood and other potentially infectious materials are treated as if they were known to be infectious. Sanitation and good housekeeping can both be defined as the practice of rendering the Clinic, Professional Medical Office or First Aid offices, free from agents injurious to health.

Microbiology, the study of microscopic living, plant like organisms, including bacterial, viruses, yeast, and molds is the biological science on which sanitation is based. There are more than 10 communicable diseases known to man. Each one of these diseases or infections is caused by a specific organism. Organisms enter the body through the respiratory tract, through the digestive tract, or through breaks in the skin. They multiply causing tissue injury and body reaction. As the organisms multiply, many are shed by the infected person and may be spread to others, thus beginning the cycle again.

Bacteria are one of the more common microorganisms. Each cell reaches maximum size

and divides into two parts. The two parts then grow to full size and each divides again. This cycle is repeated again and again. Food and environmental conditions, such as moisture, temperature, light and degree of alkalinity influence the rate of bacterial growth.

Presence or absence of oxygen is also an important factor, because some bacteria require the presence of oxygen for growth and others require the absence of oxygen. Viruses are much smaller than bacteria and are very often too small to retain in filters. Viruses are considered by some to be living organisms, by others to be complex protein molecules that are capable of growth and multiplication only in living cells. Because of their size, they can remain suspended for long periods of time or be transplanted from place to place through air conditioning, soiled clothing/laundry or human contact.

How do you control these potential health hazards? Control of infection depends upon breaking the "chain of infection". This chain consists of the reservoir or the source of infection, which might be bacteria-laden dust, or means of transmission of the infection such as air, and finally the host. The object of infection control measures is to eliminate reservoirs and to block the means of transmission. Pathogenic organisms can be transmitted from the reservoir of infection to the new host in our different ways:

1. The first is contact, which includes direct contact, such as kissing and indirect contact, which means the organisms are passed from the reservoir to some object or substance and then to the host.
2. Second transmission method is sneezing or coughing, involving droplets.
3. The third type is droplet nuclei, which are the small residue of evaporated droplets that carry pathogenic organisms. These droplet nuclei remain suspended in the air for long periods of time.
4. The fourth method is dust that has become contaminated, which is present on floors, in clothing and in bedding. When stirred by normal activities, it moves from place to place.

The most important part of infection control is to understand the difference between cleaning and sanitizing. Cleaning is removing obvious dirt, debris and other materials from a surface. This includes washing the surface. Sanitizing, or disinfecting is the actual killing of the microorganisms through heat or chemicals. Disinfectants are very helpful in infection control.

Specific housekeeping procedures essential in controlling the spread of infection include giving top priority to the cleaning of horizontal surfaces, but also giving proper attention to the cleaning of walls and other vertical surfaces. Harmful bacteria, which may be introduced into surroundings in a variety of ways, are often airborne for only a short distance. Then they become attached to both vertical and horizontal surfaces, but especially to floors.

CONTROL PROCEDURES

Use wet-cleaning methods, such as damp wiping, damp mopping and wet mopping whenever possible. Ordinary dry dusting methods may serve only to redistribute bacteria-laden dust. The use of properly filtered or built-in vacuum cleaners is acceptable for dusting and

sweeping operations.

STERILIZE means the use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores. Add effective germicides or other pathogen-killing chemicals to wet cleaning solutions. CAUTION: Do not mix germicides and detergents, as the two ingredients may neutralize each other if the appropriate chemicals are not used. A combination germicide-detergent should be purchased premixed. Although the germicide has some value on the floor itself, its real value is in the reduction of bacterial levels in the mop bucket.

Unless checked, bacteria multiply rapidly in the warm, moist environment of mop water and may actually contaminate a floor being cleaned. Bacteria in floor waxes can have the same effect, plus weaken or destroy the effects of the wax. Fresh, damp cloths, treated dust cloths, and clean wet mops should be used to clean surfaces. Launder the used wet mops and cleaning cloths daily. Maintain separate cleaning equipment for each of the different areas, such as emergency room treatment, examination rooms, X-Ray, etc. Provide approved and appropriate plastic film or waxed paper bags for the disposal of infected materials. Contaminated linens, gowns and other items should be placed in properly labeled or identified bio-hazard bags for disposal or laundry.

The handling of linen is a crucial phase in infection control because soiled linen is a source of microbial contamination. Processing of soiled linen begins when the linen is removed from the patient, bed, stretcher, physician, nurse, examining table or operating table. Laundering removes pathogens by dilution, acidity and alkalinity in the washing process and by application of extremely high heat of 345 degrees Fahrenheit or more in the ironing process. There are a variety of linen handling, processing and disposing procedures, each unique to individual offices, clinics and professional medical offices, as required.

Odor control is part of infection control. Odor problems arise as a result of poor sanitation in toilet areas, utility rooms and work closets. Deodorizer blocks or sprays that attempt to mask the odors are a mark of poor housekeeping. The most effective way to deodorize these areas is with fresh air, removal of the causes of infection and frequent cleaning with a detergent-disinfectant solution.

Garbage collection areas and soiled linen storage areas may be sites where bad odors arise most frequently. Frequent removal of garbage, cleansing of garbage cans, the use of tight lids, and the use of waxed paper or plastic liners in garbage cans will help to keep odors to a minimum. Good ventilation is extremely helpful.

REGULATED WASTE

Regulated waste means liquid or semi-liquid blood or other potentially infectious materials, contaminated items that would release 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.

Waste constitutes a problem and can be classified into three types:

1. Non-combustibles are items not able to be burned such as glass, tin, casts and other similar materials.
2. Combustibles are items able to be burned such as wet tissue, bone, garbage, flowers, paper, crates, and cardboard.
3. Chemicals include all acids, flammables, and solvents.

All waste, except chemicals, can be further classified as INFECTIOUS or NON-INFECTIOUS. Cartons and boxes are classified as combustible dry waste, but a box discarded by a patient in isolation, or contaminated cardboard becomes combustible dry INFECTIOUS waste. The best advice is to follow your own organization's waste handling and disposing procedures.

Certainly, insect and rodent control is critical in infection control, as these pests do carry bacteria and other harmful microorganisms. Therefore each individual should take care in their daily work habits, cleanliness and assisting the organization in an effective insect and rodent control program. The most important factor in infection control is to follow the procedures and if you're not sure, ask your supervisor for the proper method of controlling microorganisms, diseases and infections.

ENGINEERING AND WORK PRACTICE CONTROLS

Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after implementing these controls, personal protective equipment shall also be used.

1. Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.
2. Employers must provide hand-washing facilities, which are readily accessible to employees.
3. When provision of hand washing facilities is not feasible, the employer shall provide either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. When antiseptic hand cleaners or towelettes are used, hands shall be washed with soap and running water as soon as feasible.
4. Employers shall ensure that employees wash their hands immediately or as soon as feasible after removal of gloves or other personal protective equipment.
5. Employers shall ensure that employees wash 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.
6. Contaminated needles and other contaminated sharps shall not be recapped or

removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical procedure.

7. Contaminated needles and other contaminated sharps shall not be bent, recapped or removed. Shearing or breaking of contaminated needles is prohibited.
8. Contaminated needles and other contaminated sharps shall not be recapped or removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical procedure.
9. Such recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.
10. Immediately or as soon as possible after use, contaminated reusable sharps shall be placed in appropriate containers until properly reprocessed. These containers shall be:
 - A. Puncture resistant.
 - B. Color-coded in accordance with this standard.
 - C. Leak-proof on the sides and bottom and must be in standard for reusable sharps.
 - D. Contaminated sharps containers must be easily assessable to personnel and located as close as is feasible to the immediate area where sharps can reasonably be anticipated to be found, such as laundry, etc. These containers must be maintained upright throughout use and replaced routinely and not be allowed to overflow.
 - E. When moving containers of contaminated sharps from the area of use, the containers will be:
 - (1) Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport or shipping.
 - (2) Placed in a second container if leakage is possible.
 - (3) Labeled or color-coded.
 - (4) Reusable containers shall not be opened, emptied, or cleaned in any manner which would expose employees to the risk of percutaneous injury.
11. Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure. Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, or on countertops where blood or other potentially infectious materials are present.
12. All procedures involving blood or other potentially infectious materials shall be

performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of these substances.

13. Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.
14. 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.
15. Equipment, which may become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary, unless the employer can demonstrate that decontamination of such equipment or portions of such equipment is not feasible.
16. A readily observable and approved label shall be attached to the equipment stating which portions remain contaminated. The employer shall 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.

WORK PRACTICES

Work practices are specific procedures that employees follow to reduce their exposures to pathogens. These include procedures for processing and handling blood and blood products, waste disposal and personal hygiene. **PROCESS PROCEDURES** involving blood or other potentially infectious materials must be performed in a manner that minimizes splashing, spraying or aerosolizing. For example, splattering of blood or serum, which occurs when rubber stoppers are pulled out of specimen tubes can be minimized by covering the stopper with gauze before removing it.

WASTE DISPOSAL

Wastes must be placed in closable, leak-proof containers. These containers must be identified as containing potentially infectious materials and should not be allowed to over-fill.

SHARPS HANDLING

Used needles must not be sheared, bent, broken or recapped by hand. Discarded needles and other waste sharps must be placed in an "APPROVED" sharps container. Care must also be exercised when mounting sharps on walls and cabinets. Keep containers low enough so the shortest person on staff can see the top of the container, reducing exposure to sharps that may not be visible, if the unit is mounted higher than is possible to see the top of the container.

GLASSWARE HANDLING

Broken glassware must not be picked up by hand. Instead, it must be collected with tongs or swept with a brush into a dustpan. To minimize aerosol formation, broken glass should not be dropped into a disposal container. It should be placed gently into the container.

PROTECTIVE EQUIPMENT

The selection of protective equipment depends on the nature of the exposure, but generally includes gloves, lab coats and gowns. When there is occupational exposure, the employer shall 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 is considered "appropriate" 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. It must protect the individual under normal conditions of use and for the duration of time, which the protective equipment will be used. The employer shall ensure that the employees use appropriate PPE. The only exception is when the employer shows that the employee, temporarily and briefly, declined to use PPE. If in rare and extraordinary circumstances, 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 judgement, the circumstances shall be investigated and documented in order to determine whether changes can be instituted to prevent such occurrences in the future.

The employer shall 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 shall be readily accessible to those employees who are allergic to the gloves normally provided.

The employer must clean, launder and dispose of required personal protective equipment at no cost to the employee. The employer must repair or replace PPE as needed to maintain its effectiveness, at no cost to the employee, if a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible.

All PPE must be removed prior to leaving the work area. When PPE is removed, it shall 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 had contact with blood, other potentially infectious materials, mucous membranes and non-intact skin, when performing vascular access procedures, except as specified below and when handling or touching contaminated items or surfaces.

REQUIRED USE CIRCUMSTANCES

1. Disposable, single use gloves shall be replaced as soon as practical when contaminated, torn, punctured, or when their ability to function as a barrier is compromised.
2. Disposable, single use gloves shall not be washed or decontaminated for re-use.
3. Utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. They must be discarded if they are cracked, peeling, torn, punctured, or exhibit signs of deterioration or when their ability to function as a barrier is compromised.
4. Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin length face shields, shall be worn whenever splashes, spray, spatter droplets of blood or other potentially infectious materials may be generated and eye, nose or mouth contamination can be reasonably anticipated.
5. Appropriate protective clothing, such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations.
6. The type and characteristics will depend upon the task and degree of exposure anticipated.
7. Surgical caps or hoods and/or shoe covers or boots shall be worn in instances when gross contamination can reasonably be anticipated.

HOUSEKEEPING

Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer shall 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. Specific methods and regular schedules for cleaning bench tops, equipment and other environmental surfaces contaminated with potentially infectious materials must be established and reduced to writing. The time required for cleanup may be reduced if surfaces are covered prior to work, with an impermeable, disposable covering such as plastic sheeting or aluminum foil.

Good housekeeping procedures should not be limited solely to areas in which infectious materials are handled. Prudent safety practice dictates that halls and passageways should be kept clear of obstructions such as carts, obsolete equipment and shipping containers.

Fire doors, other than those interconnected to smoke detection systems, should be kept closed. Stairs should be unobstructed and exits must be clearly marked.

Contaminated laundry should be handled with as little agitation as possible and placed in labeled bags at locations where it is used. Leak-proof bags should be used to transport wet

laundry.

All employees who work with contaminated laundry should wear protective gloves.

All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after completion of procedures. Disinfect immediately or as soon as feasible, when surfaces are contaminated or after any spill of blood or potentially infectious materials and at the end of the work shift if the surface may have become contaminated since the last cleaning.

Protective coverings, such as plastic wrap, aluminum foil or imperviously-backed absorbent paper used to cover equipment and environmental surfaces shall be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the workshift, if they may have become contaminated during the shift.

HEPATITIS B VACCINATION

The hepatitis B vaccine must be made available to employees under two circumstances:

1. At least once per month., if they are exposed to potentially infectious material
2. Following any exposure incident vaccinations must be available at reasonable times, places, and be supplemented with post-exposure evaluations and follow-up.

The attending physician must also be provided with a copy of the OSHA bloodborne pathogen regulation and a description of the employee's duties as they relate to exposure. Following any medical evaluations, the physician must provide the employer with a written report that must be forwarded to the employee. The report must summarize the results of the medical evaluation and indicate any limitations on the employee's ability to receive the HBV vaccination. Patient and physician confidentiality protects any diagnoses not related to the exposure incident.

The standard requires employers to offer the three-injection vaccination series free to all employees who are exposed to blood or other potentially infectious materials as part of their job duties. This includes first aid personnel and others. The vaccination must be offered within 10 days of initial assignment to a job where exposure to blood or other potentially infectious materials can be "reasonably anticipated". The requirements for vaccinations of those already on the job take effect July 6, 1992. Employers are not required to "prescreen" employees for antibodies to determine the need for the vaccine and may not make such screening a condition of receiving vaccination.

WORKERS WHO DECLINE vaccination must complete a declination form. SEE APPENDIX A FOR HEPATITIS B DECLINATION FORM. Employers must keep these forms on file so they know the vaccination status of everyone who is exposed to blood. At any time after a worker initially declines to receive the vaccine, he or she may opt to take it.

If a worker experiences an exposure incident, such as a needlestick or a blood splash in the eye, he or she must receive confidential medical evaluation from a licensed health care

professional with appropriate follow-up. To the extent possible by law, the employer is to determine the source individual for HBV, as well as HIV infectivity. The worker's blood will also be screened if he or she agrees. The health care professional must give a written opinion on whether or not vaccination is recommended and whether the employee received it. **ONLY THIS INFORMATION IS REPORTED TO THE EMPLOYER.** Employee medical records must remain confidential. HIV or HBV status must **NOT** be reported to the employer.

SIGNS AND LABELS

The bloodborne pathogen rule includes a provision for warning signs and labels. Specifically, warning signs containing the following information must be posted at the entrance to all HBV and HIV research laboratories and production areas:

- Name of the infectious agent being handled.
- Any special precautions or requirements for entering the area.
- Name and telephone number of the person responsible for the laboratory.

Except for containers of blood and blood components that have been labeled and released for distribution, all other containers of blood, blood products and other potentially infectious materials must bear an appropriate warning label. Containers that should be labeled include refrigerators, freezers, waste containers and boxes used to store and transport blood products. However, the standard does allow the use of red bags and red containers in lieu of physical labeling, which is the most common for medical clinics, professional medical offices, and First-aid offices. When labels are used, they must display the Standard biohazard symbol and include the word "biohazard." They must be colored fluorescent orange or orange-red with the lettering and symbols in a contrasting color such as black, blue or green. The labels must either be an integral part of the container or affixed as closely as is safely practical with tape, wire, adhesive, or other methods that prevent their loss or unintentional removal.

INFORMATION AND TRAINING

The proposed rule contains provisions for informing employees of the hazards posed by bloodborne pathogens and equipping them with skills necessary to deal with those hazards. To that end, the employee education program must include the following elements:

1. An explanation of the contents of the bloodborne pathogen standard
2. The modes by which bloodborne disease is transmitted
3. An explanation of the infection control plan
4. Recognition of exposure situations
5. Practices to prevent exposure
6. Selection and handling of Personal Protective Equipment
7. Information in HBV vaccine
8. Emergency procedures
9. Signs and labels

The program must be designed to be suitable to the level of the audience. Consequently, the format and content of each presentation may vary to reflect the composition of the specific audience. A program presented to post-doctorate researchers would take on a different flavor than a program for housekeeping and maintenance crews.

SUMMARY

Worker exposure to bloodborne diseases can be minimized through:

1. Training and education programs
2. Personal protective equipment such as gloves, gowns, face masks and eye protection
3. Work practices such as thorough hand washing after each patient contact.
4. Proper handling of sharps
5. Engineering controls i.e. biological safety cabinets, puncture-resistant sharp containers
6. Immunization programs
7. Proper disposal of contaminated waste
8. Use of disinfectants
9. Labeling and signs

TRAINING CHECKLIST:

1. Training programs must be evaluated through program review and discussion with management and employees.
2. Training programs shall normally include epidemiology, clinical presentation, modes of transmission, and prevention of Hepatitis B and HIV.
3. Has a training and information program been established for employees actually or potentially exposed to blood and/or body fluids?
4. How often is training provided and does it cover the following?
 - A. Standard precautions
 - B. Personal protective equipment
 - C. Workplace practices including blood drawing, room cleaning, laundry handling, clean up of blood spills
 - D. Needlestick exposure/management
 - E. Hepatitis B vaccination
5. Does new employee orientation cover infectious disease control?
6. Does the employer evaluate the effectiveness of the training program through monitoring of employee compliance with the guidelines?
7. Have employees been informed of the precautionary measures in the CDC guidelines?
8. Is personal protective equipment provided to employees?

9. Is the necessary equipment (mouthpieces, ventilation devices) provided for administering mouth-to-mouth resuscitation on potentially infected persons?
10. Does training identify the specific procedures implemented by the employer to provide protection, such as proper use of personal protective equipment?
11. Are facilities available to comply with workplace practices, such as hand washing sinks, needle containers, detergents and disinfectants to clean up spills?
12. Are employees aware of specific workplace practices to follow when appropriate. Specifically, hand washing, handling sharp instruments, routine examinations, blood spills, handling laundry, disposal of contaminated materials, reusable equipment?
13. Are employees aware of procedures to follow after a needlestick or blood exposure?

NON-HEALTH CARE WORKPLACES (First Aid/CPR providers)

RATIONALE: In many workplaces, there are a number of innocent, minor first aid cases that arise on a daily basis. Should employees expose themselves to blood or body fluids and contract Hepatitis or HIV, the company could be liable under worker compensation and quite possibly Criminal Liability, concealed hazards.

1. It is recommended that a written policy on blood-borne diseases be established and all employees be trained in this policy.
2. Training should include explaining what the Hepatitis B and HIV virus exposures are and how to avoid exposure.
3. Specific training would be mandatory for all persons who provide first aid services, emergency services or rescue operations. Use the checklist to develop an effective training program to meet this need.

BLOODBORNE PATHOGENS OSHA STANDARD

AS OF 31 MAY 1993: 1910.1030

1. Scope and Application. This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.
2. Definitions. For purposes of this section, the following shall apply:

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

Blood means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Clinical Laboratory means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

Contaminated means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Laundry means laundry, which has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Engineering Controls means controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove the bloodborne pathogens hazard from the workplace.

Exposure Incident means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

HBV means hepatitis B virus.

Hand washing Facilities means a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.

HIV means human immunodeficiency virus.

Licensed Healthcare Professional is a person who's legally permitted scope of practice allows him or her to independently perform the activities required by paragraph (f)

Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the

performance of an employee's duties.

Other Potentially Infectious Materials (OPIM) means

- (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;
- (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and
- (3) HIV-containing cell or tissue cultures, organ cultures, and HIV or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

Personal Protective Equipment is specialized clothing or equipment worn for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) are not intended to function as protection against a hazard are not considered to be personal protective equipment.

Production Facility means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

Regulated Waste means liquid or semi-liquid blood or other potentially infectious materials. It includes contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed. Regulated Waste also includes 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.

Research Laboratory means a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.

Source Individual means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Standard Precautions is an approach to infection control. According to the concept of Standard Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

(1) EXPOSURE CONTROL PLAN

- (i) Each employer having an employee(s) with occupational exposure as defined by paragraph (b) of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure.
- (ii) The Exposure Control Plan shall contain at least the following elements:
 - A. The exposure determination required by paragraph(c)(2),
 - B. The schedule and method of implementation for paragraphs (d) Methods of Compliance, (e) HIV and HBV Research Laboratories and Production Facilities, (f) Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, (g) Communication of Hazards to Employees, and (h) Recordkeeping, of this standard, and
 - C. The procedure for the evaluation of circumstances surrounding exposure incidents as required by paragraph (f)(3)(i) of this standard.
- (iii) Each employer shall ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.20(e).
- (iv) The Exposure Control Plan shall be reviewed and updated at least 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.
- (v) The Exposure Control Plan shall be made available to the Assistant Secretary and the Director upon request for examination and copying.

(2) EXPOSURE DETERMINATION

- (i) Each employer who has an employee(s) with occupational exposure as defined by paragraph (b) of this section shall prepare an exposure determination. This exposure determination shall contain the following:

- A. A list of all job classifications in which all employees in those job classifications have occupational exposure;
- B. A list of job classifications in which some employees have occupational exposure, and
- C. A list of all tasks and procedures or groups of closely related task and procedures in which occupational exposure occurs and that are performed by employees in job classifications listed in accordance with the provisions of paragraph (c)(2)(i)(B) of this standard. (ii) This exposure determination shall be made without regard to the use of personal protective equipment.
- D. Methods of compliance
 - (1) General-Standard precautions shall be observed to prevent contact with blood or other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials.
 - (2) Engineering and work practice controls.
 - i. Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment shall also be used.
 - ii. Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.
 - iii. Employers shall provide hand-washing facilities, which are accessible to employees.
 - iv. When provision of hand washing facilities is not feasible, the employer shall provide either an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible.
 - v. Employers shall ensure that employees wash their hands immediately or as soon as feasible after removal of gloves or other personal protective equipment.
 - vi. Employers shall ensure that employees wash 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.
 - vii. Contaminated needles and other contaminated sharps shall not be bent, recapped, or removed except as noted in paragraphs (d)(2)(vii)(A) and (d)(2)(vii)(B) below. Shearing or breaking of contaminated needles is prohibited.

- (A) Contaminated needles and other contaminated sharps shall not be bent, recapped or removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.
 - (B) Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.
- viii. Immediately or as soon as possible after use, contaminated reusable sharps shall be placed in appropriate containers until properly reprocessed. These containers shall be:
 - (A) Puncture resistant;
 - (B) Labeled or color-coded in accordance with this standard;
 - (C) Leak proof on the sides and bottom; and
 - (D) In accordance with the requirements set forth in paragraph (d)(4)(ii)(E) for reusable sharps.
- ix. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.
- x. Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, or on countertops or benchtops where blood or other potentially infectious materials are present.
- xi. All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of these substances.
- xii. Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.
- xiii. 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.
 - (A) The container for storage, transport, or shipping shall be labeled or color-coded according to paragraph (g)(1)(i) and closed prior to being stored, transported, or shipped. When a facility utilizes Standard Precautions in the handling of all specimens, the labeling/color-coding of specimens is not necessary provided containers are recognizable as containing specimens. This exemption only applies while such specimens/containers remain within the facility. Labeling or

color-coding in accordance with paragraph (g)(1)(i) is required when such specimens/containers leave the facility.

- (B) If outside contamination of the primary container occurs, the primary container shall be placed within a second container which prevents leakage during handling, processing, storage, transport, or shipping and is labeled or color-coded according to the requirements of this standard.
 - (C) If the specimen could puncture the primary container, the primary container shall be placed within a secondary container, which is puncture-resistant in addition to the above characteristics.
- xiv. Equipment, which may become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary, unless the employer can demonstrate that decontamination of such equipment or portions of such equipment is not feasible.
- (A) A readily observable label in accordance with paragraph (g)(1)(i)(H) shall be attached to the equipment stating which portions remain contaminated.
 - (B) The employer shall ensure that this information is conveyed to all affected employees, the servicing representative, and/or the manufacturer, prior to handling, servicing, or shipping so that appropriate precautions will be taken.

(3) PERSONAL PROTECTIVE EQUIPMENT

- (i) Provision. When there is occupational exposure, the employer shall 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. The usage will be under normal conditions of use and for the duration which the protective equipment will be used.
- (ii) Use. The employer shall ensure that the employee uses appropriate personal protective equipment. The employer may show 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 its use would have prevented the delivery of health care or public safety services. The employee must show its use would have posed an increased hazard to the safety of the worker or co-worker. When the employee makes this judgement, the circumstances shall be investigated and documented in order to determine whether changes can be instituted to prevent such occurrences in the future.

- (iii) Accessibility. The employer shall 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 shall be readily accessible to those employees who are allergic to the gloves normally provided.
- (iv) Cleaning, Laundering, and Disposal. The employer shall clean, launder, and dispose of personal protective equipment required by paragraphs (d) and (e) of this standard, at no cost to the employee.
- (v) Repair and Replacement. The employer shall repair or replace personal protective equipment as needed to maintain its effectiveness, at no cost to the employee.
- (vi) If a garment penetrated by blood or other potentially infectious materials, then the garment shall be removed immediately or as soon as feasible.
- (vii) All personal protective equipment shall be removed prior to leaving the work area.
- (viii) When personal protective equipment is removed it shall be placed in an appropriately designated area or container for storage, washing, decontamination or disposal.
- (ix) Gloves. 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. Gloves shall be worn when the employee may be performing vascular access procedures except as specified in paragraph (d)(3)(ix)(D); and when handling or touching contaminated items or surfaces.
 - (A) Disposable (single use) gloves such as surgical or examination gloves, shall 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.
 - (B) Disposable (single use) gloves shall not be washed or decontaminated for re-use.
 - (C) Utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. However, they must be discarded if they are cracked, peeling, torn, punctured, or exhibit other signs of deterioration or when their ability to function as a barrier is compromised.
 - (D) If an employer in a volunteer blood donation center judges that routine gloving for all phlebotomies is not necessary then the employer shall:
 - (1) Periodically reevaluate this policy;

- (2) Make gloves available to all employees who wish to use them for phlebotomy;
- (3) Not discourage the use of gloves for phlebotomy; and
- (4) Require that gloves be used for phlebotomy in the following circumstances:
 - (I) When the employee has cuts, scratches, or other breaks in his or her skin;
 - (II) When the employee judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative source individual; and
 - (III) When the employee is receiving training in phlebotomy.
- (x) Masks, Eye Protection, and Face Shields. Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, shall 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.
- (xi) Gowns, Aprons, and Other Protective Body Clothing. Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated.
- (xii) Surgical caps or hoods and/or shoe covers or boots shall be worn in instances when gross contamination can reasonably be anticipated (e.g., autopsies, orthopaedic surgery).

(4) Housekeeping.

- (i) General. Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer shall 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.
- (ii) All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.
 - (A) Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after completion of procedures. When surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials, counters should be cleaned immediately or as soon as feasible. They should also be decontaminated at the end of the work shift if the surface may have become contaminated since the last cleaning.
 - (B) Protective coverings, such as plastic wrap, aluminum foil, or

imperviously-backed absorbent paper used to cover equipment and environmental surfaces, shall be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the workshift if they may have become contaminated during the shift.

(C) 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 shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

(D) Broken glassware which may be contaminated shall not be picked up directly with the hands. It shall be cleaned up using mechanical means, such as a brush and dust pan, tongs, or forceps.

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

(iii) Regulated Waste.

(A) Contaminated Sharps Discarding and Containment.

(1) Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are:

- (I) Closable;
- (II) Puncture resistant;
- (III) Leak proof on sides and bottom; and
- (IV) Labeled or color-coded in accordance with paragraph (g)(1)(i)

(2) During use, containers for contaminated sharps shall be:

- (I) 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);
- (II) Maintained upright throughout use; and
- (III) Replaced routinely and not be allowed to overfill.

(3) When moving containers of contaminated sharps from the area of use, the containers shall be:

- (I) Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, or transport;
- (II) Placed in a secondary container if leakage is possible. The second container shall be:
 - (A) Closable;
 - (B) Constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and
 - (C) Labeled or color-coded according to paragraph (g)(1)(i) of this standard.

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

(B) Other Regulated Waste Containment.

(1) Regulated waste shall be placed in containers which are:

- (I) Closable;
- (II) Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;
- (III) Labeled or color-coded in accordance with paragraph (g)(1)(i) this standard; and
- (IV) Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

(2) If outside contamination of the regulated waste container occurs, it shall be placed in a second container. The second container shall be:

- (I) Closable;
- (II) Constructed to contain all contents and prevent

leakage of fluids during handling, storage, transport or shipping;

(III) Labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard; and

(IV) Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

(C) Disposal of all regulated waste shall be in accordance with applicable regulations of the United States, States and Territories, and political subdivisions of States and Territories.

(iv) Laundry.

(A) Contaminated laundry shall be handled as little as possible with a minimum of agitation.

(1) Contaminated laundry shall be bagged or containerized at the location where it was used and shall not be sorted or rinsed in the location of use.

(2) Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard. When a facility utilizes Standard 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 Standard Precautions.

(3) 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 fluids to the exterior.

(B) The employer shall ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment.

(C) When a facility ships contaminated laundry off-site to a second facility which does not utilize Standard

Precautions in the handling of all laundry, the facility generating the contaminated laundry must place such laundry in bags or containers which are labeled or color-coded in accordance with paragraph (g)(1)(i).

(e) HIV and HBV Research Laboratories and Production Facilities.

(1) This paragraph applies to research laboratories and production facilities engaged in the culture, production, concentration, experimentation, and manipulation of HIV and HBV. It does not apply to clinical or diagnostic laboratories engaged solely in the analysis of blood, tissues, or organs. These requirements apply in addition to the other requirements of the standard.

(2) Research laboratories and production facilities shall meet the following criteria:

(i) Standard microbiological practices. All regulated waste shall either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.

(ii) Special practices.

(A) Laboratory doors shall be kept closed when work involving HIV or HBV is in progress.

(B) Contaminated materials that are to be decontaminated at a site away from the work area shall be placed in a durable, leak proof, labeled or color-coded container that is closed before being removed from the work area.

(C) Access to the work area shall be limited to authorized persons. Written policies and procedures shall 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 shall be allowed to enter the work areas and animal rooms.

(D) When other potentially infectious materials or infected animals are present in the work area or containment module, a hazard warning sign incorporating the Standard biohazard symbol shall be posted on all access doors. The hazard warning sign shall comply with paragraph

(g)(1)(ii) of this standard.

(E) All activities involving other potentially infectious materials shall be conducted in biological safety cabinets or other physical-containment devices within the containment module. No work with these other potentially

infectious materials shall be conducted on the open bench.

(F) Laboratory coats, gowns, smocks, uniforms, or other appropriate protective clothing shall be used in the work area and animal rooms. Protective clothing shall not be worn outside of the work area and shall be decontaminated before being laundered.

(G) Special care shall be taken to avoid skin contact with other potentially infectious materials. Gloves shall be worn when handling infected animals and when making hand contact with other potentially infectious materials is unavoidable.

(H) Before disposal all waste from work areas and from animal rooms shall either be incinerated or decontaminated by a method such as autoclaving known to effectively destroy bloodborne pathogens.

(I) Vacuum lines shall 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.

(J) Hypodermic needles and syringes shall 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., the needle is integral to the syringe) shall be used for the injection or aspiration of other potentially infectious materials. Extreme caution shall be used when handling needles and syringes. A needle shall not be bent, sheared, replaced in the sheath or guard, or removed from the syringe following use. The needle and syringe shall be promptly placed in a puncture-resistant container and autoclaved or decontaminated before

reuse or disposal.

(K) All spills shall be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially concentrated infectious materials.

(L) A spill or accident that results in an exposure incident shall be immediately reported to the laboratory director or other responsible person.

(M) A biosafety manual shall be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel shall be advised of potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.

(iii) Containment equipment.

(A) Certified biological safety cabinets (Class I, II, or III) 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, shall be used for all activities with

other potentially infectious materials that pose a threat of exposure to droplets, splashes, spills, or aerosols.

(B) Biological safety cabinets shall be certified when installed, whenever they are moved and at least annually.

(3) HIV and HBV research laboratories shall meet the following criteria:

(i) Each laboratory shall contain a facility for hand washing and an eye wash facility which is readily available within the work area.

(ii) An autoclave for decontamination of regulated waste shall be available.

(4) HIV and HBV production facilities shall meet the following criteria:

- (i) The work areas shall be separated from areas that are open to unrestricted traffic flow within the building. Passage through two sets of doors shall be the basic requirement for entry into the work area from access corridors or other contiguous areas. Physical separation of the high-containment work area from access corridors or other areas or activities may also be provided by a double-doored clothes-change room (showers may be included), airlock, or other access facility that requires passing through two sets of doors before entering the work area.
 - (ii) The surfaces of doors, walls, floors and ceilings in the work area shall be water resistant so that they can be easily cleaned. Penetrations in these surfaces shall be sealed or capable of being sealed to facilitate decontamination.
 - (iii) Each work area shall contain a sink for washing hands and a readily available eye wash facility. The sink shall be foot, elbow, or automatically operated and shall be located near the exit door of the work area.
 - (iv) Access doors to the work area or containment module shall be self-closing.
 - (v) An autoclave for decontamination of regulated waste shall be available within or as near as possible to the work area.
 - (vi) A ducted exhaust-air ventilation system shall be provided. This system shall create directional airflow that draws air into the work area through the entry area. The exhaust air shall not be recirculated to any other area of the building, shall be discharged to the outside, and shall be dispersed away from occupied areas and air intakes. The proper direction of the airflow shall be verified (i.e., into the work area).
- (5) Training Requirements. Additional training requirements for employees in HIV and HBV research laboratories and HIV and HBV production facilities are specified in paragraph (g)(2)(ix).
- (f) Hepatitis B vaccination and post-exposure evaluation and follow-up-

(1) General.

- (i) The employer shall 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.
- (ii) The employer shall 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:
 - (A) Made available at no cost to the employee;
 - (B) Made available to the employee at a reasonable time and place;
 - (C) Performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional; and
 - (D) Provided according to recommendations of the U.S. Public Health Service current at the time these evaluations and procedures take place, except as specified by this paragraph (f).
- (iii) The employer shall ensure that all laboratory tests are conducted by an accredited laboratory at no cost to the employee.

(2) Hepatitis B Vaccination.

- (i) Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g)(2)(vii)(I) 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.
- (ii) The employer shall not make participation in a prescreening program a prerequisite for receiving

hepatitis B vaccination.

- (iii) 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 employer shall make available hepatitis B vaccination at that time.
 - (iv) The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in appendix A.
 - (v) 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) shall be made available in accordance with section (f)(1)(ii).
- (3) Post-exposure Evaluation and Follow-up. Following a report of an exposure incident, the employer shall make immediately available to the exposed employee a confidential medical

evaluation and follow-up, including at least the following elements:

- (i) Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred;
- (ii) Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law;
 - (A) The source individual's blood shall 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 employer shall 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, shall be tested and the results documented.
 - (B) 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.

(C) 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.

(iii) Collection and testing of blood for HBV and HIV serological status;

(A) The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.

(B) If the employee consents to baseline blood collection, but does not give consent at that time for HIV serologic testing, the sample shall 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 shall be done as soon as feasible.

(iv) Post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service;

(v) Counseling; and

(vi) Evaluation of reported illnesses.

(4) Information Provided to the Healthcare Professional.

(i) The employer shall ensure that the healthcare professional responsible for the employee's Hepatitis B vaccination is provided a copy of this regulation.

(ii) The employer shall ensure that the healthcare professional evaluating an employee after an exposure incident is provided the following information:

(A) A copy of this regulation;

(B) A description of the exposed employee's duties as they relate to the exposure incident;

(C) Documentation of the route(s) of exposure and circumstances under which exposure occurred;

(D) Results of the source individual's blood testing, if

available;
and

(E) All medical records relevant to the appropriate treatment of the employee including vaccination status which are the employer's responsibility to maintain.

(5) Healthcare Professional's Written Opinion. The employer shall 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.

(i) The healthcare professional's written opinion for Hepatitis B vaccination shall be limited to whether Hepatitis B vaccination is indicated for an employee, and if the employee has received such vaccination.

(ii) The healthcare professional's written opinion for post-exposure evaluation and follow-up shall be limited to the following information:

(A) That the employee has been informed of the results of the evaluation; and

(B) 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.

(iii) All other findings or diagnoses shall remain confidential and shall not be included in the written report.

(6) Medical recordkeeping. Medical records required by this standard shall be maintained in accordance with paragraph (h)(1) of this section.

(g) Communication of hazards to employees-

(1) Labels and signs.

(i) Labels.

(A) Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to

store, transport or ship blood or other potentially infectious materials, except as provided in paragraph (g)(1)(i)(E), (F) and (G).

(B) Labels required by this section shall include the following legend:

>>>> Insert Illustration <<<< NOTE>>>> ROOM FOR ILLUSTRARION MAY
CHANGE
PAGINATION FOR THE REST OF THE DOUCMENT

(C) These labels shall be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

(D) Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

(E) Red bags or red containers may be substituted for labels.

(F) 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 are exempted from the labeling requirements of paragraph (g).

(G) Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage, transport, shipment or disposal are exempted from the labeling requirement.

(H) Labels required for contaminated equipment shall be in accordance with this paragraph and shall also state which portions of the equipment remain contaminated.

(I) Regulated waste that has been decontaminated need not be labeled or color-coded.

(ii) Signs.

(A) The employer shall post signs at the entrance to work areas specified in paragraph (e), HIV and HBV Research Laboratory and Production Facilities, which shall bear the following legend:

>>>> Insert Illustration <<<< NOTE>>>> ROOM FOR ILLUSTRARION MAY
CHANGE
PAGINATION FOR THE REST OF THE DOUCMENT

(B) These signs shall be fluorescent orange-red or predominantly so, with lettering and symbols in a contrasting color.

(2) Information and Training.

(i) Employers shall ensure that all employees with occupational exposure participate in a training program which must be provided at no cost to the employee and during working hours.

(ii) Training shall be provided as follows:

(A) At the time of initial assignment to tasks where occupational exposure may take place;

(B) Within 90 days after the effective date of the standard;
and

(C) At least annually thereafter.

(iii) For employees who have received training on bloodborne pathogens in the year preceding the effective date of the standard, only training with respect to the provisions of the standard which were not included need be provided.

(iv) Annual training for all employees shall be provided within one year of their previous training.

- (v) Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.
- (vi) Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.
- (vii) The training program shall contain at a minimum the following elements:
 - (A) An accessible copy of the regulatory text of this standard and an explanation of its contents;
 - (B) A general explanation of the epidemiology and symptoms of bloodborne diseases;
 - (C) An explanation of the modes of transmission of bloodborne pathogens;
 - (D) An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;
 - (E) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;
 - (F) 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;
 - (G) Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
 - (H) An explanation of the basis for selection of personal protective equipment;
 - (I) Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of

charge;

(J) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

(K) 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;

(L) Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;

(M) An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and

(N) An opportunity for interactive questions and answers with the person conducting the training session.

(viii) The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

(ix) Additional Initial Training for Employees in HIV and HBV Laboratories and Production Facilities. Employees in HIV or HBV research laboratories and HIV or HBV production facilities shall receive the following initial training in addition to the above training requirements.

(A) The employer shall assure 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.

(B) The employer shall assure that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.

(C) The employer shall 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 employer shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.

(h) Recordkeeping-

(1) Medical Records.

(i) The employer shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.20.

(ii) This record shall include:

(A) The name and social security number of the employee;

(B) 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 as required by paragraph (f)(2);

(C) A copy of all results of examinations, medical testing, and follow-up procedures as required by paragraph (f)(3);

(D) The employer's copy of the healthcare professional's written opinion as required by paragraph (f)(5); and

(E) A copy of the information provided to the healthcare professional as required by paragraphs (f)(4)(ii)(B)(C) and (D).

(iii) Confidentiality. The employer shall ensure that employee medical records required by paragraph (h)(1) are:

(A) Kept confidential; and

(B) Not disclosed or reported without the employee's express written consent to any person within or outside the

workplace except as required by this section or as may be required by law.

- (iv) The employer shall maintain the records required by paragraph (h) for at least the duration of employment plus 30 years in accordance with 29 CFR 1910.20.

(2) Training Records.

- (i) Training records shall include the following information:

- (A) The dates of the training sessions;
- (B) The contents or a summary of the training sessions;
- (C) The names and qualifications of persons conducting the training; and
- (D) The names and job titles of all persons attending the training sessions.

- (ii) Training records shall be maintained for 3 years from the date on which the training occurred.

(3) Availability.

- (i) The employer shall ensure that all records required to be maintained by this section shall be made available upon request to the Assistant Secretary and the Director for examination and copying.
- (ii) Employee training records required by this paragraph shall be provided upon request for examination and copying to employees, to employee representatives, to the Director, and to the Assistant Secretary.
- (iii) Employee medical records required by this paragraph shall be provided upon request for examination and copying to the subject employee, to anyone having written consent of the subject employee, to the Director, and to the Assistant Secretary in accordance with 29 CFR 1910.20.

(4) Transfer of Records.

- (i) The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.20(h).

(ii) If the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director, at least three months prior to their disposal and transmit them to the Director, if required by the Director to do so, within that three month period.

(i) Dates

(1) Effective Date. The standard shall become effective on March 6, 1992.

(2) The Exposure Control Plan required by paragraph (c) of this section shall be completed on or before May 5, 1992.

(3) Paragraph (g)(2) Information and Training and (h) Recordkeeping shall take effect on or before June 4, 1992.

(4) Paragraphs (d)(2) Engineering and Work Practice Controls, (d)(3) Personal Protective Equipment, (d)(4) Housekeeping, (e) HIV and HBV Research Laboratories and Production Facilities, (f) Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, and (g) (1) Labels and Signs, shall take effect July 6, 1992.

Appendix A to Section 1910.1030-Hepatitis B Vaccine Declination
(Mandatory)

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. _____ date _____ .