

## Bloodborne Pathogens Policy

OSHA moves on Proposed Regulation to Prevent Exposures to Bloodborne Diseases. - *By John R. Rekus, CSP*

A warehouse at regional blood center misjudges the turning radius of a mobile cart loaded with units of whole blood. The cart topples and the freshly drawn whole blood, in plastic bags, spilt open spraying both the warehouseman and two bystanders.

An emergency medical technician responding to a stabbing incident finds blood flowing from the victim's wounds. As he begins treatment, the victim suddenly becomes violent. Droplets of spattered blood splash into the technician's eyes and mouth.

A lab technician at a university research facility accidentally drops a flask containing a pathogenic virus onto a bench top. When the flask shatters, the technician's face and hands are cut by razor-sharp shards of virus-contaminated glass.

### Pathogens Explained

While incidents like these were alarming enough a few years ago, they can be terrifying today because of the potential for contracting acquired immunodeficiency syndrome or AIDS. But 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 disquieting since the resulting disease is almost always fatal.

Concerns about workplace exposures to bloodborne pathogens led the Occupational Safety and Health Administration (OSHA) to revise its regulations. The new standard – 29 CFR 1910.1030 – was updated in April 2001.

### 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 tissue or organs – other than intact skin – from living or dead humans
- Other body fluids, including semen, vaginal fluid, cerebrospinal fluid, amniotic fluid, saliva in dental procedures and any other body fluids visibly contaminated with blood

### BBP Epidemiology

Hepatitis B. OSHA estimates that about 75 to 110 of every 1,000 workers who are frequently exposed to blood or other potentially infectious materials will become infected with hepatitis B over the course of their working lifetimes. As a result of that infection, 20-30 employees will suffer acute clinical illness, 4-6 will be hospitalized and 2-3 will die. In addition, between 5 percent and 10 percent of the infected workers will later become chronic carriers.

The symptoms of hepatitis B are well known, and 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

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.

Currently epidemiological information indicates that most people who are infected with HIV will eventually develop AIDS, and while the disease can be managed by treating the clinical symptoms, the immunodeficiency is irreversible. There is presently no vaccine available to prevent infection.

### Workplace Transmission

While intact skin offers some protection against bloodborne pathogens, they may be transmitted through the skin via accidental injection with needles, scalpels, shards 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 eye and mucous membranes.

The following case histories demonstrate some typical examples of how BBP exposures may occur in the workplace.

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### Centrifuge Case

As part of routine laboratory duties, a technician occasionally cleaned centrifuge rotors contaminated with concentrated HIV cultures. Although the technician claimed he took precautions, investigators determined that he was not fully knowledgeable on biosafety procedures and, consequently, did not always follow them.

Although no specific exposure incident was identified, the technician was eventually found to be HIV positive. He reported having a nonspecific dermatitis on his arm and also recalled numerous instances when he had to immediately change his gloves because of pinholes and tears. The investigators concluded that the technician most likely acquired his HIV infection in the laboratory as a result of skin contact with the concentrated virus.

### Blood Splash Case

A medical technologist accidentally splashed blood on her hands and forearms while she was operating a device used to separate blood into its component parts. She was not wearing gloves and apparently did not have any open wounds on her hands. However, she did have dermatitis on her ear and may have touched that ear with a contaminated hand.

Tests made five days after the exposure showed that she was HIV negative. However, eight weeks later she experienced symptoms of acute retroviral syndrome. Subsequent tests indicated that she was HIV positive. Both she and her husband denied any other risk factors. Her husband also tested HIV negative, further suggesting that the disease was linked to the exposure incident.

### Needle Stick

A central supply clerk who was cleaning a blood-drive donor area was stuck through the palm of his hand when he crumpled up a discarded paper towel containing a contaminated needle. He was subsequently vaccinated for HBV, and thus far has remained HIV negative.

### Sharps

Truck drivers at one facility related countless stories about sticks with needles, scalpel blades and broken glass when they moved plastic infectious waste bags containing improperly disposed sharps.

### 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 (1) identifies tasks that may result in exposure, and (2) 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

Although the specific tasks performed by lab technicians, nurses, maintenance workers and administrative personnel will vary; they may generally be divided into three categories.

### Category I

Exposures are those where employees may be routinely exposed to bloodborne pathogens. Typical jobs include operating room personnel, dentists and phlebotomists.

### 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 he services a piece of contaminated equipment.

### Category III

Exposures are those where employees are never exposed. Hospital administrative staffs, office clerks and receptionists are a few examples.

### Control Strategy

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.

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### 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, however, that controls, which depend on vagaries of human behavior, such as work practices and protective equipment, are less reliable than well maintained mechanical systems.

### Universal Precautions

The term “universal 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.

### Engineering Precautions

Engineering controls eliminate hazards at their source. They may include autoclaves, biological safety cabinets and waste containers for contaminated sharps.

Biological safety cabinets are similar in appearance to laboratory fume hoods and protect employees from exposure to airborne biohazards by providing an enclosed, mechanically ventilated space for them to work.

Class I cabinets are negative-pressure, open-face devices. Some Class I cabinets include an accessory panel that allows them to function as a glove box.

Class II cabinets have an air curtain that flows down the front of the cabinet, protecting both the operator and the materials being handled from cross-contamination.

Class III cabinets are used for protection against the most virulent biohazards and consist of a hermetically sealed enclosure fitted with heavy rubber gloves.

Sharps containers are liquid-tight, puncture-resistant vessels used to minimize the hazards posed by discarded needles, broken glass, scalpels and other contaminated sharp objects. Light plastic bottles such as those that hold consumer products are unacceptable because the walls are easily penetrated by sharps. Metal, heavy gauge plastic or laminated, multi-ply cardboard containers are a much better choice.

### 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

Procedures involving blood or other potentially infectious materials must be performed in a manner that minimizes splashing, spraying or aerosolizing. For example, covering the stopper with gauze before removing it can minimize the spattering of blood or serum that occurs when rubber stoppers are pulled out of specimen tubes.

### 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 containers on walls and cabinets. In one case, the sharps box was mounted so high that users shorter than six feet tall could not tell when it was full. The problem was discovered when a nurse who was placing a needle into the box was stabbed by another needle sticking out of it. Because she was only five feet tall, she could not see the other needle.

### Glassware Handling

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

### Personal Hygiene

Eating, drinking, smoking or application of cosmetics all must be prohibited in areas where bloodborne pathogens may be present. Food and drink may not be stored in refrigerators, freezers, cabinets or other areas containing blood or other potentially infectious materials. Regular hand washing, preferably with bactericidal soap, should be mandatory immediately after removing gloves or other protective equipment and after any barehanded contact with blood.

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### Protective Equipment

The selection of protective equipment depends on the nature of the exposure, but generally includes gloves, lab coats and gowns. If there is a chance for potentially infectious material to splash into the eyes or mouth, eye and face protection should be worn.

### Housekeeping

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 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. In addition, all employees who work with contaminated laundry should wear gloves.

### Hepatitis B Vaccination

The hepatitis B vaccine must be made available to employees under two (2) circumstances: (1) if they are exposed to potentially infectious material at least once per month, and (2) following any exposure incident. The vaccinations must be made available at reasonable times and 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. However, any diagnoses not related to the exposure incident are protected by patient/physician confidentiality.

### Signs and Labels

The proposed 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:

- The 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, for example, the principle investigator or laboratory director

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.

When labels are used, they must display the universal 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:

- An explanation of the contents of the bloodborne pathogen standard
- A general explanation of the epidemiology and symptoms of bloodborne disease
- The modes by which bloodborne disease is transmitted
- An explanation of the infection-control plan
- Recognition of exposure situations
- Practices to prevent exposure
- Selection and handling of PPE

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- Information on HBV vaccine
- Emergency procedures
- 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, for example, would take on a different flavor than a program for housekeeping and maintenance crews.

### Special Requirements

Some additional requirements are imposed on HIV and HBV research labs and production facilities. However, the requirements do not apply to clinical or diagnostic labs engaged solely in the analysis of blood, tissues or organs.

### Access Restricted

Policies and procedures must be established to restrict access only to authorized personnel. Entrants must also be advised of the potential presence of biohazards and of any special entry requirements such as specific immunizations or special entry and exit procedures. Doors leading to work areas must be closed whenever activities are in progress and the universal biohazard warning sign must be posted on all access doors when infectious materials or infected animals are present.

### Waste Handling

All infectious waste from work areas and animal rooms must be decontaminated prior to disposal. Contaminated materials, which will be treated at a site remote from the work area, must be placed in durable, leak-proof containers that are closed before they are removed from the work area.

### Protective Equipment

Protective clothing such as laboratory coats, gowns, smocks or work uniforms must be worn while inside work areas and patient's rooms. It must also be removed when a worker leaves the work area. In other words, workers should not be wandering the halls, administrative offices or the cafeteria wearing laboratory protective clothing. Gloves must be worn whenever infected patients are handled and when contact with potentially infectious materials is unavoidable. Lastly, protective clothing must be decontaminated before being laundered.

### Vacuum Lines

All vacuum lines must be protected with liquid disinfectant traps and highly-efficiency particulate aerosol filters to collect potentially infectious materials.

### Needle Use

Aspiration and injection of potentially infectious fluids may be performed only with needle-locking syringes or disposable syringe-needle units. A procedure for the prompt reporting of needle-stick incidents must be established and followed.

### Biosafety Manual

A biosafety manual must be prepared and adopted. Operating personnel must read and follow the procedures and practices outlined in the biosafety manual's instructions.

### Biosafety Cabinets

No work involving potentially infectious materials may be performed in open vessels or on bench tops. Instead, they must be conducted in biological safety cabinets or other physical containment devices such as glove boxes that are located within the containment area. In addition, biosafety cabinets must be certified under three (3) conditions: (1) when first installed, (2) whenever they are moved, and (3) at least annually.

In addition to all of the requirements related above, an additional precautionary tier is placed on facilities involved in industrial-scale, large-volume production of HIV and HBV or high-concentration production of HIV or HBV.

### Summary

Worker exposure to bloodborne diseases can be minimized through:

- Training and education programs
- Use of personal protective equipment such as gloves, gowns, face masks and eye protection
- Work practices such as thorough hand washing after each patient contact
- Proper handling of sharps
- Engineering controls such as biological safety cabinets and puncture-resistant sharps containers
- Immunization programs
- Proper disposal of contaminated waste
- Use of disinfectants
- Labeling and warning signs

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OSHA Stiffens Bloodborne Rules, Decrees Free Hepatitis B Vaccine - Washington, DC.

The availability of free hepatitis B vaccine for RN's was one of the issues that's held up government action for five years on measures to protect patients and healthcare workers.

The issue was settled at last in December as the Occupational Safety & Health Administration produced a "standard" on bloodborne pathogens that makes universal precautions mandatory in all healthcare settings. The new rules also order employers to offer the HBV vaccine, free of charge, to every employee who can be "reasonably anticipated" to have "skin, eye, mucous membrane or parenteral contact with blood or other potentially infectious materials."

"The greatest bloodborne risk workers face is the HBV virus," said Assistant Labor Secretary Gerard Scannell. He estimated that occupational exposures alone account for 5,900 to 7,400 cases of HBV infection every year.

Scannell's stressed that the new regulations have put, "full legal force" behind universal precautions. "Meeting these requirements is not optional. It's essential to prevent illness, chronic infection and even death."

Scannell's point wasn't lost on the industry. The Centers for Disease Control first advised universal precautions in 1985. But CDC's guidelines aren't legally binding while OSHA has the power to levy a fine of up to \$10,000 for a "serious or willful" violation.

"And that means \$10,000 times the number of the hospital's employees," a Congressional staffer points out. "At that rate," she told AJN, "you're better off complying rather than take a chance on being caught."

The standard's specific language will also make it easier for inspector's to pinpoint violations than was possible under OSHA's vaguely worded "general-duty" clause. Up to now, fines were low and were often contested in court by employers.

Congress Demands Action. OSHA finally made its move under duress; the agency had been ordered to publish the standard by December 1st. Congress set the deadline in September, at the same time it passed legislation directing the states to adopt new CDC guidelines that call on healthcare workers to "know" their HIV status and to stop doing exposure-prone procedures if they are infected. ANA argued successfully that the OSHA standard would provide more protection than the harsh penalties then being proposed if infected practitioners don't inform patients of their status.

At the urging of ANA and labor unions, OSHA agreed back in 1987 to start enforcing the CDC's AIDS guidelines under its general-duty clause that requires employers to provide a safe workplace. A permanent rule was issued in 1989. At hearings, hospitals claimed the costs of the requirements would run far higher than OSHA's estimate. The rule-making process soon ground to a standstill.

One of the loudest outcries arose over the provision for free vaccine. The industry contended its members couldn't afford to spend \$150-\$180 to vaccinate each employee. The figures were disputed by a Congressional committee that calculated the average per-employee cost at \$100-\$120.

OSHA issued a "compliance directive", in 1987, requiring all facilities to supply the vaccine free. But hospitals objected, and the agency put out a new directive saying merely that the vaccine "shall be offered." When employee groups protested, another directive restored the no-cost provision. But the issue remained up in the air until the standard was published last month.

Waste disposal was another focus of debate over early drafts; hospitals contended that OSHA's definition of "regulated waste" was so broad that inspectors could interpret it to demand special treatment for almost all waste; a Band-Aid with a drop of blood on it was the example often used.

"We've made it clear that's not what we meant," OSHA official Susan Harwood said. "What is meant is liquid or semi-liquid blood or other potentially infectious materials; or contaminated items – like bandages – that would release blood if compressed; or items caked with dried blood that could flake off. Contaminated sharps, and pathological and microbiological wastes containing blood, would also be among the materials that require special bagging and color-coding."

House Committee Will Monitor. At press time, a member of the House Government Operations Committee was "very pleased" that OSHA had stood by its positions on free vaccine and universal, instead of patient-specific, precautions as well as an inclusion of housekeeping and laundry workers under the standard.

"Now we will be waiting anxiously to see what proportion of its resources OSHA targets to this effort," she said. "We're going to be following up at hearings on such questions as the rate of compliance on vaccinations."

Industry leaders estimate that the impact will be sharpest in smaller hospitals, nursing homes and office practices that typically aren't offering free vaccine and don't have employee health services to provide post exposure evaluation and follow-up. Nurses in those settings, they point out, are most likely to be unaware of OSHA's rules and of their right to complain to the agency about violations.

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The major issue raised at press time was the combination of requirements that practitioners wear gloves in performing phlebotomy – unless they work in volunteer blood donation centers that don't require routine gloving – and never wash, decontaminate or re-use disposable gloves.

Said one infection-control expert: “The CDC guidelines left more to the practitioner’s discretion. I’ll be hard pressed to tell people with 20 years’ experience, who never get a stick or blood on their hands, that they have to wear gloves. And in out-patient settings with a high volume of blood-drawing, that rule will increase costs tremendously.”

### Regs Put New Legal Force Behind Universal Precautions

OSHA’s new standard makes universal precautions fully enforceable, for the first time, and spells out what inspectors will look for hereafter. RNs should be aware of how the rules are observed in their own workplaces.

### Hepatitis B Vaccine

Besides being free, the vaccine must be offered “at a reasonable time and place” and “within 10 working days of initial assignment.” Employees who decline must sign a statement and can take the vaccine at a later date if they change their minds.

### Universal Precautions

It’s now a legal requirement to observe this concept, in which “all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV and other bloodborne pathogens.”

**An Exposure Control Plan:** A written plan of compliance must be available to employees and updated annually.

### Determining “Exposure”

An employer has to compile a list of all job classifications in which all employees have occupational exposure. Also required: a list of all job classes in which some employees have exposure and a list of all tasks and procedures in which exposure occurs.

### Engineering and Work Practice Controls

The standard stresses the employer’s responsibility to see that staff washes their hands after removing gloves or contacting blood. Strictly prohibited wherever there’s a likelihood of exposure is any eating, drinking, smoking, applying cosmetics or lip balm, handling contact lenses or storage of food and drink.

Contaminated sharps can’t be sheared, broken, bent, recapped or removed unless “no alternative is available.” In such cases, a mechanical device or one-handed technique must be used to recap or remove needles.

### Sharps and Waste Disposal

Reusable contaminated sharps have to be placed in puncture-resistant, leak proof and labeled or color-coded containers that are “easily accessible...maintained up-right [and] replaced routinely.” Like specimens of blood and other potentially infectious materials, sharps must be discarded in leak proof and labeled or color-coded containers for transport or shipping.

### Protective Equipment

The whole range of equipment must be available wherever blood or other infectious materials might reach an employee’s work clothes, skin, eyes, mouth or other mucous membranes.

### Gloves

Gloves must be worn for phlebotomy when hand contact with infectious materials can be “reasonably anticipated.” Disposable gloves cannot be washed or decontaminated for re-use. Utility gloves must be discarded if cracked, peeling, torn or punctured. Hypoallergenic gloves must be provided to those allergic to other gloves.

### Housekeeping

A written schedule for cleaning and method of decontamination is required. All contaminated surfaces must be cleaned “immediately or as soon as feasible.” Protective coverings must be replaced if “overtly contaminated.” All bins, pails, cans and reusable receptacles must be decontaminated regularly. Sharps must be stored so that employees don’t reach by hand into the container. Broken glassware can’t be picked up with the hands.

### Laundry

Contaminated laundry has to be handled “with a minimum of agitation” and moved in labeled or color-coded bags or containers. Wet laundry requires leak proof containers. Laundry workers must wear gloves.

### Post-Exposure Evaluation

Any employee exposed must have an immediate and confidential medical evaluation and blood test, unless he or she declines. Follow-up must include counseling and evaluation of illness.

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### Communicating Hazards

Orange-red or fluorescent orange warning labels must be affixed to containers of “regulated” waste, refrigerators and freezers containing infectious materials, and containers used to transport them. Labels must include the official BIOHAZARD legend.

### Training

The regulatory text must be made available and an educational program has to be provided, and repeated annually, for every employee who might be exposed.

Training must include an explanation of the epidemiology of bloodborne diseases and their modes of transmission, the employer’s exposure-control plan, the actions to take in emergency and the procedures for post-evaluation and follow-up.

The curriculum also has to cover methods to reduce exposure, the types of protective equipment and the basis for selecting them. Employees have to be informed about “the benefits of being vaccinated” and must have the chance to ask questions.

[The text of the standard (free of charge for one copy) is available from OSHA Publications, Room N 3101, 200 Constitution Avenue NW, Washington, DC 20210.]

### In OSHA’s Own Words

Excerpts from OSHA 29 Code of Federal Regulations, Subsection 1910.1030. Bloodborne Pathogens:

### Methods of Compliance

1. Universal 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. Personal Protective Equipment.
  - (i) When there is occupational exposure, the employer shall provide, at no cost to the employee, appropriate personal protective equipment such as gloves, gowns, laboratory coats, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices.
  - (iii) The employer shall ensure that appropriate personal protective equipment in the appropriate sizes is readily accessible at the workplace 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.

### Hepatitis B Vaccination & Post-Exposure Evaluation

1. The employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure.
  - (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 are:
    - (A) Made available at no cost to the employee;
    - (B) Made available to employee at a reasonable time and place
2. 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:
  - (iii) Collection and testing of blood for HBV and HIV
    - (A) The exposed employee’s blood shall be collected as soon as feasible and tested after consent is obtained.
    - (B) If the employee does not give consent at that time for HIV serologic testing, the sample shall be preserved for at least ninety (90) days.
  - (iv) Post-exposure prophylaxis...as recommended by the U.S. Public Health Service.