



SAFETY TRAINING PROGRAM

AUREUS MEDICAL GROUP SAFETY TRAINING PROGRAM

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INTRODUCTION

The intent of this Safety Training Program is to provide you with information and guidelines to protect your safety and health in the workplace, as recommended by OSHA Standards. OSHA stands for the "Occupational Safety & Health Administration" of the United States Department of Labor. It is the responsibility of OSHA to prescribe safety recommendations to protect workers from health hazards inherent in different workplace settings.

This Safety Training Program is intended to summarize OSHA requirements as they apply to the healthcare setting. You are being provided with this training as a new employee of the Aureus Medical Group, and you will receive refresher training on an annual basis as long as you remain an employee of the Aureus Medical Group. Should you want to review the regulatory text of OSHA's recommendations, or have questions related to these recommendations or information contained in this program, please do not hesitate to contact us. Our 24 hour, toll-free number is (800) 456-5857.

As a contract employee of the Aureus Medical Group, you will be assigned to work in our client healthcare facilities that are not under our control. The training we are providing you is therefore intended to educate you in what the OSHA standards are, how you can protect yourself, and what to expect relative to the healthcare facility's responsibility for on-site safety provisions required by OSHA standards. Should you have questions about safety practices in any of the facilities to which you are assigned, or observe what you believe to be unsafe practices, promptly contact us to review and follow-up on your observations and/or concerns.

If you are ever injured while in our employment, regardless of how slight the injury, immediately report it to your on-site supervisor and notify us via our 24 hour, toll-free number (800) 456-5857.

INFORMATION ABOUT BLOODBORNE DISEASES

Epidemiology, Symptoms, & Modes of Transmission

We ask that you, the employee, read the following attachments to this Training Program to familiarize yourself with the epidemiology, symptoms, and modes of transmission of both Hepatitis B and HIV.

- 1) Bloodborne Facts: Hepatitis B Information
- 2) Bloodborne Facts: HIV Information

EXPOSURE CONTROL PLAN

OSHA requires that employers maintain a written "Exposure Control Plan" to outline safety guidelines to eliminate or minimize "*occupational exposure*" of employees to "*blood or other potentially infectious materials*".

"Occupational Exposure" means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

"Blood or Other Potentially Infectious Materials": Blood means human blood, blood products, or blood components. Other potentially infectious materials include human body fluids such as saliva in dental procedures, semen, vaginal secretions; cerebrospinal, synovial, pleural, pericardial, peritoneal, and amniotic fluids; body fluids visibly contaminated with blood; unfixed human tissues or organs; HIV-containing cell or tissue cultures; and HIV or HBV-containing culture mediums or other solutions.

Job Classifications with Occupational Exposure

The Aureus Medical Group has determined that all of its contract employees in healthcare settings are to be classified as having the risk of occupational exposure by the nature of their job position in a healthcare facility. This determination has been made without regard to the use of personal protective devices.

Methods to Control Transmission of HBV & HIV: "*Universal Precautions*"

The single most important measure to control transmission of HBV and HIV is to treat all human blood and other potentially infectious materials as if they were infectious for HBV and HIV. Application of this approach is referred to as "universal precautions".

All applicable recommended methods for controlling exposure cited in this program should be followed, including work practice and engineering controls, use of personal protective equipment, and housekeeping procedures.

Recognizing Occupational Exposure

Blood, and certain body fluids from all acute care patients should be considered as potentially infectious materials. These fluids cause contamination, defined in OSHA standards as, "the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface."

Availability of Hepatitis B Vaccination

The Aureus Medical Group offers, at our expense, the Hepatitis B Vaccination Series to our contract employees who have been identified as having the possibility of occupational exposure to blood or other potentially infectious materials in the workplace. The Hepatitis B Vaccination Series is a method of reducing the risk of exposure to blood or other potentially infectious materials.

We ask that you, the employee, read the following attachments to this Training Program to familiarize yourself with the benefits of receiving this vaccination series:

- 3) Bloodborne Facts: Hepatitis B Vaccination
- 4) Employee Consent: Hepatitis B Vaccination Series

Should you elect to receive the series, please sign and date the Consent form provided with your new hire paperwork, then return it to the Aureus Medical Group with other forms designated for return in your new hire packet. Promptly contact your Aureus Medical Recruiter to arrange for beginning the vaccination series at a location accessible to you. It is recommended that you begin the series within ten (10) days of beginning work in a healthcare setting.

Should you elect to decline the series, please sign and date the Declination form provided with your new hire paperwork, as outlined, then return it to the Aureus Medical Group with other forms designated for return in your new hire packet.

Managing Exposure Incidents

An exposure incident is the specific eye, mouth or other mucous membrane, non-intact skin, parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties. An example of an exposure incident would be a puncture from a contaminated sharp. Employers are responsible for establishing the procedure for evaluating exposure incidents.

When evaluating an exposure incident, immediate assessment and confidentiality are critical issues. Employees should immediately report exposure incidents to Aureus Medical and to their direct supervisor in the facility they are working for. The Aureus Medical Group, in conjunction with the healthcare facility will guide employees in obtaining a timely medical evaluation and followup. A request will be made for testing of the source individual's blood for HIV and HBV. The "source individual" is any patient whose blood or body fluids are the source of an exposure incident to the employee.

Post-Exposure Evaluation & Follow-up

At the time of the exposure incident, the exposed employee will be directed to a health care professional (e.g., physician, nurse) for follow-up. It is recommended that the following information be provided as needed: a copy of the bloodborne pathogens standard, a description of the employee's job duties as they relate to the incident, a report of the specific exposure, including route of exposure, relevant employee medical records including hepatitis B vaccination status, and results of the source individual's blood tests, if available. At that time, a baseline blood sample should be drawn from the employee, if he/she consents. If the employee elects to delay HIV testing of the sample, the health care professional must preserve the employee's blood sample for at least 90 days.

Managing Exposure Incidents

Testing the source individual's blood does not need to be repeated if the source individual is known to be infectious for HIV or HBV; and testing cannot be done in most states without written consent. The results of the source individual's blood tests are confidential. As soon as possible, however, the test results of the source individual's blood must be made available to the exposed employee through consultation with the health care professional.

Following post-exposure evaluation, the health care professional will provide a written opinion to us, which may be limited to a statement that the employee has been informed of the results of the evaluation and told of the need, if any, for any further evaluation or treatment. We will provide a copy of the written opinion to the employee within 15 days where possible. We will maintain all post-exposure medical records confidentially as required.

All evaluations and follow-up will be made available at no cost to the employee and at a reasonable time and place. This evaluation will be performed by or under the supervision of a licensed physician or another licensed health care professional, such as a nurse practitioner, and according to recommendations of the U.S. Public Health Service guidelines current at the time of the evaluation and procedure. In addition, all laboratory tests will be conducted by an accredited laboratory and at no cost to the employee.

Safe Work Practices and Engineering Controls

Safe work practices and engineering controls are the primary methods used to control the transmission of HBV and HIV in acute care facilities. Engineering controls isolate or remove the hazard from employees and are used in conjunction with work practices. Personal protective equipment also shall be used when occupational exposure to bloodborne pathogens remains even after instituting these controls. Engineering controls must be examined and maintained, or replaced, on a scheduled basis. Some engineering controls that apply to acute care facilities and are required by OSHA guidelines include the following:

- Use puncture-resistant, leak-proof containers, color coded red or labeled (according to the standards displayed in the Table below) to discard contaminated items like needles, broken glass, scalpels, or other items that could cause a cut or puncture wound.

Table 2. Labeling Requirements

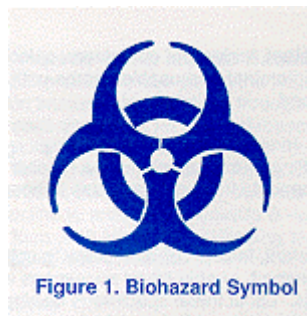
Item	No Label Needed if Universal Precautions Are Used and Specific Use of Container is Known to All Employees		Biohazard Label	Red Container	
	X	or		X	or
Regulated waste container (e.g., contaminated sharps containers)			X	or	X
Reusable contaminated sharps container (e.g., surgical instruments soaking in a tray)			X	or	X
Refrigerator/freezer holding blood or other potentially infectious material			X		
Containers used for storage, transport or shipping of blood			X	or	X
Blood/Blood products for clinical use	No labels required				
Individual specimen containers of blood or other potentially infectious materials remaining in facility	X	or	X	or	X
Contaminated equipment needing service (e.g., dialysis equipment, suction apparatus)			X plus a label specifying where the contamination exists		
Specimens and regulated waste shipped from the primary facility to another facility for service or disposal			X	or	X
Contaminated laundry	*	or	X	or	X
Contaminated laundry sent to another facility that does not use universal precautions			X	or	X

*Alternative labeling or color coding is sufficient if it permits all employees to recognize the containers as requiring compliance with Universal Precautions.

- Use puncture-resistant, leak-proof containers, color-coded red or labeled to store contaminated reusable sharps until they are properly reprocessed.
- Store and process reusable contaminated sharps in a way that ensures safe handling. For example, use a mechanical device to retrieve used instruments from soaking pans in decontamination areas.
- Use puncture-resistant, leak-proof containers to collect, handle, process, store, transport, or ship blood specimens and potentially infectious materials. Label these specimens if shipped outside the facility. Labeling is not required when specimens are handled by employees trained to use universal precautions, and when these specimens are kept within the facility.

Similarly, work practice controls reduce the likelihood of exposure by altering the manner in which the task is performed. All procedures shall minimize splashing, spraying, splattering, and generation of droplets. Work practice requirements include the following:

- Wash hands when gloves are removed and as soon as possible after contact with blood or other potentially infectious materials.
- Provide and make available a mechanism for immediate eye irrigation, in the event of an exposure incident.
- Do not bend, recap, or remove contaminated needles unless required to do so by specific medical procedures or the employer can demonstrate that no alternative is feasible. In these instances, use mechanical means such as forceps, or a one-handed technique to recap or remove contaminated needles.
- Do not shear or break contaminated needles.
- Discard contaminated needles and sharp instruments in puncture-resistant, leakproof, red or biohazard-labeled containers⁷ that are accessible, maintained upright, and not allowed to be overfilled.



- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in areas of potential occupational exposure. (Note: use of hand lotions is acceptable.)
- Do not store food or drink in refrigerators or on shelves where blood or potentially infectious materials are present.
- Use RED, or affix biohazard labels to, containers to store, transport or ship blood or other potentially infectious materials, such as lab specimens.
- Do not use mouth pipetting to suction blood or other potentially infectious materials; **it is prohibited.**

Personal Protective Clothing & Equipment

In addition to instituting engineering and work practice controls, the standard requires that appropriate personal protective equipment be used to reduce worker risk of exposure. Personal protective equipment is specialized clothing or equipment used by employees to protect against direct exposure to blood or other potentially infectious materials. Protective equipment must not allow blood or other potentially infectious materials to pass through to workers' clothing, skin, or mucous membranes.

Such equipment includes, but is not limited to, gloves, gowns, laboratory coats, face shields or masks, and eye protection. The employer is responsible for providing, maintaining, laundering, disposing, replacing, and assuring the proper use of personal protective equipment. The employer is responsible for ensuring that workers have access to the protective equipment, at no cost, including proper sizes and types that take allergic conditions into consideration.

An employee may temporarily and briefly decline to wear personal protective equipment under rare and extraordinary circumstances and when, in the employee's professional judgment, it prevents the delivery of health care or public safety services or poses an increased, or life-threatening, hazard to employees. In general, appropriate personal protective equipment is expected to be used whenever occupational exposure may occur. The employer also must ensure that employees observe the following precautions for safely handling and using personal protective equipment:

Personal Protective Clothing & Equipment (continued)

Must be removed following contamination and upon leaving the work area, and place in an appropriately designated area or container for storing, washing, decontaminating, or discarding.

- Wear appropriate gloves when contact with blood, mucous membranes, non-intact skin, or potentially infectious materials is anticipated; when performing vascular access procedures,⁸ and when handling or touching contaminated items or surfaces.
- Provide hypoallergenic gloves, liners, or powderless gloves or other alternatives to employees who need them.
- Replace disposable, single-use gloves as soon as possible when contaminated, or if torn, punctured, or barrier function is compromised.
- Do not reuse disposable (single-use) gloves.
- Decontaminate reusable (utility) gloves after each use and discard if they show signs of cracking, peeling, tearing, puncturing, deteriorating, or failing to provide a protective barrier.
- Use full face shields or face masks with eye protection, goggles, or eye glasses with side shields when splashes of blood and other bodily fluids may occur and when contamination of the eyes, nose, or mouth can be anticipated (e.g., during invasive and surgical procedures).
- Also wear surgical caps or hoods and/or shoe covers or boots when gross contamination may occur, such as during surgery, and autopsy procedures.

Remember: The selection of appropriate personal protective equipment depends on the quantity and type of exposure expected.

Housekeeping Procedures

Employers must ensure a clean and sanitary workplace. Contaminated work surfaces must be decontaminated with a disinfectant upon completion of procedures or when contaminated by splashes, spills, or contact with blood, other potentially infectious materials, and at the end of the work shift. Surfaces and equipment protected with plastic wrap, foil, or other nonabsorbent materials must be inspected frequently for contamination; and these protective coverings must be changed when found to be contaminated.

Waste cans and pails must be inspected and decontaminated on a regularly scheduled basis. Broken glass should be cleaned up with a brush or tongs; never pickup broken glass with hands, even when wearing gloves.

Waste removed from the facility is regulated by local and state laws. Special precautions are necessary when disposing of contaminated sharps and other contaminated waste, and include the following:

- Dispose of contaminated sharps in closable, puncture-resistant, leakproof, red or biohazard-labeled containers. (Reference Table for Labeling Requirements earlier in this Training Program)
- Place other regulated waste⁹ in closable, leakproof, red or biohazard-labeled bags or containers. If outside contamination of the regulated waste container occurs, place it in a second container that is closable, leakproof, and appropriately labeled.

Laundering contaminated articles, including employee lab coats and uniforms meant to function as personal protective equipment, is the responsibility of the employer. Contaminated laundry shall be handled as little as possible with minimum agitation. This can be accomplished through the use of a washer and dryer in a designated area on site, or the contaminated items can be sent to a commercial laundry. The following requirements should be met with respect to contaminated laundry:

- Bag contaminated laundry as soon as it is removed and store in a designated area or container.
- Use red laundry bags or those marked with the biohazard symbol unless universal precautions are in effect in the facility and all employees recognize the bags as contaminated and have been trained in handling the bags.

Housekeeping Procedures (continued)

- Clearly mark laundry sent off-site for cleaning, by placing it in RED bags or bags clearly marked with the orange biohazard symbol; and use leak-proof bags to prevent soak-through.
- Wear gloves or other protective equipment when handling contaminated laundry.

HAZARD COMMUNICATION PROGRAM

Purpose

In order to protect our employees and comply with OSHA's Hazard Communication Standard, the following written Hazard Communication Program has been established. Under this program, you will be informed of the contents of the Hazard Communication Standard, the hazardous properties of chemicals with which you work, safe handling procedures, and measures to take to protect yourself from these chemicals. Client facilities control the workplace in which our contract employees are assigned, and they are responsible for complying with OSHA standards related to chemicals in their facility workplace.

List of Hazardous Chemicals

Each of our client facilities is required to maintain a list of all hazardous chemicals and related work practices used in their facilities, and are required to update the list as necessary. It is the responsibility of chemical manufacturers to assess the hazards of chemicals which they produce or import, and communicate this to employers, which are responsible in turn for communicating this to employees.

Container Labeling

Employers will insure that labels on incoming containers of hazardous chemicals are not removed or defaced, and that all chemicals are labeled, tagged, or marked with the identity of the chemical, appropriate hazard warnings, and the name and address of the manufacturer or other responsible party.

Material Safety Data Sheets

For each of the hazardous chemicals identified, employers must have a "Material Safety Data Sheet". This is a detailed information bulletin prepared by the manufacturer or importer of a chemical that includes the following information about the chemical: the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first aid procedures, and control measures. A sample of the required format of a MSDS sheet is provided in Exhibit A to this Training Program.

Information & Training in Hazardous Chemicals

Our client facilities will be responsible for orienting new employees to the listing of hazardous chemicals in their workplace and the location of associated MSDS sheets. Whenever a new hazardous chemical is introduced into the workplace, appropriate orientation and training for it are required at that time. Where appropriate, this training should include measures employees can take to protect themselves from the hazards, specific procedures put into effect by the employer to provide protection (e.g., engineering controls, work practices, use of personal protective equipment), and any methods or observations by which employees can detect the presence of a hazardous chemical to which they may be exposed.

Ionizing Radiation

Client facilities will be required to have signage in radiation areas that present a risk of exposure as defined in OSHA standards (magenta or purple on yellow background). Refer to Exhibit B to this Training Guide for representation of this symbol. The sign should be accompanied by the warning "*Caution: Radiation Area*" or "*Caution: High Radiation Area*". Areas or rooms in which radioactive material is used or stored in excess of OSHA-defined standards shall be equipped with warning signs stating "*Caution: Radioactive Materials*".

Contract employees designated to work in areas where radiation exposure is inherent will be required to wear the appropriate personal protective equipment. Aureus Medical Group will supply appropriate personnel monitoring equipment to insure that exposure limitations are not exceeded (e.g., badges). It will be the responsibility of each employee to return badges to Aureus Medical Group on a quarterly basis for testing. We will maintain records of the radiation exposure of employees for whom personnel monitoring is performed, and will provide a copy of exposure testing reports to employees upon their request.

RESPIRATORY PROTECTION STANDARDS

Effective January 8, 1998, the entire previous respirator standard, 29 CFR 1910.134, has been redesigned as 29 CFR 1910.139 *Respirator protection for M. tuberculosis*, and will continue to apply to respirator use for protection against exposure to TB until the TB standard is finalized (proposal 62 FR 54160, Oct. 17, 1997).

Contract employees designated to work in an area where respiratory protection is deemed necessary, particularly when there is a risk of contracting TB, must advise Aureus Medical Group so that a medical evaluation may be completed prior to the employee commencing use of the respirator device. Respirators generally place a physical burden on an individual – usually relative to restricting breathing capacity. Negative pressure respirators restrict breathing, some respirators can cause claustrophobia, and self-contained breathing apparatuses are heavy. Each of these conditions may adversely affect the health of some employees who wear respirators.

LIFTING GUIDELINES FOR BACK SAFETY

Back injuries and discomfort are very common in the workplace. They occur from improper lifting, reaching, pushing, or pulling. Most often people hurt their backs because they underestimate a load and take on more than can be handled safely. Proper care of the back involves planning ahead, lifting correctly, and getting help for heavy or awkward loads.

Planning ahead

Before moving a load it is important to plan both the load and the route. This allows you to evaluate hazards, limitations, route safety, and final placement. For the load, evaluate the weight, shape, and material. Some items to check include:

- The item or individual to be moved: Do you need special safety gear or special gloves?
- The load - are the size, shape, and weight within your limits? Are there loose parts or sharp edges?
- Can you get a firm hand hold? Will you be able to see over the load and maneuver it along the route?
- Assistance - What kind of assistance will you need? Other people or mechanical aids like a dolly, cart, or specialized equipment determined by the type of load?

The route and placement site

The second part of planning ahead is checking the route you will take and the place where you will deposit the load. Many injuries and considerable property damage occur when unexpected problems are encountered during the move. Some points to consider are:

- The route - Are there steps, tripping hazards, closed doors, or tight doorways or passageways? Are there blind corners or wet or slippery floors? What is the traffic situation? Include people, vehicles and other obstacles that you might encounter.
- The drop-off point - Where will you place the load? Is there room for it? Is the site strong enough to hold the load? Will it block traffic or create a hazard when placed? Is it the right place to put the load or will it have to be moved again?

Design of the back

The back is composed of small bones, called vertebrae, that are stacked on top of each other. Between them are fibrous discs that provide padding and cushion shocks. Nerves run down the center and muscles hold it all together. Because of its structure, the back is strongest in the upright position with the natural curve maintained. It is weakest when bent, extended, or twisted. That's why most back injuries occur when reaching upward or outward, or when twisting.

The best way to protect the back is to remember to keep it in vertical alignment, straight up and down. When lifting with the back upright, the weight naturally distributes down the spine and to the legs. Reaching forward or twisting to lift something does the opposite: concentrates stress on one point and strains the muscles and discs.

Lifting properly

Keeping the structure of the back in mind, all loads should be lifted with the back in the most natural, upright position. The load should be approached to avoid twisting while lifting and with the body over the load as much as possible.

- Approach the load - Face the load so you won't have to lift and turn. This means point your feet in the direction you will be moving the load before lifting the load.
- Grasp the load - Squat over the load with knees bent and the load between the legs as much as possible. The closer you keep the load to the body, the less stress it places on your back. Make certain you have a good grasp of the load with the whole hand. Wear gloves and check for pinch points and sharp edges. If you can't get a good hand-hold, stop and reevaluate your move before lifting.
- Carry the load - Lead with the feet as you carry the load. Turn slowly with the legs, not the back. Change grips carefully and watch for obstructions that could bruise the hands.
- Place the load - Put down the load with the same care used to pick it up. Plan your approach to avoid twisting or reaching forward with the load in hand. Squat to put it down just as you did to pick it up.

Since most back injuries arise from underestimating the weight or awkwardness of the load. Make certain to get help whenever you think you might need it.

Special situations

A number of other things must be considered when moving items or patients:

- Team lifting - When more than one person is required to lift a load, designate one person to call the directions and the lifting steps so everyone will move at the same pace.
- Stacking - Overlap and interlock rows and never stack above the crush height or above the height limits for the facility. Make certain the base is clean and level and can support the weight.
- Drums - Use a lift truck with drum forks or a drum dolly to move drums. If moving individual empty drums, roll on the side not the rim and always work on the down side of the drum with the hands on the belly of the drum, not the rim.
- Cylinders - Compressed gas cylinders are like bombs with very short fuses. The valve must be protected by a proper safety cap. Move individual cylinders with a special hand truck and walk cylinders only short distances to align them. They must be stored in designated areas and secured with safety chains or bars.
- Mechanical aids - Often the best way to move loads is with a mechanical aid like a dolly, hand truck, or rolling cart. Choose the right aid for the job and inspect it before use. Place heaviest items on the bottom with the weight concentrated between the wheels. Keep hands away from the edges so they won't be scraped or crushed at doorways.

SAFETY UPDATE



“EARTHQUAKE PREPARATION & SAFETY”

BEFORE AN EARTHQUAKE

1. Store heavy objects near ground or floor
2. Check to see that tall objects (like book cases) are secured to the wall
3. Secure gas appliances to prevent broken gas lines and fires
4. Learn where your exits, evacuation route, and meeting places are
5. Keep emergency items (flashlight, first aid kit, spare clothes) in your car or office
6. Keep an extra pair of shoes – and emergency clothing – under your bed
7. Store a 3-day supply of nonperishable food (non-electric can opener, essential medicines, cash and credit cards) and water in accessible locations
8. Store emergency supplies (flashlight, radio with batteries, heavy gloves, trash bags, tools, first aid kit and manual)
9. Maintain a complete, up-to-date list of children, emergency numbers, contact people and store with your emergency supplies
10. Practice “duck, cover and hold” earthquake drills under tables no less than 4 times a year
11. Identify safe places in each room of your residence (under sturdy furniture, against an inside wall, away from glass)
12. Identify safe places outdoors

DURING AN EARTHQUAKE

1. If INDOORS – STAY IN the building
2. Take shelter under solid furniture (tables, desks)
3. Keep AWAY FROM overhead fixtures, windows, cabinets, bookcases
4. If DRIVING – STOP ... but stay IN the vehicle ... do not stop under trees, light posts, electrical power lines or signals
5. If OUTSIDE – STAY outside ... move to an open area away from buildings, trees, power lines and roadways ... STAY until the shaking stops

AFTER AN EARTHQUAKE

1. Check for injuries
2. Check for safety hazards (fire, electrical, gas leaks, etc.)
3. Do not use telephones and roadways unless necessary – keep them open for emergency use
4. Be prepared for AFTERSHOCKS ... turn your radio to an EAS (Emergency Alert System) station
5. Evacuate to shelters as instructed
6. WHEN THE SHAKING STOPS ... proceed CAUTIOUSLY watching for fallen glass, bricks, power lines, buckled roads ... keep your eyes open for hazards

TB FACTS FOR HEALTHCARE WORKERS

Excerpted from the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for HIV, STD, and TB Prevention
Division of Tuberculosis Elimination
Atlanta, Georgia 30333



1

TUBERCULOSIS

YES! IT'S STILL A PROBLEM!

- Eight million new tuberculosis (TB) cases occur each year in the world and 3 million people die of the disease.
- In the United States, after several decades of decline, TB cases increased 20 percent between 1985 and 1992. Some of the reasons for the increase included: the HIV epidemic, immigration of persons from areas with a high prevalence of TB, outbreaks of multidrug-resistant TB occurred in hospitals and prisons - resulting in high death rates and transmission to health care workers.
- The 21,337 TB cases reported in 1996 represent the fourth consecutive year of decline, suggesting the successful use of new resources in different areas of the U.S. to better detect and treat persons with active TB and latent infection.
- While the decrease in TB cases is encouraging, there are several areas of concern which will require expanded efforts:
 - TB cases continue to increase in many areas.
 - Outbreaks of drug-resistant TB continue in many areas.
 - An estimated 10 to 15 million persons in the U.S. are infected with *Mycobacterium tuberculosis*. Without intervention, about 10 percent of these persons will develop TB disease at some point in life.
 - An increasing proportion of TB cases in the U.S. are among individuals born in areas with a high prevalence of TB, and international collaboration needs to be strengthened to prevent and control TB in these persons.

POPULATIONS AT RISK FOR TUBERCULOSIS

Persons at risk for TB include anyone who has ever had contact with a person with infectious TB. Some persons are considered to be at high risk for TB disease because they belong to groups in which the prevalence of TB infection is higher than it is in the general population. These groups include foreign-born persons from areas with a high prevalence of TB; residents and employees of long-term institutional settings (such as nursing homes and correctional facilities); and medically underserved populations, including the poor, the homeless, high risk racial and ethnic minority groups, and injecting drug users (IDUs). Other persons are at high risk for developing active TB disease if they become infected with *Mycobacterium tuberculosis*. They include immunocompromised persons (especially those with HIV infection), persons with other medical risk factors (such as diabetes, end-stage renal disease, and being 10 percent or more below ideal body weight), and IDUs. HIV infection is one of the strongest known risk factors associated with the progression from TB infection to active TB disease.

Studies suggest that the risk of developing TB disease is 7% to 10% each year for persons who are infected with both *M. tuberculosis* and HIV, whereas it is 10% over a lifetime for persons infected only with *M. tuberculosis*.

MODE OF TRANSMISSION

Mycobacterium tuberculosis is spread by airborne particles, known as droplet nuclei, that can be generated when persons with pulmonary or laryngeal TB sneeze, cough, speak, or sing. Persons who share the same airspace with persons with infectious TB disease are at greatest risk for infection. Infection occurs when a susceptible person inhales droplet nuclei containing tubercle bacilli and these bacilli become established in the alveoli of the lungs and spread throughout the body.

IDENTIFICATION OF PERSONS WITH TB INFECTION AND DISEASE: *TB SKIN TEST*

A person exposed to an individual with infectious TB or who has other risk factors for TB as noted above should be given a tuberculin skin test. The Mantoux tuberculin skin test is the preferred method of skin testing. The Mantoux tuberculin skin test is the intradermal injection of purified protein derivative (PPD) of killed tubercle bacilli, usually on the inner forearm. The site is examined by a trained health care worker 48 to 72 hours after injection for induration (palpable swelling). The diameter of induration is measured and recorded; erythema or bruising is disregarded. The criteria endorsed by the American Thoracic Society and CDC for a positive tuberculin skin-test result are intended to increase the likelihood that persons at high risk for TB will be candidates for preventive therapy and that persons having tuberculin reactions not caused by *M. tuberculosis* will not receive unnecessary diagnostic evaluation or treatment.

INTERPRETATION OF TB SKIN TEST RESULTS

- An induration of ≥ 5 mm is classified as positive in the following:
 - Persons who have had recent close contact with persons who have active TB;
 - Persons who have human immunodeficiency virus (HIV) infection or risk factors for HIV infection but unknown HIV status (e.g., injecting drug users);
 - Persons who have fibrotic chest radiographs consistent with healed TB.
- An induration of ≥ 10 mm is classified as positive in all persons who do not meet any of the above criteria, but who belong to one or more of the following groups having high risk for TB:
 - Injecting-drug users known to be HIV seronegative;
 - Persons who have other medical conditions that have been reported to increase the risk for progressing from latent TB infection to active TB. These medical conditions include diabetes mellitus, conditions requiring prolonged high-dose corticosteroid therapy and other immunosuppressive therapy (including bone marrow and organ transplantation), chronic renal failure, some hematologic disorders (e.g., leukemias and lymphomas), other specific malignancies (e.g., carcinoma of the head or neck), weight loss of $\geq 10\%$ below ideal body weight, silicosis, gastrectomy, jejunioileal bypass;
 - Residents and employees of high-risk congregate settings: prisons and jails, nursing homes and other long-term facilities for the elderly, health-care facilities (including some residential mental health facilities), and homeless shelters;
 - Foreign-born persons recently arrived (i.e., within the last 5 years) from countries with high prevalence or incidence of TB;
 - Some medically underserved, low-income populations, including migrant farm workers and homeless persons;
 - High-risk racial or ethnic minority populations, as defined locally;
 - Children < 4 years of age or infants, children, and adolescents exposed to adults in high-risk categories.
- An induration of ≥ 15 mm is classified as positive in persons who do not meet any of the above criteria.

Many foreign countries still use BCG as part of their TB control programs, especially for infants. In persons vaccinated with BCG, sensitivity to tuberculin is highly variable, depending upon the strain of BCG used and the group vaccinated. There is no reliable method of distinguishing tuberculin reactions caused by BCG from those caused by natural infections. A reaction to tuberculin in a person with a history of BCG vaccination is more likely to be due to infection with *M. tuberculosis* if:

- the induration is large
- the person was vaccinated a long time ago
- the person is a recent contact of a person with infectious TB
- there is a family history of TB
- the person comes from an area where TB is common
- chest radiograph findings show evidence of previous TB

In a BCG-vaccinated person who has any of the preceding risk factors, a positive tuberculin reaction probably indicates infection with *M. tuberculosis*. Such persons should be evaluated for isoniazid preventive therapy after disease has been ruled out.

IDENTIFYING TB DISEASE

If the skin test result is positive or if symptoms suggestive of TB are present (e.g., productive and prolonged cough, fever, chills, loss of appetite, weight loss, fatigue, or night sweats), a chest radiograph should be obtained to help rule out active pulmonary TB. The chest radiograph may also be used to detect the presence of fibrotic lesions suggestive of old, healed TB or silicosis. Acid-fast bacilli (AFB) smears and cultures should be performed on sputum specimens of all persons who have symptoms of TB or whose chest radiograph suggests TB. A positive AFB smear is an indication for beginning treatment for TB. However, a positive AFB smear may also indicate the presence of nontuberculous mycobacteria. A positive culture for *Mycobacterium tuberculosis* is the only definitive proof of TB disease.

Health care providers of HIV-infected persons should be aware of atypical patterns of TB disease in these persons. Extrapulmonary TB is more common. Also, pulmonary TB may present in an unusual manner (e.g., in the lymph nodes or in the lower part of the lungs). All persons with TB infection or TB disease should be offered counseling and HIV-antibody testing, because medical management may be altered in the presence of HIV infection.

Maintain a high index of suspicion for TB in persons with undiagnosed pulmonary disease, especially in persons who are HIV seropositive.

PREVENTION OF TUBERCULOSIS

The main purpose of preventive therapy is to prevent latent infection from progressing to clinically active TB disease. Therefore, persons with positive tuberculin skin test results who do not have clinically active disease should be evaluated for preventive therapy.

CANDIDATES FOR PREVENTIVE THERAPY

Preventive therapy is recommended for the following persons with a positive tuberculin test result regardless of age: **Note: this listing is not all-inclusive – but rather contains some of the more common cases:**

- Persons with known or suspected HIV infection, including persons who inject drugs and whose HIV status is unknown ≥ 5 mm)

- Close contacts of persons with infectious, clinically active TB [≥]5mm)*
- Persons who have chest radiograph findings suggestive of previous TB and who have received inadequate or no treatment. [≥]5mm)
- Persons who inject drugs and who are known to be HIV negative [≥]10mm)

* Persons with certain medical conditions that have been reported to increase the risk of TB

* Persons who are immunosuppressed, especially HIV-infected persons may have a negative tuberculin skin test reaction because they are anergic. All HIV-infected persons who are close contacts of persons who have infectious tuberculosis should be administered a full course of preventive therapy regardless of tuberculin skin test results or prior courses of chemoprophylaxis after the diagnosis of active tuberculosis has been excluded.

- Foreign-born persons from high-prevalence areas (e.g., Latin America, Asia, and Africa)
- Medically underserved, low-income populations, including high-risk racial or ethnic groups (e.g., Asians and Pacific Islanders, blacks, Hispanics, and Native Americans)
- Residents of long-term care facilities (e.g., correctional institutions, nursing homes, and mental institutions)
- Children younger than 4 years of age
- Other groups identified locally as having an increased prevalence of TB (e.g., migrant farm workers or homeless persons)

PREVENTIVE THERAPY REGIMENS

The usual preventive therapy regimen is **isoniazid (INH)** (for children—10 mg/kg daily, for adults—5 mg/kg daily up to a maximum of 300 mg daily) for a minimum of 6 continuous months for adults and 6-9 continuous months for children. Twelve months is recommended for persons with HIV infection or other forms of immunosuppression. (Note: Persons with fibrotic infiltrates on a chest radiograph that are thought to represent old, healed TB and those with silicosis who were formerly considered candidates for preventive therapy should receive 4 months of multi-drug chemotherapy.)

To ensure that persons in high-risk groups adhere to therapy, INH can be given twice weekly at a dosage of 15 mg/kg, up to a maximum of 900 mg, using directly observed preventive therapy (DOPT). DOPT refers to the observation by a health care provider of patients as they ingest anti-TB medications. Situations in which patients not receiving DOPT miss appointments or demonstrate other nonadherent behavior should be brought to the attention of the appropriate public health officials. These patients should be considered for DOPT.

TREATMENT REGIMENS

TB is usually curable if effective treatment is instituted without delay. Because of the increase in multidrug-resistant TB (MDR-TB), nearly all persons with TB should be started on a four-drug regimen of INH, rifampin (RIF), pyrazinamide (PZA), and ethambutol (EMB) or streptomycin (SM) until the drug susceptibility results are known. A less than four-drug initial regimen should only be considered if there is little possibility of drug resistance (i.e., less than 4% primary resistance to isoniazid in the community and the patient has had no previous treatment with TB drugs, is not from a country with a high prevalence of drug resistance, and has no known exposure to a patient with drug-resistant disease). If the drugs are given daily at the start of therapy and susceptibility results show no drug resistance, EMB or SM can be discontinued and the other drugs continued until PZA has been given for 2 months. INH and RIF should then be continued for another 4 months, including at least 3 months of therapy after the culture has converted to negative. Several options for daily and intermittent therapy have been published. Persons given anti-TB therapy should be monitored monthly for drug side effects.

The recommendations for the duration of TB treatment for HIV-infected persons are generally the same as for persons not infected with HIV. However, in HIV-infected patients, it is critically important to assess the clinical and bacteriologic response to therapy. Treatment should be prolonged if the response is slow or otherwise suboptimal.

REPORTING

TB reporting is required by law in every state. All new TB cases and suspect cases should be reported promptly to the health department by the clinician. Cases may also be reported by infection control nurses or by pharmacies when TB drugs are dispensed. In addition, all positive TB smears and cultures should be reported promptly by laboratories. Early reporting is important for the control of TB and it gives clinicians access to the resources of the health department for assistance in case management (e.g., DOT) and contact investigation.

MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB)

An extremely serious aspect of the TB problem in the United States is MDR-TB (i.e., TB resistant to at least isoniazid and rifampin). MDR-TB can usually be prevented by initially treating TB patients with four drugs and by administering TB medications on a directly observed basis. Persons at high risk for MDR-TB include persons who have been recently exposed to MDR-TB, especially if they are immunocompromised; TB patients who failed to take medications as prescribed; TB patients who were prescribed an ineffective treatment regimen; and persons previously treated for TB.

MDR-TB presents difficult treatment problems. Treatment must be individualized and based on the patient's medication history and drug susceptibility study results. Clinicians who are not familiar with the management of patients with MDR-TB disease or with patients infected with multidrug-resistant organisms should seek expert consultation.

For persons likely to have been infected with *M. tuberculosis* resistant to both isoniazid and rifampin, observation without preventive therapy is usually recommended because only isoniazid and rifampin have been evaluated for preventive therapy. However, for persons at an especially high risk for TB disease once infected (e.g., persons with HIV infection), preventive therapy with an alternative regimen should be strongly considered.

INFECTION CONTROL MEASURES

The spread of TB in health care settings can be minimized by implementing CDC recommendations for preventing TB transmission in these settings. The early detection, isolation, and treatment of disease in persons with infectious TB are essential to controlling transmission. TB should be suspected in all persons with symptoms consistent with TB (for example, cough, fever, night sweats, chills, fatigue, weight loss or loss of appetite), especially those with confirmed or suspected HIV infection and undiagnosed pulmonary disease. Precautions should be taken to prevent airborne transmission of infection until TB is diagnosed and treated or ruled out.

Effective AFB isolation should be initiated for persons with confirmed or suspected TB to reduce the risk that they will expose others. Precautions should be taken during and immediately after procedures that may induce coughing, such as bronchoscopy, sputum collection, the aerosol induction of sputum, and the administration of aerosolized medication, such as pentamidine.

Antituberculosis drug treatment should be promptly initiated for persons with active disease to render them noninfectious. Persons at high risk for TB infection should be screened and, if infected, evaluated for preventive therapy. Ongoing TB screening should be provided to health care workers who have regular contact with persons with TB or HIV infection.

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AUREUS MEDICAL GROUP SAFETY TRAINING PROGRAM

ATTACHMENTS

Bloodborne Facts: HIV information
Bloodborne Facts: Hepatitis B Information
Bloodborne Facts: Hepatitis B Vaccination
Bloodborne Facts: Personal Protective Equipment
Bloodborne Facts: Handling Sharps
Bloodborne Facts: Exposure Incidents

Bloodborne

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HIV INFORMATION

WHAT IS AIDS?

AIDS stands for Acquired Immune Deficiency Syndrome. AIDS is a serious disease caused by infection with the human immunodeficiency virus (HIV). HIV attacks the body's immune system. The healthy immune system produces white blood cells and antibodies which attack infectious agents such as viruses and bacteria that enter the body and cause disease. In a person with AIDS, HIV has entered the blood's infection fighting white blood cells and over several years has destroyed the cells. HIV can live in an infected person's body for years before any signs of illness appears. Yet, as the number of white blood cells declines, the immune system becomes less and less able to protect itself against a variety of illnesses. The infected person becomes more susceptible to opportunistic infections or cancers that attack the body and can cause death.

HOW COMMON IS HIV INFECTION?

The epidemic's impact on our nation's health was highlighted during 1995, when the cumulative number of reported AIDS cases surpassed one-half million. By 2000 the World Health Organization (WHO) projects a cumulative total of 30-40 million HIV infected men, women, and children.

Worldwide, the vast majority of people infected with HIV/AIDS are heterosexual. The demographics of the epidemic in the U.S. seem to be slowly shifting to women, blacks, and young people. A woman with an HIV infected male partner is 10 times more likely to get the virus than is a man with an infected female partner. AIDS is the leading cause of death for men 25-44 and the third leading cause of death among women.

WHAT IS THE HIV ANTIBODY TEST?

What many people call the "AIDS" test is not a test for AIDS at all, but for the antibodies of the HIV which causes AIDS. Once infected with HIV, the immune system produces antibodies in an attempt to defend itself against HIV. The test identifies these antibodies. Therefore the test is accurately called the "HIV antibody test."

WHAT IS THE INCUBATION PERIOD FOR AIDS SYMPTOMS?

The incubation period is the time between infection and the onset of symptoms of disease. The incubation period between HIV infection and the onset of AIDS can vary anywhere from six months to an unknown period of time. Some people who are HIV antibody positive may never develop AIDS. CDC has stated that the average length of incubation at this time is seven years or more, however, this number continues to change due to various factors.

PHASES OF HIV INFECTION

PHASES OF HIV INFECTION			
Acute HIV Disease	Asymptomatic HIV Disease ("HIV Positive")	Chronic Symptomatic HIV Disease (AIDS Related Complex)	Advanced HIV Disease (AIDS)
days - weeks	years	months - years	months - years

WHAT ARE THE SYMPTOMS OF HIV INFECTION?

The symptoms of HIV infection are the symptoms of the diseases that attack the body because of a weakened immune system. Most of the following symptoms are not specific to HIV infection: fever that lasts from a few days to longer than a month, periods of excessive sweating, especially at night, loss of appetite, chronic or long lasting fatigue, weight loss of more than 10% of body weight, muscle and joint pain, unexplained long lasting sore throat, unexplained swollen lymph glands, diarrhea lasting longer than a month with no other disease, lingering infections. As the immune system becomes more compromised the HIV infected person may acquire opportunistic diseases such as Kaposi's sarcoma, Pneumocystis carinii pneumonia, tuberculosis, neurological disorders such as meningitis, and herpes simplex infections. At this point, the HIV infected person is usually diagnosed with AIDS.

HOW IS HIV INFECTION (AIDS) TREATED?

The full disease state of AIDS is associated with life threatening infectious diseases and cancers. Treatment usually depends on the particular disease. The full effects of HIV infection (AIDS) may appear 5-10 years after the original infection with the virus. As advances are made in the treatments of HIV-associated illness and immune disorders it becomes increasingly beneficial for people infected with HIV to know early whether or not they have the disease.

Bloodborne

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HEPATITIS B INFORMATION

WHAT IS HEPATITIS B?

Hepatitis B is a viral infection that infects the liver and causes inflammation. It is one of the fastest spreading sexually transmitted diseases in the U.S., infecting 300,000 Americans each year. Most individuals infected with the virus are adolescents and young adults.

Ninety percent of people with hepatitis B recover. In up to 10 percent of cases people infected with hepatitis B develop chronic hepatitis B and are infected for life. Chronic hepatitis can be fairly harmless, or it may be progressive and lead to cirrhosis, liver cancer, and death. Chances of developing liver cancer are 200 times higher if you are a chronic carrier. Damage to the liver cannot be reversed. People who are chronic carriers of the virus can transmit it to others.

There is no cure for Hepatitis B but a vaccine is available to prevent infection.

HOW DOES IT OCCUR?

Hepatitis B is very infectious. When the virus enters the bloodstream it begins to invade the liver cells, disrupting normal liver function. The disease can be spread through the use of contaminated syringes, needles, or unsterilized instruments including needles for steroid injections and body piercing. Hepatitis B can also be transmitted if you are exposed to infected blood through cuts, open sores, or mucous membranes (mouth or vagina) and through semen, vaginal secretions, and rarely saliva. The more partners with whom you have vaginal, anal, or oral intercourse, the higher your risk of becoming infected with hepatitis B.

WHAT ARE THE SYMPTOMS?

Symptoms of hepatitis B may appear as long as 4 weeks to 6 months after infection with the virus. Many people develop a chronic or ongoing form of the disease with only vague symptoms even though liver damage may be occurring.

EARLY SYMPTOMS OF VIRAL HEPATITIS

Low-grade fever, itching hives, general achiness, fatigue, nausea, vomiting, and diarrhea, foul breath and bitter taste in the mouth, loss of appetite, altered sense of taste and smell, pain or tenderness just below the ribs on the right side, especially when pressure is applied.

Symptoms that may follow several days later include:

Darkened urine, light colored or gray stool, yellowish skin and eyes (jaundice).

HOW IS IT DIAGNOSED?

In addition to a brief physical examination the health care provider may use blood and urine tests. A biopsy may be necessary to diagnose chronic hepatitis.

HOW IS IT TREATED?

There is no cure for hepatitis B. Rest and a high protein diet is usually recommended to help repair damaged cells and a high carbohydrate diet to protect the liver. Your health care provider will manage symptoms as they occur.

HOW LONG WILL THE EFFECTS LAST?

Symptoms generally last 1 to 8 weeks and are usually followed by a slow but complete recovery. It may take 6 months before the liver functions normally again.

WHAT CAN BE DONE TO PREVENT THE SPREAD OF HEPATITIS B?

Hepatitis B is highly contagious for 4 to 6 weeks before symptoms appear and continues to be contagious for a short time afterward.

PREVENTION OF TRANSMISSION

Careful cleanliness and personal hygiene are important for the individual with hepatitis, including: cleaning any blood stains with a disinfectant, avoid sharing needles, razor blades, and toothbrushes, no blood donations, informing sexual partners of infection, use of a condom for anal, vaginal, or oral intercourse, and bandaging all cuts and open sores. Hepatitis B vaccination is recommended for anyone who may be exposed to the blood or body fluids of an infected individual.

Bloodborne facts

HEPATITIS B VACCINATION

U.S. Department of Labor
Occupational Safety and Health Administration

WHAT IS HBV?

Hepatitis B virus (HBV) is a potentially life threatening bloodborne pathogen. Centers for Disease Control estimates there are approximately 280,000 HBV infections each year in the U.S.

Approximately 8,700 health care workers each year contract hepatitis B, and about 200 will die as a result. In addition, some who contract HBV will become carriers, passing the disease on to others. Carriers also face a significantly higher risk for other liver ailments which can be fatal, including cirrhosis of the liver and primary liver cancer.

HBV infection is transmitted through exposure to blood and other infectious body fluids and tissues. Anyone with occupational exposure to blood is at risk of contracting the infection.

Employers must provide engineering controls; workers must use work practices and protective clothing and equipment to prevent exposure to potentially infectious materials. However, the best defense against hepatitis B is vaccination.

WHO NEEDS VACCINATION?

The new OSHA standard covering bloodborne pathogens requires employers to offer the three-injection vaccination series free to all employees who are exposed to blood or other potentially infectious materials as part of their job duties. This includes health care workers, emergency responders, morticians, first-aid personnel, law enforcement officers, correctional facilities staff, launderers, as well as others.

The vaccination must be offered within 10 days of initial assignment to a job where exposure to blood or other potentially infectious materials can be "reasonably anticipated." The requirements for vaccinations of those already on the job take effect July 6, 1992.

WHAT DOES VACCINATION INVOLVE?

The hepatitis B vaccination is a noninfectious, yeast-based vaccine given in three injections in the arm. It is prepared from recombinant yeast cultures, rather than human blood or plasma. Thus, there is no risk of contamination from the bloodborne pathogens nor is there any chance of developing HBV from the vaccine.

The second injection should be given one month after the first, and the third injection six months after the initial dose. More than 90 percent of those vaccinated will develop immunity to the hepatitis B virus. To ensure immunity, it is important for individuals to receive all three injections. At this point it is unclear how long the immunity lasts, so booster shots may be required at some point in the future.

The vaccine causes no harm to those who are already immune or to those who may be HBV carriers. Although employees may opt to have their blood tested for antibodies to determine need for the vaccine, employers may not make such screening a condition of receiving vaccination nor are employers required to provide prescreening.

Each employee should receive counseling from a health care professional when vaccination is offered. This discussion will help an employee determine whether inoculation is necessary.

WHAT IF I DECLINE VACCINATION?

Workers who decide to decline vaccination must complete a declination form. Employers must keep these forms on file so that they know the vaccination status of everyone who so exposed to blood. At any time after a worker initially declines to receive the vaccine, he or she may opt to take it.

WHAT IF I AM EXPOSED BUT HAVE NOT YET BEEN VACCINATED?

If a worker experiences an exposure incident, such as a needlestick or a blood splash in the eye, he or she must receive confidential medical evaluation from a licensed health care professional with appropriate follow-up. To the extent possible by law, the employer is to determine the source individual for HBV as well as human immunodeficiency virus (HIV) infectivity. The worker's blood will also be screened if he or she agrees.

The health care professional is to follow the guidelines of the U.S. Public Health Service in providing treatment. This would include hepatitis B vaccination. The health care professional must give a written opinion on whether or not vaccination is recommended and whether the employee received it. Only this information is reported to the employer. Employee medical records must remain confidential. HIV or HBV status must NOT be reported to the employer.

Bloodborne

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PERSONAL PROTECTIVE EQUIPMENT

U.S. Department of Labor
Occupational Safety and Health Administration

Wearing gloves, gowns, masks, and eye protection can significantly reduce health risks for workers exposed to blood and other potentially infectious materials. The new OSHA standard covering bloodborne disease requires employers to provide appropriate personal protective equipment (PPE) and clothing free of charge to employees.

Workers who have direct exposure to blood and other potentially infectious materials on their jobs run the risk of contracting bloodborne infections from hepatitis B virus (HBV), human immunodeficiency virus (HIV) which causes AIDS, and other pathogens. About 8,700 health care workers each year are infected with HBV, and 200 die from the infection. Although the risk of contracting AIDS through occupational exposure is much lower, wearing proper personal protective equipment can greatly reduce potential exposure to all bloodborne infections.

SELECTING PPE

Personal protective clothing and equipment must be suitable. This means the level of protection must fit the expected exposure. For example, gloves would be sufficient for a laboratory technician who is drawing blood, whereas a pathologist conducting an autopsy would need considerably more protective clothing.

PPE may include gloves, gowns, laboratory coats, face shields or masks, eye protection, pocket masks, and other protective gear. The gear must be readily accessible to employees and available in appropriate sizes.

If an employee is expected to have hand contact with blood or other potentially infectious materials or contaminated surfaces, he or she must wear gloves. Single use gloves cannot be washed or decontaminated for reuse. Utility gloves may be decontaminated if they are not compromised. They should be replaced when they show signs of cracking, peeling, tearing, puncturing, or deteriorating. If employees are allergic to standard gloves, the employer must provide hypoallergenic gloves or similar alternatives.

Routine gloving is not required for phlebotomy in voluntary blood donation centers, though it is necessary for all other phlebotomies. In any case, gloves must be available in voluntary blood donation centers for employees who want to use them. Workers in voluntary blood donation centers must use gloves (1) when they have cuts, scratches or other breaks in their skin, (2) while they are in training; and (3) when they believe contamination might occur.

Employees should wear eye and mouth protection such as goggles and masks, glasses with solid side shields, and masks or chin-length face shields when splashes, sprays, splatters, or droplets of potentially infectious materials pose a hazard through the eyes, nose or mouth.

More extensive coverings such as gowns, aprons, surgical caps and hoods, and shoe covers or boots are needed when gross contamination is expected. This often occurs, for example, during orthopedic surgery or autopsies.

Employers must provide the PPE and ensure that their workers wear it. This means that if a lab coat is required as a PPE, it must be supplied by the employer rather than the employee. The employer also must clean or launder clothing and equipment and repair or replace it as necessary.

Additional protective measures such as using PPE in animal rooms and decontaminating PPE before laundering are essential in facilities that conduct research on HIV or HBV.

There is one exception to the requirement for protective gear. An employee may choose, temporarily and briefly, under rare and extraordinary circumstances, to forego the equipment. It must be the employee's professional judgment that using the protective equipment would prevent the delivery of health care or public safety services or would pose an increased hazard to the safety of the worker or co-worker. When one of these excepted situations occurs, employers are to investigate and document the circumstances to determine if there are ways to avoid it in the future. For example, if a firefighter's resuscitation device is damaged, perhaps another type of device should be used or the device should be carried in a different manner. Exceptions must be limited--this is not a blanket exemption.

DECONTAMINATING AND DISPOSING OF PPE

Employees must remove personal protective clothing and equipment before leaving the work area or when the PPE becomes contaminated. If a garment is penetrated, workers must remove it immediately or as soon as feasible. Used protective clothing and equipment must be placed in designated containers for storage, decontamination, or disposal.

OTHER PROTECTIVE PRACTICES

If an employee's skin or mucous membranes come into contact with blood, he or she is to wash with soap and water and flush eyes with water as soon as feasible. In addition, workers must wash their hands immediately or as soon as feasible after removing protective equipment. If soap and water are not immediately available, employers may provide other handwashing measures such as moist towelettes. Employees still must wash with soap and water as soon as possible.

Employees must refrain from eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses in areas where they may be exposed to blood or other potentially infectious materials.

Bloodborne facts

HANDLING SHARPS

U.S. Department of Labor
Occupational Safety and Health Administration

A needlestick or a cut from a contaminated scalpel can lead to infection from hepatitis B virus (HBV) or human immunodeficiency virus (HIV) which causes AIDS. Although few cases of AIDS have been documented from occupational exposure, approximately 8,700 health care workers each year contract hepatitis B. About 200 will die as a result. The new OSHA standard covering blood borne pathogens specifies measures to reduce these risks of infection.

PROMPT DISPOSAL

The best way to prevent cuts and sticks is to minimize contact with sharps. That means disposing of them immediately after use. Puncture-resistant containers must be available nearby to hold contaminated sharps—either for disposal or, for reusable sharps, later decontamination for re-use. When reprocessing contaminated reusable sharps, employees must not reach by hand into the holding container. Contaminated sharps must never be sheared or broken.

Recapping, bending, or removing needles is permissible only if there is no feasible alternative or if required for a specific medical procedure such as blood gas analysis. If recapping, bending, or removal is necessary, workers must use either a mechanical device or a one-handed technique. If recapping is essential—for example, between multiple injections for the same patient—employees must avoid using both hands to recap. Employees might recap with a one-handed "scoop" technique, using the needle itself to pick up the cap, pushing cap and sharp together against a hard surface to ensure a tight fit. or they might hold the cap with tongs or forceps to place it on the needle.

SHARPS CONTAINERS

Containers for used sharps must be puncture resistant. The sides and the bottom must be leakproof. They must be labeled or color coded red to ensure that everyone knows the contents are hazardous. Containers for disposable sharps must have a lid, and they must be maintained upright to keep liquids and the sharps inside

Employees must never reach by hand into containers of contaminated sharps. Containers for reusable sharps could be equipped with wire basket line for easy removal during reprocessing, or employees could use tongs or forceps to withdraw the contents. Reusable sharps disposal containers may not be opened, emptied, or cleaned manually.

Containers need to be located as near to as feasible the area of use. In some cases, they may be placed on carts to prevent access to mentally disturbed pediatric patients. Containers also should be available wherever sharps may be found, such as in laundries. The containers must be replaced routinely and not be overfilled, which can increase the risk of needlesticks or cuts.

HANDLING CONTAINERS

When employees are ready to discard containers they should first close the lids. If there is a chance of leakage from the primary container, the employees should use a secondary container that is closable, labeled, or color coded and leak resistant.

Careful handling of sharps can prevent injury as reduce the risk of infection. By following these work practices, employees can decrease their chances of contracting bloodborne illness.

Bloodborne facts

EXPOSURE INCIDENTS

U.S. Department of Labor
Occupational Safety and Health Administration

OSHA's new bloodborne pathogens standard includes provisions for medical follow-up for workers who have an exposure incident. The most obvious exposure incident is a needlestick. But any specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials is considered an exposure incident and should be reported to the employer.

Exposure incidents can lead to infection from hepatitis B virus (HBV) or human immunodeficiency virus (HIV) which causes AIDS. Although few cases of AIDS are directly traceable to workplace exposure, every year about 8,700 health care workers contract hepatitis B from occupational exposures. Approximately 200 will die from this bloodborne infection. Some will become carriers, passing the infection on to others.

WHY REPORT?

Reporting an exposure incident right away permits immediate medical follow-up. Early action is crucial. Immediate intervention can forestall the development of hepatitis B or enable the affected worker to track potential HIV infection. Prompt reporting also can help the worker avoid spreading bloodborne infection to others. Further, it enables the employer to evaluate the circumstances surrounding the exposure incident to try to find ways to prevent such a situation from occurring again.

Reporting is also important because part of the follow-up includes testing the blood of the source individual to determine HBV and HIV infection if this is unknown and if permission for testing can be obtained. The exposed employee must be informed of the results of these tests. Employers must tell the employee what to do if an exposure incident occurs.

MEDICAL EVALUATION AND FOLLOW-UP

Employers must provide free medical evaluation and treatment to employees who experience an exposure incident. They are to refer exposed employees to a licensed health care provider who will counsel the individual about what happened and how to prevent further spread of any potential infection. He or she will prescribe appropriate treatment in line with current U.S. Public Health Service recommendations. The licensed health care provider also will evaluate any reported illness to determine if the symptoms may be related to HIV or HBV development.

The first step is to test the blood of the exposed employee. Any employee who wants to participate in the medical evaluation program must agree to have blood drawn. However, the employee has the option to give the blood sample but refuse permission for HIV testing at that time. The employer must maintain the employee's blood sample for 90 days in case the employee changes his or her mind about testing--should symptoms develop that might relate to HIV or HBV infection.

The health care provider will counsel the employee based on the test results. If the source individual was HBV positive or in a high risk category, the exposed employee may be given hepatitis B immune globulin and vaccination, as necessary. If there is no information on the source individual or the test is negative, and the employee has not been vaccinated or does not have immunity based on his or her test, he or she may receive the vaccine. Further, the health care provider will discuss any other findings from the tests.

The standard requires that the employer make the hepatitis B vaccine available, at no cost to the employee, to all employees who have occupational exposure to blood and other potentially infectious materials. This requirement is in addition to post exposure testing and treatment responsibilities.

WRITTEN OPINION

In addition to counseling the employee, the health care provider will provide a written report to the employer. This report simply identifies whether hepatitis B vaccination was recommended for the exposed employee and whether or not the employee received vaccination. The health care provider also must note that the employee has been informed of the results of the evaluation and told of any medical conditions resulting from exposure to blood which require further evaluation or treatment. Any added findings must be kept confidential.

CONFIDENTIALITY

Medical records must remain confidential. They are not available to the employer. The employee must give specific written consent for anyone to see the records. Records must be maintained for the duration of employment plus 30 years in accordance with OSHA's standard on access to employee exposure and medical records.

Material Safety Data Sheet



U.S. Department of Labor

May be used to comply with

OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

Occupational Safety and Health
Administration

(Non-Mandatory Form)

Form Approved

OMB No. 1218-0072

Manufacturer's Name	Emergency Telephone Number
Address (<i>Number, Street, City, State, and ZIP Code</i>)	Telephone Number for Information
	Date Prepared
	Signature of Preparer (<i>optional</i>)

Section II - Hazard Ingredients/Identity Information

Boiling Point		Specific Gravity (H ₂ O = 1)	
Vapor Pressure (mm Hg.)		Melting Point	
Vapor Density (AIR = 1)		Evaporation Rate (Butyl Acetate = 1)	
Solubility in Water			
Appearance and Odor			

Section IV - Fire and Explosion Hazard Data

(Reproduce locally)	OSHA 174, Sept. 1985
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Section V - Reactivity Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
Health Hazards (<i>Acute and Chronic</i>)			

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
Signs and Symptoms of Exposure			
Medical Conditions Generally Aggravated by Exposure			
Emergency and First Aid Procedures			

Section VII - Precautions for Safe Handling and Use

Respiratory Protection (<i>Specify Type</i>)		
Ventilation	Local Exhaust	Special
	Mechanical (<i>General</i>)	Other
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