

# **A Guide to Bloodborne Pathogens in the Workplace**

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**This guide is intended to be consistent with all existing OSHA standards; therefore, if an area is considered by the reader to be inconsistent with a standard, then the OSHA standard should be followed.**

**To obtain additional copies of this book, or if you have questions about North Carolina occupational safety and health standards or rules, please contact:**

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Additional sources of information are listed on the inside back cover of this book.

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# Foreword

As never before, medical and emergency workers have to worry about bloodborne diseases as they carry out their vital day-to-day duties. Even workers who only render first aid as a minor part of their jobs, in emergencies, are at risk.

AIDS, hepatitis B, hepatitis C and other bloodborne diseases are the result of infections by disease-causing microorganisms called pathogens. This guide explains many actions employers and employees should take to make their workplaces safer. It also explains what actions employers and employees are required by law to take to comply with the Bloodborne Pathogens Standard.

In North Carolina, DOL inspectors enforce the federal Occupational Safety and Health Act through a state plan approved by the U.S. Department of Labor. The N.C. Department of Labor's Division of Occupational Safety and Health offers many educational programs to the public and produces publications, including this guide, to help inform people about their rights and responsibilities regarding occupational safety and health.

As you look through this guide, please remember DOL's mission is greater than enforcement. An equally important goal is to help citizens find ways to create safe workplaces. Everyone profits when managers and employees work together for safety. This booklet, like the other educational materials produced by the N.C. Department of Labor, can help.

Reading and understanding *A Guide to Bloodborne Pathogens in the Workplace* will help you form a sound occupational safety and health policy where you work.

Cherie K. Berry  
Commissioner of Labor

# Introduction

In late 1991, the federal government enacted a new standard that sets requirements for employers with employees who are at risk of being exposed to blood and human body fluids. The Bloodborne Pathogens Standard was a response to the growing danger posed by two particular bloodborne diseases: human immunodeficiency virus (HIV) with its related disease of Acquired Immunodeficiency Syndrome (AIDS) and the hepatitis B virus (HBV), which can cause serious and life-threatening illness.

The HIV/AIDS epidemic has been well documented in the media. The problems associated with HBV infection, and more recently hepatitis C virus (HCV), are less well known but can result in life-long health problems and carrier status for the infected individual. Workers who may be directed exposed to blood and other certain body fluids should be aware of methods employed to lessen the danger of exposure. Employers in the health care industry, and in all other industries as well, should be aware of the standard's requirements.

This industry guide follows the organization of the Bloodborne Pathogens Standard. Beginning in part 2, each part of the guide corresponds to a section of the standard. In addition, information has been added from OSHA Instruction CPL 2-2.69, "Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens Standard, 29 CFR 1910.1030," dated November 27, 2001, which reflects changes to the standard mandated by the Needlestick Safety and Prevention Act.

Finally, this guide is intended to be consistent with federal and state OSHA standards; however, if an area is considered by the reader to be inconsistent with a standard, then the standard should be followed.

## **Bloodborne pathogens**

### ***HIV and AIDS***

Acquired Immunodeficiency Syndrome (AIDS) is a bloodborne and sexually transmitted disease in which the retrovirus known as the human immunodeficiency virus (HIV) invades the body. HIV damages the immune system and allows other infectious agents to invade the body and cause disease. It may take several years for an HIV infection to result in the disease AIDS. It is still unknown whether an HIV infection always leads to AIDS.

HIV is spread through body fluids, primarily blood, semen and vaginal fluids. A list of other potentially infectious materials (sometimes referred to as OPIM) is provided in the discussion section of the standard. HIV is transmitted by sexual contact, by needle sharing, and through contaminated blood or blood products. An HIV-infected woman can pass the virus to her fetus. It is not transmitted by casual contact, by touching or shaking hands, by eating food prepared by a person infected with HIV, or from drinking fountains, telephones, toilets or other surfaces. It is not transmitted by insects or through air or water.

The occupational risk of being infected with HIV in health care settings is low and is most often associated with the transfer of blood from a patient with HIV infection, primarily through needlestick injuries. Available evidence indicates that the risk of HIV infection following a needlestick exposure to the blood of an HIV infected patient is less than 0.5 percent.

To date, no vaccine is available to prevent AIDS. No antiviral drugs are available to cure AIDS. Some drugs, however, have been found to inhibit the action of the virus, and others are able to fight certain opportunistic infections. Research to develop antiviral drugs and vaccines continues to receive high priority. Prevention, however, is currently the only approach to control the virus.

### ***Hepatitis viruses***

Hepatitis is a disease characterized by inflammation of the liver. There are several types of viral hepatitis, known as A, B, C, D and E. Hepatitis A and E are spread by fecal contamination and are not considered to pose a significant health risk, nor are they “bloodborne pathogens.” The other hepatitis viruses listed are bloodborne, and both hepatitis B virus (HBV) and hepatitis C virus (HCV) present the greatest risk to workers in the health care industry.

HBV is not transmitted by casual contact. The occupational risk of HBV infection directly relates to the extent of worker contact with infected blood or other potentially infectious materials. The risk of HBV infection in health care settings exceeds that for HIV infection.

It is estimated that the risk of acquiring HBV infection following puncture with a needle contaminated by blood from an HBV carrier ranges from 6 percent to 30 percent—far higher than the risk of HIV infection under similar circumstances. This is in part because of the higher concentration of the hepatitis B virus in the blood.

When symptoms occur, they are usually flu-like and include fatigue, mild fever, muscle and joint aches, nausea, vomiting, abdominal pain, diarrhea, and jaundice. Severe infection may be fatal. Chronic carriers of HBV may develop a chronic hepatitis that may progress to cirrhosis or liver cancer and may be fatal. Carriers remain infectious to others.

An effective vaccine exists to prevent hepatitis B infections. This vaccine must be made available to all workers determined to be at risk of exposure under the Bloodborne Pathogens Standard and must be provided at no cost to these employees.

Hepatitis C virus (HCV) is the most common chronic bloodborne infection in the United States. Eighty percent of people infected with HCV have no signs or symptoms. Infected persons serve as a source of

transmission to others and are at risk for chronic liver disease or other HCV-related chronic diseases during the first two or more decades following initial infection. Unlike hepatitis B virus, there is currently no vaccine to protect against becoming infected with HCV.

### ***Other pathogens covered by the standard***

Other bloodborne pathogens are covered by the standard. Some of these are infectious diseases that are characterized by a phase in which the virus or bacteria causing the disease may circulate in the blood for a prolonged period. They are therefore capable of being transmitted through blood or other potentially infectious materials. With the exception of syphilis and malaria, they are rare in the United States. The following is a list of some other bloodborne pathogens that are also covered by the standard:

1. Syphilis
2. Malaria
3. Babesiosis
4. Brucellosis
5. Leptospirosis
6. Arboviral infections (especially Colorado tick fever)
7. Relapsing fever
8. Creutzfeld-Jakob disease
9. Human T-lymphotropic Virus Type I
10. Viral hemorrhagic fever

By following the requirements of the standard, occupational exposure to these bloodborne pathogens should also be greatly reduced or eliminated.

## 2

# The Bloodborne Pathogens Standard (29 CFR 1910.1030)

### ***When did the standard take effect?***

The Bloodborne Pathogens Standard was promulgated by federal OSHA on Dec. 6, 1991, and amended to correct several errors on July 1, 1992. All of the provisions of the standard became fully effective on July 7, 1992.

The standard was further amended on Jan. 18, 2001, to add revisions to protect employees from becoming infected due to injuries with contaminated needles and other contaminated sharps. These revisions became effective in North Carolina on Oct. 18, 2001.

### ***Who is covered?***

Any employee who has occupational exposure to blood or other potentially infectious materials is included within the scope of the standard. The standard affects employees in many types of employment and is not restricted to the health care industry. At the same time, employees are not automatically covered unless they have occupational exposure. The standard applies to both private employers and state and local governmental agencies in North Carolina.

The list below includes a number of job classifications that may have occupational exposure to blood and other potentially infectious materials. The standard is in no way limited to employees in these jobs, and employees in these jobs are not automatically covered unless they have occupational exposure.

- Physicians, physician's assistants, nurses, nurse practitioners and other health care employees in hospitals, clinics and physicians' offices.
- Employees of clinical and diagnostic laboratories.
- Personnel in hospital laundries or in commercial laundries who do laundry for health care or public safety institutions.
- Tissue bank personnel.
- Employees in blood banks and plasma centers who collect, transport and test blood.
- Freestanding clinic employees. Examples of such clinics include hemodialysis clinics, urgent care clinics, health maintenance organization clinics and family planning clinics.
- Employees in clinics in industrial, education and correctional facilities. For example, those who collect blood, or clean and dress wounds.
- Dentists, dental hygienists, dental assistants and dental laboratory technicians.
- Staff of institutions for the developmentally disabled.
- Hospice employees; home health care workers.
- Staff of nursing homes and long-term care facilities.
- Employees of funeral homes and mortuaries.
- HIV and HBV research laboratory and production facility workers.
- Employees handling regulated waste.
- Employees who service and repair medical equipment.
- Emergency medical technicians, paramedics and other emergency medical service providers.

- Firefighters, law enforcement personnel and correctional officers, including those working in the private sector and in federal, state or local government.
- Lifeguards and camp counselors.

In addition, the following categories of employees are covered:

- Part-time, temporary and health care workers known as “per diem” employees.
- Employees trained in first aid and CPR and designated by the employer as responsible for rendering medical assistance as part of their job duties.

*The construction industry is also covered by this standard in North Carolina. However, occupational exposure for the construction industry is limited to job duties that require workers to administer first aid and/or CPR when necessary.*

What is the definition of other potentially infectious materials?

The other potentially infectious materials included in the standard are the following:

1. These 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 visibly contaminated with blood
  - 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 living or dead human being.
3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture media or other solutions; and blood, organs or other tissues from experimental animals infected with HIV or HBV.

### ***How is the determination of coverage made?***

Employees with occupational exposure as defined in the standard are covered by the standard. This determination is made by the employer and documented in the employer’s exposure control plan. Occupational exposure is defined as reasonably anticipated skin, eye, mucous membrane or parenteral (through the skin) contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties. Note that there is no standard of frequency of exposure—any reasonable expectation that an employee will be exposed invokes the standard.

### ***What is included in the standard?***

The standard includes the following sections (with reference to applicable sections in this publication):

1. Scope and application of the standard: A general statement of coverage (part 2).
2. Definitions: Definitions of pertinent terms used in the standard (glossary).

3. Exposure control: The requirements of the exposure control plan (part 3).
4. Methods of compliance: Includes all requirements to meet the standard (part 4).
5. HIV and HBV research laboratories and production facilities: Special requirements for these facilities (refer to the standard for specific requirements).
6. Hepatitis B vaccination and post-exposure evaluation and follow-up: Requirements for those portions of the standard that a physician or other licensed health care professional oversees, which must be provided at no cost to an employee (part 5).
7. Communication of hazards to employees: Includes mandatory labels and signs, and information and training requirements (part 6).
8. Recordkeeping: This section outlines all recordkeeping requirements, including medical records, training records and storage requirements (see part 7).
9. Declination form: Appendix A of the standard is a form that must be signed by any employee electing not to receive the hepatitis B vaccine.

### ***What is a performance-oriented standard?***

The Bloodborne Pathogens Standard has been described as a “performance-oriented standard.” This means that the employer determines which employees are covered and what methods of implementation are used, but the methods must comply with the standard and must be adequate to ensure protection of the workers against bloodborne pathogens. No one method is correct or incorrect, but the employer must be able to show that the particular work practice, personal protective equipment or engineering (work) control protects the employee.

### ***HIV and HBV research laboratories and production facilities***

Research laboratories and production facilities working with the HIV and HBV viruses are required to meet more stringent regulations with regards to regulated waste, access to the work area, working in biological safety cabinets, personal protective equipment, handwashing and housekeeping.

### ***Frequently asked questions and answers on the standard***

#### **Coverage**

**Q:** In a small medical or dental office, is the doctor or dentist owner also covered by the standard?

**A:** The doctor or dentist owner is not covered by the standard unless the practice is a professional association or is incorporated. In this case the doctor or dentist is considered to be an employee of the corporation and is covered. Doctors may be required to comply with the standard as employees of the hospital with which they are affiliated, depending on the interpretation by the hospital of this professional affiliation.

**Q:** Are employees in rest homes and other non-nursing facilities covered by the standard?

**A:** Each employer must decide, by analyzing what each employee does, whether that employee (or category of employees) has the opportunity for occupational exposure to blood or other potentially infectious materials. If they do, then they are covered. The type of business is not the deciding factor. The potential for occupational exposure is what determines whether an employee is covered or not, no matter what the business is. Persons with first aid responsibilities designated by the employer are covered by the standard.

**Q:** Would a psychiatrist’s office be covered under the standard?

**A:** Only if injections are given or procedures used that might result in contact with blood or other potentially infectious materials. The employee who gives the injections in such cases would be covered. If the person is the employer, and the business is not incorporated, it would not be covered.

**Q:** What if the employer decides that an employee does not have the potential for exposure to blood or other potentially infectious materials, but during an OSH compliance inspection the inspector states that he or she feels that there is a reasonable probability for exposure? The standard is so vague about who is covered, should I just cover everyone?

**A:** You should try to be inclusive about employees who do have a reasonable probability for exposure. If in the employer's best judgment the employee will not be exposed, the reasons for that decision should be documented.

**Q:** Are employees who work at wastewater treatment plants or sanitary sewer facilities covered by the standard?

**A:** Employees of these facilities would not be covered in most cases unless they are required to perform CPR or first aid. However, employees who work at plants directly associated with hospitals (a hospital's waste water pre-treatment facility for example) would be at a higher than normal risk of exposure to blood and other potentially infectious materials than other wastewater and sanitary sewer workers.

### **Other potentially infectious materials**

**Q:** Urine and feces are not listed in the list of other potentially infectious materials. Are they covered by the standard?

**A:** They are not included in coverage by the standard unless they are visibly contaminated with blood. Employees are not required to wear personal protective equipment when changing beds or emptying bed pans that are soiled with urine or feces or while doing laboratory tests on urine or feces. While most employees will wish to wear gloves in such situations, it is not required by the standard unless there is visible blood or in a situation where it is impossible to determine whether there is blood, for example in emergency situations where lighting is inadequate.

**Q:** Why is saliva in dental procedures included in the list of other potentially infectious materials?

**A:** There is a great potential for blood being included in the saliva during dental procedures. There is no known occurrence of HIV infection being transmitted from one person to another through saliva, but it is felt that the potential for such transmission is greater if there is blood present in the saliva.

# 3

## Exposure control plan

### ***Who must have an exposure control plan?***

Any employer with employees covered by the standard must have a written exposure control plan. This includes all employers with employees who may have occupational exposure to blood. It should be noted that plans are required of employers with two categories of employees other than those most readily identifiable: 1. part-time, temporary and per diem employees in the health care industry and 2. employees trained in first aid/CPR and designated to respond to emergencies in any place of employment.

### ***What must the exposure control plan include?***

The exposure control plan must include a determination of which employees are covered using 1. a list of all job classification in which all employees have occupational exposure to blood or other potentially infectious materials and 2. a list of job classifications in which only some of the employees have occupational exposure. The job classifications in which only some of the employees have exposure must then be analyzed. Those tasks and procedures in which occupational exposure occurs must be identified, and the employees performing those tasks, and therefore covered by the plan, identified. However, it is not necessary to list individual employee names.

The exposure determination must be made without regard to the use of personal protective equipment (as though it were not being used). An exposure control plan is required of all employers with employees covered by the standard. In addition to the determination of covered employees outlined above, it must include at least the following elements:

1. The schedule and methods of implementation for all elements of the standard that pertain to the employer.
2. The procedure for the evaluation of circumstances surrounding exposure incidents, as required by the standard.

The standard requires the employer to review and update the exposure control plan annually and more frequently when necessary to reflect new or modified tasks that affect occupational exposure as well as to reflect new or revised employee positions with occupational exposure. An important part of this review is the consideration and evaluation of engineering controls, such as commercially available safer needle devices and needleless systems, which eliminate or reduce employee exposure to percutaneous injury with contaminated devices.

To accomplish this, the employer must solicit input from non-managerial employees in the evaluation, selection and use of new commercially available devices. The non-management employees chosen must be from among those who are responsible for direct patient care.

A copy of the standard with notes detailing the schedule and method of implementation of the standard in that particular workplace may be adequate for small facilities. Larger facilities may wish to incorporate the exposure control plan as one portion of the infection control plan or may otherwise develop a facility-wide program. Model exposure control plans, which can be adapted to individual company needs, can be obtained either through the Bureau of Education, Training and Technical Assistance, OSHNC, N.C. Department of Labor, or through the federal OSHA Internet site at <http://www.osha.gov>.

Other model exposure control plans may be obtained from the N.C. Medical Society, the N.C. Hospital Association, the N.C. Dental Society and their national affiliates and from the N.C. Department of Health and Human Services, Division of Epidemiology, HIV/STD Prevention and Care Branch. Other state or national associations with ties to the health care industry may also have model exposure control plans. Employers with membership in such organizations may wish to check with them.

## ***Questions and answers on exposure control plans***

**Q:** Do employers with fewer than 10 employees need to have an exposure control plan?

**A:** Yes. The standard does not exempt any employer because of the number of employees. All employers with any employees who may have occupational exposure to blood or other potentially infectious materials need an exposure control plan. Small employers are allowed to just write in how they will comply with the standard on the margins of the standard.

**Q:** How can one reach the HIV/STD Prevention and Care Branch, Division of Epidemiology, N.C. Department of Health and Human Services?

**A:** Contact the HIV/STD Prevention and Care Branch at the Cooper Building, 225 N. McDowell St., Raleigh, NC 27603-5902. Telephone: (919) 733-7301.

**Q:** Is there someone who can help to explain the standard and how it applies to a particular employer?

**A:** The OSHNC Bureau of Consultative Services has health consultants who can assist employers with exposure control plans and with specific requirements of the standard. They are required by federal OSHA to give priority to small employers and those in high hazard establishments. In addition, the OSHNC Bureau of Education, Training and Technical Assistance can provide immediate assistance by phone, facsimile transmission or electronic mail to assist employers in understanding the requirements of the standard. Refer to the inside back cover of this guide for addresses and phone numbers.

# 4

## Methods of compliance

### ***Universal precautions***

Universal precautions, as outlined and defined by the Centers for Disease Control and Prevention (CDC), are to be used to prevent contact with blood or other potentially infectious materials. The term “universal precautions” refers to a method of bloodborne disease control that requires all human blood and other potentially infectious materials be treated as if known to be infectious HIV, HBV or other bloodborne pathogens regardless of the perceived “low risk” of a patient or patient population.

Another method of infection control is called “body substance isolation” (BSI) or “standard precautions.” This method defines all body fluids and substances as infectious. BSI incorporates not only the fluids and materials covered by this standard but expands coverage to include *all* body fluids and substances. It is an acceptable alternative to universal precautions provided that all other portions of the standard are also followed.

### ***Engineering and work practice controls***

The standard requires the employer to use engineering and work practice controls as the primary means of eliminating or minimizing employee exposure. *Engineering controls* reduce employee exposure in the workplace either by removing or isolating the hazard or by isolating the worker from exposure. *Work practice controls* alter the manner in which a task is performed to make the task safer. When occupational exposure remains after using these controls, the employer must provide, and be sure that employees use, personal protective equipment as additional protection.

Some examples of engineering controls that may be used to reduce exposure to blood or other potentially infectious materials include self-sheathing needles, puncture-resistant containers for the disposal of contaminated sharps, and resuscitation bags and ventilation devices. Examples of work practice controls include prohibiting recapping, removing or bending needles unless no alternative exists; enforcing hand washing procedures following the removal of gloves; restricting eating and drinking in work areas; and decontaminating equipment before servicing.

This standard recognizes the need to implement certain work practices in order to make effective use of the engineering controls. Therefore, both of these methods of control are to be considered equally important for purposes of this standard, and they are considered together here.

### ***Handwashing facilities and requirements***

Handwashing facilities must be readily accessible to employees. Handwashing with soap and at least tepid (lukewarm) running water must be performed as soon as feasible to flush contaminated material from the skin adequately. The employer must ensure that handwashing is routinely performed immediately following removal of gloves and other personal protective equipment that have become contaminated. Employers must make handwashing facilities available at a reasonable distance from a work area where exposure may occur. Contamination of surfaces is more likely when employees must travel long distances, through doorways and through stairs to reach handwashing facilities and is therefore not permitted by the standard.

When handwashing facilities cannot be made available, such as to emergency personnel at accident sites, antiseptic hand cleaners or antiseptic towelettes must be provided. As soon as possible, the employee must wash his or her hands or other contaminated skin with running water and soap.

## ***Handling needles and sharps***

Devices exist to provide an alternative to the use of needles for some procedures. Examples of such devices include stopcocks (on-off switches), needle-protected systems or needleless systems to connect intravenous lines, and self-sheathing needles. Needles may be recapped only in very limited situations.

When a procedure requires that the needle be recapped, the employee must use some type of device that protects the hand or allows a safe one-handed recapping method. Finger or hand shields may be used but must be constructed so that the employee is not exposed to a needle protruding from the side or end of the cap. Forceps may also be used, but a one-handed method is required. Shearing or breaking contaminated needles is never permitted.

Disposable sharps must be disposed of as close as possible to where the sharps are used in containers that are kept upright and are routinely replaced to prevent overfilling. Containers must meet four criteria: constructed of puncture-resistant material, closable, leakproof on the sides and bottom, and labeled or color-coded in accordance with the standard. When moving sharps from the area of use, the container must be closed to prevent leakage and placed in a second leakproof container if leakage is possible.

Reusable sharps, such as large bore-needles, scalpels and saws, must be placed in containers that are puncture-resistant, labeled or color-coded as required, and leakproof on the sides and bottom. Employees are prohibited from putting their hands into containers that hold contaminated sharps. If reusable sharps must be cleaned to allow complete decontamination, work practices must be adopted that eliminate the possibility of injury.

## ***Surface contamination***

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where exposure can occur. Use of hand cream is permitted if hands are washed thoroughly before use. Care must be taken, however, as some petroleum-based hand creams react with rubber gloves to reduce the barrier protection of the gloves.

If the clothing of an emergency vehicle's driver becomes contaminated, it should be removed and properly bagged. Procedures must be developed to ensure that the cab of the vehicle does not become contaminated. If it does become contaminated, decontamination should occur as soon as feasible. The term "work area" has been defined to exclude the cab of an ambulance if the workers wash up and change clothing before entering the cab and if the cab has a separation so that contaminated materials remain in the rear of the ambulance.

Food and drink are not permitted to be stored in areas such as countertops or benchtops where contamination may take place, nor in refrigerators, freezers, shelves or cabinets where blood or other potentially infectious materials are present.

## ***Droplet spread***

The standard requires that procedures involving blood or other potentially infectious materials be performed in such a manner as to minimize splashing, spraying, spattering and generating of droplets. This will not only decrease the chances of direct employee exposure but will also reduce contamination of surfaces in the work area. When aerosolization of blood or other potentially infectious materials is likely, eye protection and a mask or face shield should be worn. Cleaning procedures should be developed to minimize droplet spread.

## ***Mouth pipetting and suctioning***

Mouth pipetting and suctioning are prohibited by the standard. One exception is made for the emergency procedure used to clear an infant's airway called "DeLee Suctioning" but only if a trap is used to prevent suctioned material from reaching the employee's mouth.

## ***Containerization and labeling of specimens***

Specimens of blood or other potentially infectious materials, including extracted teeth, must be placed in containers that prevent leakage during collection, handling, processing, storage, transport and shipping. This provision is performance oriented and permits some latitude in the selection of containers based upon the type of specimen and the handling that it is anticipated to undergo. This standard does not prohibit the employer (e.g., dentist, oral surgeon or doctor) from giving specimens (extracted teeth, for example) directly to patients. Such specimens do not have to be labeled because, once removed by the patient, they are no longer a source of exposure to blood and other potentially infectious materials.

The container for storage, transport and shipping must be labeled or color-coded in accordance with the standard and must be closed before being stored, transported or shipped. Secondary containers are required if the primary container is likely to be contaminated on its outside surface or if it is reasonably anticipated that the primary container may not be able to prevent leakage. When the specimen may puncture the container, bone fragments for example, a puncture-resistant container must be used.

Pneumatic tube systems used in hospitals and other large facilities for transport of small materials and specimens are of special concern. Proper packaging in leakproof and padded containers is essential. All employees who might potentially open such a carrier should be trained to regard the contents as bio-hazardous and to use proper procedures in opening, removing and decontaminating the carriers.

One exception exists for the labeling/color-coding requirements. This is for facilities that consider *all* specimens to be contaminated and which train all employees to use universal precautions in handling all specimens. However, if the specimen is to leave the facility, it must be labeled and/or color-coded as required by the standard.

## ***Decontamination of equipment to be serviced***

The standard requires that equipment that may become contaminated with blood or other potentially infectious materials be examined before servicing or shipping and be decontaminated as necessary. If the employer can demonstrate that decontamination of such equipment or portions of such equipment is not feasible, then the equipment must be labeled before servicing or shipping.

## ***Personal protective equipment***

When occupational exposure continues after engineering and work practice controls have been instituted, personal protective equipment (PPE) must be used. The PPE must prevent blood or other potentially infectious materials from passing through to or contacting the employees' work or street clothes, undergarments, skin, eyes, mouth, or other mucous membranes. This barrier must remain intact under normal conditions of use and for the entire time it is being used. The employer must provide appropriate PPE at no cost to the employee. PPE must be cleaned, laundered, disposed of, repaired and replaced at no cost to the employee.

PPE must be provided in appropriate sizes and accessible locations. Training must be given as to what personal protective equipment to use, where it is kept, and how it is properly used.

A very limited exception to the use of PPE is provided for by the standard in situations where the employee believes that the use of PPE would prevent the proper delivery of health care or public safety services or would pose an increased hazard to the personal safety of the employee. The decision must be made by the employee in response to an emergency situation and must be prompted by legitimate and truly extenuating circumstances. Following an incident in which the employee uses this exception, the employer is required to investigate and document the circumstances surrounding the incident. The employer must determine if changes can be instituted that would prevent a recurrence.

### **Protective clothing**

Gowns, masks, aprons and other clothing used to protect against exposure to blood or other potentially infectious materials are considered protective equipment. Whether an item of clothing is considered personal protective equipment to be supplied by the employer depends upon its function. Lab coats or clinic

jackets may be protective equipment in some situations, depending on the task and the degree of exposure anticipated. The employer is required to evaluate the task and the type of exposure expected and, based on the determination, select the appropriate personal protective clothing. This determination must be communicated to the employee, and the employee must be trained in selection and proper use.

Clothing considered to be PPE and supplied by the employer must be removed before leaving the work area. It must be placed in an appropriately designated area or container for storage, washing, decontamination or disposal. The employer is responsible for laundry and maintenance or disposal of protective clothing. Under no circumstances is the employee to take contaminated personal protective equipment home.

Protective clothing and other contaminated clothing must be removed immediately upon penetration by blood or other potentially infectious materials, or as soon as feasible if it cannot be removed immediately. If blood or other potentially infectious materials penetrate the PPE, the employee must be required to wash the exposed area with soap and at least tepid water as soon as the protective clothing is removed.

Surgical caps or hoods and/or shoe covers or boots must be worn in instances when gross contamination can reasonable be anticipated.

### **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 must 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.

### **Gloves**

At a minimum, gloves must be used where there is a reasonable anticipation of employee hand contact with blood, other potentially infectious materials, mucous membranes or non-intact skin; when performing vascular access procedures; or when handling or touching contaminated surfaces of items. A limited exception is made for employees who perform phlebotomies in blood collection centers where the donors are volunteers. This exception applies only to skilled phlebotomists, and gloves must be used when the health care worker has cuts, scratches or other breaks in his or her skin and in situations where the worker judges that contamination of the hand with blood may be likely.

Gloves must be provided in appropriate sizes for the workers in the location. Hypoallergenic gloves, glove liners, powderless gloves or other alternatives must be provided for employees who are allergic to the gloves normally provided. Single use gloves must be replaced as soon as possible when contaminated or as soon as feasible if they are torn, punctured or otherwise not fully protective. They may not be washed or decontaminated for reuse.

Utility gloves may be decontaminated for reuse if the gloves are in good condition and provide a complete barrier. They must be discarded when cracked, peeling, torn or punctured or when they show signs of deterioration. The employee should be trained in proper techniques of checking for punctures, tears or other damage in the utility gloves.

### **Resuscitation devices**

It is recommended that mouth-to-mouth resuscitation be minimized and used only in true emergency situations. Ventilation devices are required as PPE and must be readily accessible to employees who can reasonably be expected to resuscitate patients. The type of resuscitation device is not specified and should be chosen by the employer to be appropriate and protective in the situations normally encountered by the employees.

## ***Housekeeping***

### **Cleaning schedules and methods**

The standard requires employers to ensure that the worksite is maintained in a clean and sanitary condition. An appropriate written schedule for cleaning and a method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks and procedures

must be implemented. The term “worksites” not only refers to permanent fixed facilities but also covers temporary, non-fixed worksites such as ambulances, bloodmobiles and temporary blood collection centers.

A solution of household bleach (containing 5 percent sodium hypochlorite) diluted with water to a concentration of 1:10 to 1:100 is an effective disinfectant against HBV and HIV. However, it may be corrosive to some equipment and environmental surfaces and therefore may not be an appropriate choice for all situations.

A list of EPA-registered disinfectants is available through the National Antimicrobial Information Network. It lists registered sterilants (List A, representing the highest level of antimicrobial activity, which destroys all viruses), tuberculocidal disinfectants (List B, effective against tuberculosis bacteria and the specific viruses named on the product label as well as the hepatitis B virus), and quaternary ammonium compounds effective against HBV and HIV (List D). In addition, this list includes antimicrobial products with HIV efficacy claims (List C). However, not all products included on this list are effective against HBV and should be compared against List B and List D to determine whether a specific product is an appropriate disinfectant to use. In addition, sterilants and high-level disinfectants cleared by the Food and Drug Administration can be used.

### **Work surfaces**

The CDC states that the HBV can survive for at least one week in dried blood on work surfaces or on contaminated needles and instruments. Therefore, contaminated work surfaces must be decontaminated with an appropriate disinfectant 1. after completion of procedures, 2. immediately or as soon as feasible when surfaces are visibly contaminated or after any spill of blood or other potentially infectious materials, and 3. at the end of the work shift if the surface may have become contaminated since the last cleaning. The appropriate disinfectant may vary depending on the surface and the extent of contamination. In laboratories, workers who perform multiple procedures are required to disinfect only at the end of the group of procedures, when there is visible contamination or when leaving the worksite.

Protective coverings used to cover equipment and surfaces must be removed and replaced as soon as feasible when they become visibly contaminated or at the end of the work shift if they may have become contaminated during the shift.

All bins, pails, cans and similar receptacles intended for reuse that have a reasonable likelihood of becoming contaminated should be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

### **Broken glassware and sharps**

The standard requires that broken glassware that may be contaminated not be picked up directly by hand. A brush and dustpan, tongs, or forceps should be used. The tools used in the cleanup must then be cleaned and decontaminated, and the broken glass placed in a sharps container.

Reusable sharps that are contaminated with blood or other potentially infectious materials must not be stored or processed in a manner that requires employees to reach by hand into the containers where they have been placed. Employers must not allow any employee to reach into a container that may contain contaminated sharps at any time. While removing gross contamination may be necessary before disinfection, a means must be devised that will allow the employee responsible to do so in a safe manner.

### ***Regulated waste***

Regulated waste for the purposes of this standard refers to the following categories of waste:

1. Liquid or semi-liquid blood or other potentially infectious materials.
2. An item contaminated with blood or other potentially infectious materials that would release these substances in a liquid or semi-liquid state if the item is compressed.
3. Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling.

4. Contaminated sharps.

5. Pathological and microbiological wastes containing blood or other potentially infectious materials.

Contaminated sharps must be discarded immediately or as soon as feasible in containers that are 1. closable, 2. puncture resistant, 3. leakproof on sides and bottom, and 4. labeled or color-coded in accordance with the standard. Self-sheathing needles and other safe needle devices are considered to be sharps and must be disposed of in a sharps container. Containers for sharps are required to be easily accessible to workers and as close as feasible to the area where they are used. They must also be available where sharps may be reasonably anticipated to be found, for example, in laundries. Containers must remain upright throughout use.

In some cases sharps containers cannot be left in the area where they are used (prison or psychiatric wards for example). In these cases sharps containers can be locked onto carts used to transport medications and taken from one area to another. Such containers must meet all the requirements for regular sharps containers.

Sharps containers are to be replaced on a schedule that is frequent enough to prevent overfilling, and the schedule must be specified in the exposure control plan. Containers of contaminated sharps must be closed before being moved and must be transported in a manner that neither will allow leakage or spillage. Duct tape may be used to secure a sharps container lid but cannot be used as a substitute for a lid. If the container is likely to leak during transport, it must be placed in a second leakproof container, which also must be closable, leakproof and labeled.

Other contaminated waste must be placed in containers that are 1. closable; 2. constructed to contain all contents and prevent leakage of fluids during handling, storage, transport, or shipping; 3. labeled in accordance with the standard; 4. closed before removal. If outside contamination of the container occurs, it must be placed in a second container that also meets the above four criteria. Contaminated waste may be held until such time as sufficient quantity is accumulated to be disposed of, but it must be stored in a container that will prevent leakage during the holding period.

Disposal of regulated waste must be in accordance with applicable regulations of the local, state and federal governments. In North Carolina the packaging, storage, treatment and disposal of medical waste is regulated by the N.C. Department of Environment and Natural Resources, Division of Solid Waste Management, under authority granted by N.C. General Statute 130A-309.26. The disposal requirements in both this statute and the bloodborne pathogens standard are compared and explained in a position paper published by the Division of Solid Waste Management, which can be accessed through the Internet at <http://wastenot.enr.state.nc.us/swhome/Mdwst.htm>.

## ***Laundry***

Contaminated laundry must be handled as little as possible at the site of contamination. It should not be sorted or rinsed before being placed in a bag or container and taken to the place where the laundry will be done. The bag or container should be labeled and color-coded according to the standard unless universal precautions are taken in handling all laundry within the facility. Alternative color-coding is acceptable under these conditions.

Laundry sent outside the premises must be labeled and color-coded unless a laundry using universal precautions is employed. If the contaminated laundry is wet and likely to soak through the usual laundry bag or container, a bag or container that prevents soak-through and/or leakage of fluids to the exterior must be used.

The employer must ensure that any employees handling contaminated laundry wear gloves and other appropriate PPE. Depending on the circumstances, gowns, aprons, eyewear and/or masks may be needed.

Contaminated laundry may not be taken home by employees to launder, but the standard does not prohibit laundry being done on site by the employer. Washers and dryers may be installed at the place of business and laundry done there, so long as the other regulations regarding storage and handling of contaminated laundry are followed.

Normal washing with laundry detergent and warm water should be sufficient to decontaminate clothing. A solution of household bleach and water (1:10 to 1:100) added to the detergent may also be used to ensure decontamination but is not required.

## ***Questions and answers on methods of control***

### **Engineering and work practice controls**

**Q:** Is there a recommended type of self-sheathing needle?

**A:** No. Many types of self-sheathing needles are made. Some may be better for some types of uses than others. The employer must solicit input from non-managerial employees regarding the selection, evaluation and use of safer medical devices (sharps with engineered sharps injury protection and needleless systems).

**Q:** How are reusable sharps to be cleaned prior to complete decontamination if the employees cannot reach into the container holding them?

**A:** Alcohol or other disinfectant can be used in the container in which they are placed to provide preliminary decontamination. Grossly contaminated items may be placed in a machine that uses sound (sonicator) to remove the debris.

**Q:** Must employees carry along ventilation devices so that they are available in any emergency?

**A:** Resuscitation/ventilation devices should be carried with some emergency personnel and should always be available in convenient locations within emergency rooms in hospitals and emergency care clinics. A means should be devised so that an emergency worker does not lose the device during a rescue attempt.

**Q:** Can food and drink be carried through an area where there are work surfaces that may be contaminated?

**A:** So long as the food and drink are not exposed to the contamination in any way, merely walking through such a room to get to a clean room where they will be consumed is not a problem.

### **Personal protective equipment**

**Q:** The standard states that the exposure determination must be made without regard to the use of personal protective equipment. Does this mean that all employees must be protected without using PPE?

**A:** No. PPE must still be used in cases where engineering and work practice controls cannot entirely eliminate the chance of exposure to blood or other potentially infectious materials. All this means is that an employer cannot say an employee uses PPE and therefore is not exposed and not covered by the standard. Such an employee must be covered because without the PPE there would be exposure. This rule takes into account that even the best PPE may occasionally fail.

**Q:** A sales representative of a company manufacturing PPE visited our office and stated that her PPE is "approved by OSHA." Does this mean that we should purchase only such equipment?

**A:** OSHA does not approve or endorse any product, including PPE. In choosing PPE the employer must determine whether or not it will fulfill the requirements for that particular item. For example, is a bag that must hold contaminated waste really leakproof? Despite any sales pressure, it may be best to compare quality and prices of several lines of a given item before deciding.

**Q:** Is a traditional dental jacket considered to be PPE?

**A:** It may be considered as PPE if it is used to protect against splatters of blood. In many routine procedures, a short-sleeved jacket may provide adequate protection. In other procedures where more splattering or spraying is usual, a long-sleeved or impervious jacket may be needed. It is up to the employer to decide what PPE is adequate for which procedures.

## Housekeeping

**Q:** May an employer wash contaminated laundry on-site in a home-style washer and dryer?

**A:** So long as the employer provides a bag or container to hold the garments until they are laundered, this is an acceptable method. Any employee whose duties include laundering such articles must be provided protection with the hepatitis B vaccine, personal protective equipment and training in proper handling techniques.

**Q:** Is there a particular chemical ingredient that the disinfectant must contain in order to be effective against the hepatitis B and human immunodeficiency viruses?

**A:** No. Several disinfectants that are registered with the EPA as hospital disinfectants or tuberculocidal disinfectants contain alcohol (ethanol, isopropanol) and some phenolic compounds. The FDA also clears products for use as sterilants and high level disinfectants. However, no single ingredient makes a disinfectant effective against the hepatitis B and human immunodeficiency viruses. Ordinary household bleach, which contains 5 percent sodium hypochlorite, diluted with water 1:10 to 1:100 has been shown to be effective against these viruses.

**Q:** What about ordinary uniforms, scrub suits and other items that are not intended to be personal protective equipment, but which become contaminated with blood or other potentially infectious materials in emergency or unexpected situations?

**A:** Alternative clothing should be provided for the employee to change into as soon as feasible after contamination takes place. The employer should also be responsible for laundering all contaminated items. Some hospitals and clinics are installing washers and dryers in the facility where employees may wash such personal clothing themselves. If this is allowed, the employee should transport the contaminated clothing to the washer/dryer in a labeled bag or container and should be trained in proper methods of handling such clothing to avoid further exposure.

**Q:** What cleaning methods can be used to minimize droplet spread?

**A:** Employees should be carefully trained to contain spills by absorbing them with a paper towel or sponge before wiping the area carefully. Splashing and spraying blood or other potentially infectious materials should be avoided.

**Q:** The standard requires an “appropriate written schedule for cleaning,” decontaminating such items as bins and pails on a “regularly scheduled basis,” and emptying sharps containers on a schedule that is “frequent enough to prevent over-filling.” What do these terms mean—how often is expected?

**A:** This is one of the performance-oriented portions of the standard. Setting a time limit in the standard for these activities might mean that a large hospital would not be doing them frequently enough to protect its employees while a small medical office would be spending too much time cleaning items that had not been used. Each employer is responsible for judging how often these should be done and seeing that they are written into the job duties of an employee to be done on a schedule geared to that workplace.

**Q:** The standard also uses the term “as soon as feasible” in many places. What does this mean?

**A:** This term is used to indicate that the standard recognizes that it may not always be possible to do some of these things immediately due to circumstances in the workplace. For instance, during surgery a doctor or nurse may not be able to change clothing immediately, even though it has become saturated with blood. The term “as soon as feasible” is meant to imply that the required action must take place at the very first possible opportunity and immediately if no situation exists to delay action.

**Q:** Are used feminine hygiene products considered to be regulated waste?

**A:** OSHA does not generally consider discarded feminine hygiene products to fall within the definition of regulated waste. The intended function of products such as sanitary napkins and tampons is to absorb and retain blood. The absorbent material of which they are composed would, under most circumstances, prevent the release of liquid or semi-liquid blood or the flaking off of dried blood.

**Q:** What precautions should persons use for emptying containers for discarded feminine hygiene products?

**A:** OSHA expects the waste containers into which these products are discarded to be lined with a plastic or wax paper bag. Employers should also provide suitable gloves to employees responsible for handling the contents.

**Q:** Should the rolls used to absorb saliva during dental procedures be considered regulated waste since saliva in dental procedures is listed as one of the other potentially infectious materials?

**A:** It is the employer's responsibility to determine the existence of regulated waste. This determination is not based on actual volume of blood or other potentially infectious materials, rather on the potential to release blood or other potentially infectious materials when compacted in the waste container. If these are sufficiently absorbent and the volume of saliva small enough that it is completely contained, even when the roll is compacted, then they would not be considered regulated waste. If they do release liquid when compacted, as most would likely do, they would be regulated waste.

## **Hepatitis B vaccination and post-exposure evaluation and follow-up**

All provisions of this section are to be performed by or under the supervision of a licensed physician or other licensed health care professional. In North Carolina, only licensed physicians are allowed to conduct HIV testing, although registered nurses and physician assistants may be able to do so when working under a doctor's standing orders. If there is a question about qualifications, state licensing organizations should be consulted.

The physician or other health care professional must be provided a copy of the standard. Should an exposure incident occur, the physician must receive a description of the exposed employee's duties as they relate to the incident, documentation of the route(s) of exposure and circumstances under which the exposure occurred, results of the source individual's blood test, if available, and all medical records relevant to the appropriate treatment of the employee, including vaccination status.

### ***Hepatitis B vaccination***

The standard requires that all employees with reasonably anticipated exposure, regardless of the frequency of exposure, be offered vaccination against the hepatitis B virus. This must take place after the training described in part 6 and within 10 working days of initial assignment in a covered job description. The vaccine must be provided at no cost to the employee unless 1. the employee has previously received the complete hepatitis B vaccination series, 2. antibody testing reveals the employee is immune, or 3. medical reasons prevent taking the vaccinations.

An employee may refuse the vaccination, but if he or she does so, the employer must document the refusal by having the employee sign the declination form required by the standard. Employees who decline the vaccine must be allowed the option of having the vaccination at any time so long as they still have occupational exposure.

Vaccinations must be administered according to the current recommendations of the CDC's U.S. Public Health Service. The recommendation as of the date of printing of this guide was for a series of three shots given over a period of six months. If in the future the CDC should recommend a booster shot after some period of time, that must also be given free of charge.

In addition, the CDC now recommends post-series antibody testing for those employees who have ongoing contact with patients or blood and are at ongoing risk from percutaneous (skin piercing) injuries from contaminated sharps (contaminated needles for example). If the antibody level is not adequate, a second series of three shots should be given and antibody levels measured afterwards. The post-series titer (antibody) testing and, if necessary, a second hepatitis B vaccine series must be given to the employee free of charge.

The "at no cost" provision prohibits requiring the employee to be vaccinated on his or her own time, to repay the employer if he or she does not stay in the employ for a stated period of time, or to repay the original cost of the vaccine over a period of time while employed. Vaccination must be offered during the normally scheduled work hours. If the employee must travel away from the worksite to receive the vaccination, the employer must bear the cost. Any requirement that might in any way result in a cost to the employee is prohibited.

### ***Post-exposure evaluation and follow-up***

Following the report of any incident in which an employee has non-intact skin, eye, mouth, mucous membrane or parenteral (under the skin) contact with blood or other potentially infectious materials, the employer must provide the employee a confidential medical evaluation and follow-up. This evaluation must be conducted by a licensed health care professional. It must include the following elements:

1. Documentation of the route(s) of exposure and the circumstances under which the exposure occurred.
2. Identification and documentation of the source individual unless the employer documents that such identification is infeasible or prohibited by state or local law.

North Carolina statutes require that the source individual be tested. When the source individual is already known to be positive for HIV or HBV, the test does not need to be repeated. Results of tests are to be made available to the exposed employee, but he or she must be made aware of confidentiality requirements.

3. Collection and testing of the exposed employee's blood for HBV and HIV serological status, which means finding out if the virus is already present in the employee's blood.

Collection must take place as soon as feasible after the exposure incident to provide a baseline for diagnosis. Consent must be obtained from the employee before testing. If the employee refuses consent, the sample must be kept for at least 90 days to allow the employee to provide consent. As soon as consent is obtained, the sample must be tested. If the employee does not give consent, this should be documented.

Current CDC recommendations include testing the employee for seroconversion (i.e., evidence that the HIV is present in the blood) at six-week, 12-week, and six-month intervals if the source individual is HIV positive and if the employee's baseline test is negative.

4. Post-exposure prophylaxis, when medically indicated as recommended by the CDC.
5. Counseling: The employer must provide counseling about both the exposure incident and the medical follow-up and must also provide psychological counseling if it is recommended by the health care professional.
6. Evaluation of reported illnesses: The exposed employee should be instructed to report and seek medical evaluation for any acute illness or any illness with a fever that occurs during the follow-up period.

Following the post-exposure follow-up, the health care professional must provide the employer a written opinion, including whether the hepatitis B vaccine is indicated and whether the employee received such vaccination. An opinion of what post-exposure evaluation and follow-up is needed. The employer must obtain this report and give a copy to the employee within 15 days after the evaluation is completed.

All other findings or diagnoses must remain confidential and cannot be included in the written report. This provision of confidentiality may become a problem in small medical or dental offices where the employer serves as the health care professional for the employees. Using a physician outside the workplace is recommended in such situations.

This report must note that the employee has been informed of the results of the evaluation and that the employee has been told of any medical condition(s) resulting from exposure to blood or other potentially infectious materials that require further evaluation or treatment.

### ***If an employee declines the hepatitis B vaccine***

The employer needs to take two steps if an employee declines to take the hepatitis B vaccine. First, the employer should document that the employee has been given the required training about the HBV vaccination. This includes the information that states the hepatitis B vaccine must be explained in detail, including information on the vaccine's effectiveness, safety, method of administration, the benefits of being vaccinated and the assurance that the vaccine will be offered free of cost to the employee.

Second, the employer must obtain the employee's signature on the declination form. The standard states that the form given in appendix A to section 1910.1030 is the only wording that may be used. No words may be added or subtracted. The required statement is as follows:

## **Hepatitis B Vaccine Declination**

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.

(Signature)

### ***Questions and answers on hepatitis B vaccination***

**Q:** What if an employee insists that he or she has already received a full course of the vaccine in a previous employment but has no documentation?

**A:** The employee should attempt to get documentation from the previous employer of the vaccination. If documentation is not possible and the employee does not wish to be revaccinated, he or she should sign the declination form.

**Q:** How do I decide whether an employee or category of employees has “reasonably anticipated exposure”—should I include anyone who might have a very remote possibility of exposure?

**A:** “Reasonably anticipated exposure” is meant to include those employees who in the performance of their jobs have a likelihood that they will come in contact with blood or other potentially infectious materials. It is not necessary to include employees whose jobs do not place them in situations where blood or other potentially infectious materials are found. It is possible for anyone to be suddenly in a totally unexpected situation where a fellow employee or other person in the location falls, cuts, or is otherwise injured and bleeds. This is not what the standard refers to, nor is it necessary to vaccinate such employees. This definition allows the employer to use his or her good judgment in such decisions.

**Q:** Can an employer require employees to bill the vaccination to the company health insurance plan?

**A:** If the employer pays the entire cost of the insurance, that may be required. If the employees pay part of the cost, however, they may not be required to use the insurance since this may result in an increase in the rates, which is a cost to the employee.

**Q:** Can the health care provider contact the exposed employee by phone to notify of test results and to conduct counseling?

**A:** If the results are negative and the counseling at this point is to tell the employee when the next testing will occur, a phone call would be adequate. If the results are positive or if any extensive counseling is needed, notification should be done in person with enough time allowed for the employee to be more adequately informed and to ask questions.

# 6

## Communication of hazards to employees

### ***Labeling requirements***

Warning labels must be placed on containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious materials, and other containers used to store, transport or ship blood or other potentially infectious materials, with some exceptions as noted below. Labels for contaminated equipment must state which portions of the equipment remain contaminated.

Labels are required to be fluorescent orange or orange-red in color with lettering or symbols in a contrasting color. They are to be attached as close as feasible to the container by string, wire, adhesive or other method that prevents their loss or unintentional removal. Labels must include the following symbol and wording:



**BIOHAZARD**

Red bags or red containers may be substituted for labels.

Labeling is not required for the following: 1. containers of blood, blood components or blood products that are labeled and have been released for transfusion or other clinical use; 2. individual containers of blood or other potentially infectious materials that are placed in a labeled larger container during storage, transport, shipment or disposal; and 3. regulated waste that has been decontaminated.

### ***Training requirements***

Effective training helps to ensure that employees understand the hazards associated with bloodborne pathogens, the modes of transmission, the exposure control plan, the use of engineering controls, work practices and personal protective clothing.

The standard requires that the training be given at the educational level and in the language primarily used by the employees being trained. The training may be specific to different groups being trained. For example, doctors and nurses may require less information on the causes and symptoms of bloodborne pathogens than would laundry workers. All training must take place during working hours, at no cost to the employee, and in a reasonable, accessible location. Training must be provided at the time of initial employment and at least annually (once a year) after that. When a worker's job is changed to include different ways to do tasks or procedures, or when new tasks or procedures are added that affect the employee's occupational exposure, additional training is required.

The standard specifies that the person conducting the training must be knowledgeable in the subject matter in the standard as it relates to the workplace where the employee(s) will be working. The employer should document (keep a written record of) training that the trainer has received in the area of bloodborne pathogens, as well as familiarity with the workplace involved.

The following elements must be included in the training program, at a minimum:

1. A copy of the standard must be made available where each employee has access to it. The contents must be explained as part of the training.

2. A general explanation of the causes and symptoms of bloodborne diseases must be given.
3. The program must cover how bloodborne pathogens are communicated from one person to another.
4. The exposure control plan must be explained in a way that each employee can understand it. The plan must be kept available where each employee has access to it.
5. Employees must be given information on the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
6. The use and limitations of methods that will prevent or reduce exposure must be covered. This instruction must include appropriate engineering controls, work practices and PPE.
7. The employee must be taught the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.
8. An explanation must be given of the basis for selection of PPE, so that the employee will be able to judge the best PPE to use in any situation.
9. The hepatitis B vaccine must be explained in detail, including information of the vaccine's effectiveness, safety, method of administration, the benefits of being vaccinated and the assurance that the vaccine will be offered free of charge to the employee.
10. Affected employees must be instructed on the appropriate actions to take and who to contact in an emergency involving blood or other potentially infectious materials.
11. Procedures to follow in case of an exposure incident must be outlined, including the method of reporting the incident and the medical follow-up that will be made available.
12. Employees must be given information on the post-exposure evaluation and follow-up that must be provided to them following an exposure incident.
13. An explanation of the signs and labels and the color coding required by the standard must be given.
14. The person conducting the training must provide an opportunity for questions and answers on the training. A video, film or written information by itself is not sufficient for this standard. Similarly, computer-based training is not sufficient by itself unless the employee can have questions and concerns answered by a knowledgeable individual at the time that he or she takes the computer-based training.

Any other information that the employer or trainer can include to help the employees understand how to apply the standard in their own workplace will be helpful. Special care should be taken to be sure that employees understand the training given and know how to protect themselves.

A written record must be kept documenting the training. See part 7 for documentation requirements.

### ***Questions and answers on communication of hazards***

**Q:** Are labels that are a different color, for example, a yellow background with a red biohazard symbol and the wording in red, permissible?

**A:** No. The labels must be the color specified in the standard—fluorescent orange or orange-red—with the biohazard symbol and the word “BIOHAZARD” in a contrasting color.

**Q:** Is a good video explaining the standard and its requirements put out by a professional organization sufficient to train staff?

**A:** The video may be used and can be a very useful aid in informing the staff. The standard requires, however, that a person trained in the standard and who is familiar with the place of employment and who knows how to apply the standard to that workplace provide the training. It also requires that a question and answer session be part of the training so that employees can ask questions about things that they do not understand.

**Q:** Is having the standard and the exposure control plan on a computer in the workplace considered to be “making the standard available to the employee”?

**A:** If all employees who are covered by the standard have access to the computer and are trained in using it, then that would be adequate. If some employees are not trained in using the computer, such as janitorial personnel who may be covered by the standard, then the standard and the exposure control plan must be printed out and made available to them.

**Q:** In a small medical or dental office, what is the best way to maintain the confidentiality required following an exposure incident?

**A:** Certainly all employees should be told that the incident has occurred and what steps are being taken to follow the standard. They should also be reminded of the confidentiality requirements included in the standard, and they should be told that they will not be given information on the status of the person affected. Should someone inadvertently discover that status, they must not divulge that information to anyone else.

**Q:** Since the standard requires training at least once a year, does the same material have to be covered every year?

**A:** A review of all the material required by the standard is certainly in order. The employer may want to emphasize different areas each year and may want to bring in examples of poor practices that have been observed over the year. Certainly it would be wise to change the training from year to year so that employees will listen and be involved in learning more about how to protect themselves.

## Recordkeeping

All recordkeeping must be kept in accordance with Title 29 Code of Federal Regulations Part 1910.1020, which governs access to employee exposure and medical records. Upon request, records required by this standard must be made available to the commissioner of labor and to the director of the National Institute for Occupational Safety and Health.

Records must be made available to employees upon request and may also be released to the employees' representatives. Medical records can be released to people other than an employee only upon that employee's written consent.

In the event that the employer ceased to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer must notify the commissioner of labor, N.C. Department of Labor, 1101 Mail Service Center, Raleigh, NC 27699-1101. Records must be maintained for three months after this notification and transmitted to the commissioner or disposed of as he or she requires.

*Note: Records are required for all occupationally exposed employees—not just ones who have been involved in “exposure incidents.”*

### **Medical records**

Many diseases, such as silicosis and asbestosis, are found only after many years. Therefore the recordkeeping standard was written to provide medical information about employees even many years after they have left the workplace. It is still not known how long it may be before an infection with the HIV virus becomes AIDS, or whether some people with the virus will ever develop AIDS. Therefore, it seems a wise precaution with this disease to keep such records for a seemingly long period.

The employer must establish and maintain an accurate record for each occupationally exposed employee. These records must be maintained for the period of employment plus 30 years.

The standard requires that the following information be included in the medical record:

1. The name and Social Security number of the employee.
2. 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.
3. A copy of all results of post-exposure evaluation examinations, medical testing and follow-up procedures.
4. The employer's copy of the health care professional's written opinion.
5. A copy of the information provided to the health care professional.

The employer must ensure that employee medical records are kept confidential and are not disclosed or reported without the employee's written consent to any person within or outside the workplace except as required by law. North Carolina law requires the health care professional to report any communicable diseases to the director of the county health department.

### **Training records**

Training must be documented in writing. The following information must be included:

1. The dates of the training session.
2. The contents or a summary of the training session.
3. The names and qualifications of persons conducting the training.
4. The names and job titles of all persons attending the training sessions.

Training records must be maintained for three years from the date on which the training occurred.

## ***Sharps injury log***

Employers who are covered by the bloodborne pathogens standard and who are required by Title 29 Part 1904 to maintain occupational injury and illness records must maintain a sharps injury log for recording all percutaneous (skin piercing) injuries from contaminated sharps. The information in the sharps injury log must be recorded and maintained in such a manner as to protect the confidentiality of the injured employee.

The sharps injury log, at a minimum, must contain:

1. The type and brand of device involved in the incident,
2. The department or work area where the exposure occurred, and
3. An explanation of how the incident occurred.

The sharps injury log must be maintained for five years following the year to which it applies.

# 8

## Glossary

*Acute febrile illness.* Any acute illness characterized by a high fever.

*Aerosolization.* Formation of a spray by pressurizing a liquid.

*Biohazard symbol.* A symbol that identifies biological hazardous wastes.

*Blood.* Human blood, human blood components and products made from human blood are included.

*Bloodborne pathogens.* 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).

*Centers for Disease Control and Prevention (CDC), U.S. Health and Human Services, Public Health Service.* The federal agency responsible for identifying and responding to all communicable diseases.

*Clinical laboratory.* A workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

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

*Contaminated laundry.* Laundry that has been soiled with blood or other potentially infectious materials or may contain sharps.

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

*Engineering controls.* Controls that isolate or remove the bloodborne pathogens hazard from the workplace. Examples include sharps disposal containers and self-sheathing needles.

*Epidemiology.* The study of the relationships of the various factors determining the frequency and distribution of diseases in a human community.

*Exposure incident.* 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.

*Handwashing facilities.* A facility providing an adequate supply of running potable water, soap, and single use towels or hot air drying machines.

*HBV.* Hepatitis B virus.

*HCV.* Hepatitis C virus.

*HIV.* Human immunodeficiency virus.

*Licensed health care professional.* A person whose legally permitted scope of practice allows him or her to independently perform the activities required in paragraph (f) of the standard in dealing with hepatitis B vaccinations and post-exposure evaluations and follow-ups.

*Needleless systems.* A device that does not use needles for:

1. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;
2. The administration of medication or fluids; or
3. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

**Occupational exposure.** 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.** 1. The listed human body fluids; 2. any unfixed tissue or organ (other than intact skin) from a human (living or dead); 3. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture mediums or other solution; and 4. blood, organs or other tissues from experimental animals infected with HIV or HBV.

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

**Personal protective equipment.** Specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (such as uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

**Phlebotomist.** Any health care worker who draws blood samples.

**Production facility.** A facility engaged in industrial-scale, large volume or high concentration production of HIV or HBV.

**Regulated waste.** Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

**Research laboratory.** Any 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.

**Sharps with engineered sharps injury protections.** A non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

**Source individual.** Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to an 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.

**Standards.** Occupational safety and health standards enforced under the Occupational Safety and Health Act of North Carolina (N.C. General Statutes 95-126 to 95-155).

**Sterilize.** The use of a physical or chemical procedures to destroy all microbial life including highly resistant bacterial endospores.

**Universal precautions.** An approach to infection control. According to the concept of universal 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.** Controls that reduce the likelihood of exposure by altering the manner in which a task is performed, such as prohibiting the recapping of needles by a two-handed technique.

# 9

## References

- U.S. Department of Labor, OSHA, *Federal Register* (56: 64175-64182), Occupational Exposure to Bloodborne Pathogens, Dec. 6, 1991.
- U.S. Department of Labor, OSHA, *Federal Register* (66: 5324-5325), Occupational Exposure to Bloodborne Pathogens, Jan. 18, 2001.
- OSHA Instruction CPL 2-2.69—Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens Standard, 29 CFR 1910.1030, Nov. 27, 2001.
- Centers for Disease Control and Prevention. “Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis.” *Morbidity and Mortality Weekly Report, Recommendations and Reports*. Vol. 50, No. RR-11, June 29, 2001.
- Centers for Disease Control and Prevention. “Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers.”
- Centers for Disease Control and Prevention. “Update: Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and Other Bloodborne Pathogens in Health-Care Settings.” *Morbidity and Mortality Weekly Report*. Vol. 27, No. 24, June 24, 1988.
- U.S. Environmental Protection Agency. “Antimicrobial Pesticides Registered by the U.S. Environmental Protection Agency (EPA) as Sterilants and/or Hospital Disinfectants under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).” Office of Pesticides and Toxic Substances, Washington, D.C. 20460.
- N.C. Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section. “Regulatory Assistance—Medical Waste Disposal in North Carolina.” July 1, 1992.

**The following industry guides are available from the N.C. Department of Labor's Division of Occupational Safety and Health:**

- #1. A Guide to Safety in Confined Spaces*
- #2. A Guide to Procedures of the Safety and Health Review Board of North Carolina*
- #3. A Guide to Machine Safeguarding*
- #4. A Guide to OSHA in North Carolina*
- #5. A Guide for Persons Employed in Cotton Dust Environments*
- #6. A Guide to Lead Exposure in the Construction Industry*
- #7. A Guide to Bloodborne Pathogens in the Workplace*
- #8. A Guide to Voluntary Training and Training Requirements in OSHA Standards*
- #9. A Guide to Ergonomics*
- #10. A Guide to Farm Safety and Health*
- #11. A Guide to Radio Frequency Hazards With Electric Detonators*
- #12. A Guide to Forklift Operator Training*
- #13. A Guide to the Safe Storage of Explosive Materials*
- #14. A Guide to the OSHA Excavations Standard*
- #15. A Guide to Developing and Maintaining an Effective Hearing Conservation Program*
- #17. A Guide to Asbestos for Industry*
- #18. A Guide to Electrical Safety*
- #19. A Guide to Occupational Exposure to Wood, Wood Dust and Combustible Dust Hazards*
- #20. A Guide to Crane Safety*
- #21. A Guide to School Safety and Health*
- #23. A Guide to Working With Electricity*
- #25. A Guide to Personal Protective Equipment*
- #26. A Guide to Manual Materials Handling and Back Safety*
- #27. A Guide to the Control of Hazardous Energy (Lockout/Tagout)*
- #28. A Guide to Eye Wash and Safety Shower Facilities*
- #29. A Guide to Safety and Health in Feed and Grain Mills*
- #30. A Guide to Working With Corrosive Substances*
- #31. A Guide to Formaldehyde*
- #32. A Guide to Fall Prevention in Industry*
- #33. A Guide to Office Safety and Health*
- #34. A Guide to Safety and Health in the Poultry Industry*
- #35. A Guide to Preventing Heat Stress*
- #36. A Guide to the Safe Use of Escalators and Elevators*
- #37. A Guide to Boilers and Pressure Vessels*
- #38. A Guide to Safe Scaffolding*
- #39. A Guide to Safety in the Textile Industry*
- #40. A Guide to Emergency Action Planning*
- #41. A Guide to OSHA for Small Businesses in North Carolina*

## **Occupational Safety and Health (OSH) Sources of Information**

**You may call 1-800-NC-LABOR (1-800-625-2267) to reach any division of the N.C. Department of Labor; or visit the NCDOL home page on the World Wide Web, Internet Web site address: <http://www.nclabor.com>.**

### **N.C. Division of Occupational Safety and Health**

Mailing Address:  
1101 Mail Service Center  
Raleigh, NC 27699-1101  
Local Telephone: (919) 807-2900 Fax: (919) 807-2856

Physical Location:  
111 Hillsborough St.  
(Old Revenue Building, 3rd Floor)

*For information concerning education, training and interpretations of occupational safety and health standards contact:*

### **Bureau of Education, Training and Technical Assistance**

Mailing Address:  
1101 Mail Service Center  
Raleigh, NC 27699-1101  
Telephone: (919) 807-2875 Fax: (919) 807-2876

Physical Location:  
111 Hillsborough St.  
(Old Revenue Building, 4th Floor)

*For information concerning occupational safety and health consultative services and safety awards programs contact:*

### **Bureau of Consultative Services**

Mailing Address:  
1101 Mail Service Center  
Raleigh, NC 27699-1101  
Telephone: (919) 807-2899 Fax: (919) 807-2902

Physical Location:  
111 Hillsborough St.  
(Old Revenue Building, 3rd Floor)

*For information concerning migrant housing inspections and other related activities contact:*

### **Agricultural Safety and Health Bureau**

Mailing Address:  
1101 Mail Service Center  
Raleigh, NC 27699-1101  
Telephone: (919) 807-2923 Fax: (919) 807-2924

Physical Location:  
111 Hillsborough St.  
(Old Revenue Building, 2nd Floor)

*For information concerning occupational safety and health compliance contact:*

### **Safety and Health Compliance District Offices**

**Raleigh District Office** (313 Chapanoke Road, Raleigh, NC 27603)

Telephone: (919) 779-8570 Fax: (919) 662-4709

**Asheville District Office** (204 Charlotte Highway, Suite B, Asheville, NC 28803-8681)

Telephone: (828) 299-8232 Fax: (828) 299-8266

**Charlotte District Office** (901 Blairhill Road, Suite 200, Charlotte, NC 28217-1578)

Telephone: (704) 665-4341 Fax: (704) 665-4342

**Winston-Salem District Office** (4964 University Parkway, Suite 202, Winston-Salem, NC 27106-2800)

Telephone: (336) 776-4420 Fax: (336) 776-4422

**Wilmington District Office** (1200 N. 23rd St., Suite 205, Wilmington, NC 28405-1824)

Telephone: (910) 251-2678 Fax: (910) 251-2654

\*\*\*To make an OSHA Complaint, **OSH Complaint Desk:** (919) 807-2796\*\*\*

*For statistical information concerning program activities contact:*

### **Planning, Statistics and Information Management**

Mailing Address:  
1101 Mail Service Center  
Raleigh, NC 27699-1101  
Telephone: (919) 807-2950 Fax: (919) 807-2951

Physical Location:  
111 Hillsborough St.  
(Old Revenue Building, 2nd Floor)

*For information about books, periodicals, vertical files, videos, films, audio/slide sets and computer databases contact:*

### **N.C. Department of Labor Library**

Mailing Address:  
1101 Mail Service Center  
Raleigh, NC 27699-1101  
Telephone: (919) 807-2848 Fax: (919) 807-2849

Physical Location:  
111 Hillsborough St.  
(Old Revenue Building, 5th Floor)

### **N.C. Department of Labor (Other than OSH)**

1101 Mail Service Center  
Raleigh, NC 27699-1101  
Telephone: (919) 733-7166 Fax: (919) 733-6197