



SAFETY STANDARD OPERATING PROCEDURES

Exposure Control Policy

Date: April 1, 2014

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Attachments:

- or impossible to differentiate between body fluids
- Exposure to Blood/Infectious Materials
- Exposure to Blood/Infectious Materials Form
- Magistrate Forms for Non-Compliant Source Individuals
- Basic Infection Control Guidelines
- Basic TB Control Guidelines

City of Hickory Exposure Control Policy and Procedure

1. Policy Statement

It is the policy of the City of Hickory to maintain a safe, healthy working environment for the employees and to comply with the Occupational Safety and Health Act (29 CFR 1910.1030) Occupational Exposure to Bloodborne Pathogens. This policy outlines guidelines covering all full-time, part-time and seasonal employees for managing an exposure to blood and other potentially infectious body fluids.

2. Purpose

The purpose of this policy is to follow the Bloodborne Pathogens Standard Exposure Plan, which encourages the importance of universal precautions and engineering controls to establish quality treatment protocols for exposures. Universal precautions are an approach to infection control that stresses the concept that all sources should be assumed infectious for bloodborne pathogens. Exposure to blood and other body fluids presents certain coworkers and their families with the threat of infection with hepatitis B (HBV), hepatitis C (HCV), and the human immunodeficiency virus (HIV). Once an exposure occurs, timely treatment, therapy, and counseling of the exposed co-worker may minimize the risk of infection and minimize anxiety in the co-worker and his or her family.

3. Scope of Employees Covered

- 3.1. All full-time, part-time and seasonal employees who have occupational exposure to bloodborne pathogens are covered by this policy and its standard operating procedures.
- 3.2. The City of Hickory will not provide contracted employees with the Hepatitis B vaccination. With this exception, all other aspects of this policy and its standard operating procedures apply to contracted employees and volunteers.

4. Definitions

- 4.1. Bloodborne Pathogens - Pathogenic microorganisms that are present in human blood and other potentially infectious materials (OPIM) and can cause disease in humans. These pathogens include, but are not limited to, hepatitis b virus (HBV), hepatitis c virus (HCV), and human immunodeficiency virus (HIV).
- 4.2. Contaminated - The presence or reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
- 4.3. Contaminated Laundry - Laundry wet or soiled with blood or other potentially infectious materials and presents a likelihood of soak through or leakage from the bag or container.
- 4.4. Contaminated sharps- Means any contaminated object that can penetrate skin, including but not limited to needles, scalpels, broken glass, blood tubes, and taser lines.
- 4.5. Communicable Disease - Infectious illnesses that are transmitted through direct or

indirect (including airborne) contact with an infected individual including, but not limited to the body fluid of the infected individual.

- 4.6. Decontamination - The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item. Decontamination makes a surface "safe to handle or use"- it is not sterilization.
- 4.7. Engineering Controls- Reduce employee exposure in the workplace by either removing or isolating the hazard or isolating the worker from exposure.
- 4.9 Exposure Incident- Specific eye, mouth, or other mucous membrane, non-intact skin, or parenteral contact with blood or other OPIM. Non-intact skin includes skin with dermatitis, hangnails, abrasions, chafing, etc....
- 4.8. Hand washing facilities - A facility that provides an adequate supply of running water, soap, and single use towels or hot air drying machines.
- 4.9. Hepatitis A – Formerly called "infectious hepatitis", spread by fecal/oral contamination.
- 4.10. Hepatitis B - A viral disease of the liver, transmitted through blood and blood products.
- 4.11. Hepatitis C - A viral disease of the liver, transmitted through direct blood to blood contact.
- 4.12. HIV& AIDS - AIDS is a bloodborne and sexually transmitted disease in which HIV invades the body and damages the immune system. HIV is spread through body fluids.
- 4.13. Known High Risk Group - Male homosexual or bisexual, injecting drug user, prostitute, sexual partner of injecting drug user, sexual partner of a known AIDS or HIV positive patient, transfusion recipient from the years 1978-1985, hemophiliacs.
- 4.14. Needleless Systems- Devices which provide an alternative to needles for various procedures to reduce the risk of injury involving contaminated sharps.
- 4.15. Occupational Exposure Incident - A specific eye, mouth, or other mucous membrane, non-intact skin, or parenteral (piercing) contact with blood or other potentially infectious material that results from the performance of an employees duties. (Example: crime scene investigation).
- 4.16. OHN- Occupational Health Nurse
- 4.17 Other Potentially Infectious Materials (OPIM) Cerebrospinal fluid, pericardial, peritoneal fluid, semen, vaginal secretions, or amniotic fluid, but not limited to blood, saliva, vomit, urine, or feces. These human body fluids include:
 - _ 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.
- 4.18-Parenteral- Piercing of mucous membranes or the skin barrier through such events as needlesticks, bites, cuts, nicks and abrasions.
- 4.19- Personal Protective Equipment- Clothing or equipment worn by an employee for protection against a hazard. These items include: gloves, laboratory coats, face shields, masks and mouthpieces. PPE does not include general work clothing (e.g. uniforms, pants, shifts, shirts, or blouses).
- 4-20- Safety Data Sheets (SDS)- Previously known as Material Safety Data Sheets (MSDS sheets). Refer to the City of Hickory Hazardous Communication Policy.
- 4-21- Sharps with safety engineered injury protections- A needle, sharp or needle device used for drawing body fluids accessing a vein or artery or administering medications of other fluids with a built-in safety feature mechanism that effectively reduces the risk of an exposure incident. (Syringes with a sliding sheath shields the needle after use; needles that retract into a syringe after use; shielded or retracting catheters, i.v. medication delivery systems that use a catheter port with a needle housed in a protective covering).
- 4.22-Individual - Any individual living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure.
- 4-23- Universal Precautions- An approach to infection control where all blood and other potentially infectious materials are treated as infectious (HIV,HBV,HCV) Universal precautions apply to blood, body fluids, secretions, excretions, except sweat and intact skin. These precautions are designed to reduce the risk of transmission of microorganisms from recognized and unrecognized sources of infection.
- 4-24-Work Practice Controls- Reduce the likelihood of exposure by altering the manner in which a task is performed.

5. Exposure Determination

- 5.1. OSHA has defined the classification of employee work activity into three categories with regards to HIV, HBV, and HCV regulations. They are:

- 5.1.1. Tasks that involve actual or potential for mucous membrane or skin contact with blood, body fluids, or tissues. Universal precautions apply (all people should be assumed to be infectious for bloodborne pathogens and take universal precautions to prevent communicable disease transmission).
- 5.1.2. Tasks that involve exposure to blood, body fluids, or tissues and employee may sustain exposure in an emergency.
- 5.1.3. Tasks that involve no exposure to blood, body fluids, or tissues, and do not entail predictable or unpredictable exposure to blood or blood by-products.

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. Creutzfeldt-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.

5.2. The following is a list of job classifications in which supervisors have identified employees to have reasonably anticipated occupational exposure.

- 5.2.1. Fire Department – All active firefighting and commanding personnel
- 5.2.2. Police Department/Code Enforcement – All sworn officers
- 5.2.3. Public Utilities – Lab Technician, Chemist, Maintenance Mechanic, Wastewater Plant Supervisor and Operator, Crew Leaders, Construction Worker, Maintenance Worker
- 5.2.4. Street Division- The decision to include these employees shall be at the Supervisors discretion according to job duties.
- 5.2.4. Human Resources – Registered Nurse – Risk Manager/Emergency Medical Technitian
- 5.2.5. Sanitation – Maintenance Worker (Garbage collection)
- 5.2.6. Garage- Maintenance mechanics

5.2.7. Airport personnel

5.2.8. Parks and Recreation Department- Senior Recreation Programmers, Recreation Programmers, Assistant Recreation Programmers, ALL Parks Maintenance Staff.

5.2.9. Cleaning crew/s which include City Hall, County District Courthouse.

6. Responsibilities

6.1. The Human Resources Department, with the assistance of the Risk Manager, is responsible for reviewing this policy and revising whenever necessary and by June 1st every year to reflect new or modified tasks which affect occupational exposure and to reflect new or revised employee positions with occupational exposure.

6.2. Department heads and supervisors are responsible for assisting the Human Resources Department with identifying the list of job classifications with occupational exposure.

6.3. Coworkers are responsible for complying with the procedures outlined in this policy.

6.4. The Human Resources Department is responsible for developing and coordinating educational programs.

6.5. The Human Resources Department is responsible for maintaining records regarding the hepatitis B vaccination program.

6.6. The Occupational Health Nurse is responsible for reviewing and continuing post-exposure follow-up.

6.7. The Occupational Health Nurse is responsible for maintaining documentation of exposure and follow-up.

7. Methods of Compliance

7.1. Universal precautions will be utilized to prevent reasonably anticipated parenteral, skin, eye, and mucous membrane exposure to blood or other potentially infectious materials that may result during the performance of an employee's duties. The employer must ensure employees implement Standard Precautions. PPE (gowns, gloves, masks) shall be used when in contact with blood or other potentially infectious material. BBP exposure log will be kept in employee health office by Occupational Health Nurse. See Recordkeeping for details.

7.2. A sharps injury log will be maintained and updated per each occurrence by the Human Resources Analyst. Each incident shall have an assigned number to maintain confidentiality. Information regarding how the incident occurred, the time of occurrence, where it occurred, and if appropriate PPE were utilized by the co-worker/s. See Exposure Control Form.

7.3. As new products are evaluated and implemented user departments will notify Administrative Services Director, Risk Manager, and Occupational Health Nurse. There will be an annual evaluation and review of these products by designated non-

managerial personnel. This review shall reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens. See Appendix.

7.4. A list of supplies (PPE's, needles, syringes,) which are utilized by specific departments shall be maintained by the for Occupational Health Nurse referral and update.

7.5. Contaminated Sharps

7.5.1. Employees who use needles in the performance of their duties shall take every precaution to prevent occupational exposure to bloodborne pathogens when handling needles and sharps.

7.5.2. Used needles and sharps shall not be bent, recapped or removed from the syringe unless the recapping or removal is done by means of a mechanical device or a one-handed technique.

7.5.3. Used needles and sharps shall be stored in a puncture resistant, leak proof and BIOHAZARD labeled container.

7.5.4. Sharps containers shall be maintained upright throughout use, replaced routinely and not be allowed to overfill. When removing sharps containers from the areas of use, the containers shall be:

1. Closed immediately before removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;
2. Placed in a secondary container if leakage is possible. The second container shall be:
 - a. Closable;
 - b. Constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and
 - c. Labeled or color coded appropriately
3. Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.
4. Sharps containers must be easily accessible to employees and located as close as feasible to the immediate area where sharps are used (e.g. patient care areas) or can be reasonably anticipated to be found (laundries).
5. Upon closure, duct tape may be used to secure the lid of a sharps container as long as the tape does not serve as the lid itself.

Disposable Sharps

Disposable sharps shall be discarded immediately (or as soon as feasible) in containers that are closable, puncture resistant, leak proof on sides and bottom, and labeled or color-coded. This applies to all contaminated sharps, regardless of whether they are designed with sharps injury prevention features. During use, containers for contaminated sharps shall be easily accessible to personnel and located as close as feasible to the immediate area where sharps are used or can reasonably be anticipated to be found (e.g., laundries). The containers shall be kept upright throughout use and replaced routinely, and not be allowed to overfill.

When moving containers of contaminated sharps from the area of use, the containers shall be closed prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping. The container shall be placed in a secondary container

if leakage of the primary container is possible. The second container shall be closeable, constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping. The second container shall be labeled or color-coded to identify its contents.

- 7.5.5. Supervisors must provide BIOHAZARD containers that are puncture resistant and leak proof at work sites, where used needles and sharps are sorted and must provide for the proper disposal of such needles and sharps.

7.6. Work Areas

- 7.6.1. The proper maintenance and cleaning of employee work areas will eliminate or minimize the indirect transmission of bloodborne pathogens from contaminated surfaces.
- 7.6.2. Personal care products such as lip balm or cosmetics shall not be used in a work area where occupational exposure to bloodborne pathogens exists.
- 7.6.3. No food or drink shall be permitted in a work area where occupational exposure to bloodborne pathogens exists.
- 7.6.4. Clean equipment shall be kept separate from that which may be contaminated.
- 7.6.5. Under no circumstances should contaminated equipment be cleaned in areas such as kitchens or living areas.
- 7.6.6. Worksites where occupational exposure exists will be supplied with appropriate disinfecting solutions and their respective Safety Data Sheets (SDS) and instructions for proper use.

7.7. Personal Protective Equipment (PPE)

- 7.7.1. Supervisors will provide to their employees the necessary personal protective equipment to limit their exposure to blood or other infectious materials that may occur during their course of daily activities. These PPE devices should be readily accessible.
- 7.7.2. Personal protective equipment includes disposable gloves, face masks, eye protection, aprons, gowns, and leak proof disposable bags.
- 7.7.3. Disposable gloves will be constructed of latex or nitrile (latex free) and available in the appropriate sizes.
- 7.7.4. Disposable gloves shall be replaced as soon as practical after they become contaminated, or as soon as feasible if they are torn, punctured, or their ability to function as a barrier is compromised. Hands must be washed after the removal of gloves used as PPE, whether or not the gloves are visibly contaminated.
- 7.7.5. Gloves are not required to be worn when giving an injection as long as hand contact with blood or other potentially infectious materials is not reasonably anticipated.
- 7.7.6. Leather gloves shall be worn in any situation where sharp or rough surfaces are likely to be encountered, such as vehicle extrication. Since they may not provide adequate protection from contact with blood and body fluids or from needle sticks, exam gloves

should be worn under the leather gloves when there is a potential for body fluid exposure.

- 7.7.7. Employees must select PPE appropriate to the potential spill, splash or exposure to body fluids. No PPE can cover all situations; common sense must be used. When in doubt, employees should choose maximal rather than minimal protection.
- 7.7.8. Facial protection shall be used in any situation where splash contact with the face is possible.
- 7.7.9. Employees who have abraded, lacerated, chapped, irritated, or otherwise damaged skin should cover those areas with waterproof dressings.
- 7.7.10. Washing/scrubbing hands with soap and water for 15 seconds and drying hands with a disposable product is required after removal of PPE.
- 7.7.11. If soap and water are unavailable, waterless hand cleanser is acceptable and will be provided where hand washing facilities are not readily accessible. (Ex. Purell)
- 7.7.12. Summary guidelines for use of personal protective equipment:
 - If it is wet, it is potentially infectious. Use gloves.
 - If it could splash on your face, use eye shields or face shield (mask).
 - If it will puncture, use protective apron and gloves.
 - If it is airborne, mask yourself and the victim.

7.8. Removal and storage of contaminated equipment and clothing

- 7.8.1. Immediately or as soon as possible after exposure, employees must remove all contaminated equipment and clothing. The employees shall not leave the work area without first removing PPE and storing same in an appropriately designated and labeled container for storage, washing, decontamination or disposal of contaminated materials.
- 7.8.2. Contaminated clothing should be exchanged for clean clothes. The employee should shower off body fluids or any other potentially infectious materials that were in contact with skin under work clothes.
- 7.8.3. Soiled uniforms/clothing should be handled as little as possible to prevent the spread of contaminants and placed in red biohazard waste bags and discarded if extremely soiled.
- 7.8.4. Hand washing is required following removal and containment of gloves, masks and other PPE when showering is not necessary.
- 7.8.5. Disposal of OPIM does not apply to urine, feces, vomitus, unless there is visible blood or unless circumstances (poor lighting) prevent a determination of the presence of visible blood.

7.9 Decontamination

- 7.9.1 A solution of household bleach (5% Sodium Hypochlorite) Ratio: 1:10 mixed with

water solution (1/4 cup bleach to 1 gallon water) is an effective disinfectant against HBV and HIV. Since Clorox loses its strength after 1 month, the solution shall be mixed when needed for effective decontamination. Clorox shall remain on the contaminated area at least 10 minutes for effective removal of contaminants.

7.9.2 Surfaces contaminated with blood or Other Potentially Infectious Materials (OPIM) shall be cleansed using a freshly prepared 1:10 dilution of chlorine bleach solution (1/4 cup in 1 gallon of water). The area shall be flooded with the bleach solution and then cleaned up using paper towels working toward the center and leave for 30 minutes. Wash with soap and water, then rinse. If the spill is significant, repeat the cycle. Gloves/glasses shall be worn during the clean-up procedures. Chlorine bleach can corrode metal, so these items shall be rinsed thoroughly. Thorough soap, water, and a final rinse will remove chlorine residue.

7.9.3 Certain commercial decontaminants are acceptable and shall be utilized per dept. approval and budget allotment. Other Environmental Protection Agency approved disinfectants may be used if they are Environmental Protection Agency registered tuberculocides (List B+). (Ex. Alcide).

7.9.3.1.1 EPA registered sterilants (List A+)

7.9.3.1.2 EPA registered products effective against HIV/HBV (List D+)

7.9.4 1:10 Lysol concentrate and water solution (preferred when fabric is being decontaminated).

7.9.5 Employees are not permitted to take their protective equipment home for laundering.

7.9.6 Clothing/uniforms may be washed in a commercial washing machine with suitable solvents and detergents specified for blood and body fluids (if contamination is by bloodied by a source other than the employee). These machines are available by contacting the Hickory Fire Dept. (323-7420) or by contacting the battalion chief on shift (323-7509).

7.9.7 Soiled clothing/uniforms shall be placed in red biohazard bags and either discarded or decontaminated according to this policy.

7.9.8 Contaminated laundry shall be handled as little as possible with a minimum of agitation. Contaminated laundry shall be bagged or containerized at the location where it was used and shall not be sorted or rinsed in the location of use. Other requirements include:

- Contaminated laundry shall be placed and transported in bags or containers labeled or color coded.
- Whenever contaminated laundry is wet and presents a reasonable likelihood of soak-through or leakage from the bag or container, the laundry shall be placed and transported in bags or containers which prevent soak-through and/or leakage of fluids to the exterior.
- The employer shall ensure that employees who have contact with

contaminated laundry wear protective gloves and other appropriate PPE.

- 7.9.9 Shoes or boots contaminated with blood or other body fluids shall be washed with antibacterial/antiviral agents, rinsed, and allowed to dry before being worn again.
- 7.9.10 Broken glassware that may be contaminated shall not be picked up with the hands. It shall be cleaned up using mechanical means such as a brush and dustpan, tongs or forceps.
- 7.9.11 The forensic evidence cabinet located at the Hickory Police Department shall be cleaned according to manufacturer's recommendation. Gloves and protective eyewear shall be worn when cleaning the cabinet and when evidence is being handled. The inside of the cabinet can be wiped or sprayed with a mild bleach solution and rinsed with the optional spray nozzle. For most effective cleaning, the shelves and clothing rod should be cleaned separately outside of the unit.
- Turn off power switch
 - Remove all evidence
 - Wipe or spray with a mild bleach solution
 - Rinse the inside surfaces with the spray nozzle or wipe with damp towels

- 8 Disposal of Regulated Waste: Secondary containers or bags are only required if the primary container is contaminated on the outside. Also, if the specimen could puncture the primary container, a secondary puncture-resistant container is required. All specimen containers, primary and secondary, must be closed, properly labeled or color-coded and must prevent leakage

*Closable container/s.

* Labeled or color-coded in accordance with the standard; and

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

*If outside contamination of the regulated waste container occurs, it must be placed in a second container meeting the above standards.

- 8.1.1 Evidence boxes shall be labeled with appropriate biohazard labels by crime scene investigators.
- 8.1.2 The warning label must consist of the biohazard symbol and the word "BIOHAZARD".
- 8.1.3 A warning label that includes the universal biohazard symbol, followed by the term "biohazard," must be included on bags/containers of regulated waste, on bags/containers of contaminated laundry, on refrigerators and freezers that are used to store blood or Other Potentially Infectious Materials (OPIM), and on bags/containers used to store, dispose of, transport, or ship blood or Other Potentially Infectious Materials (OPIM) (e.g., specimen containers). In addition, contaminated equipment which is to be serviced or shipped must have a readily observable label attached which contains the biohazard symbol and the word "biohazard" along with a statement

relating which portions of the equipment remain contaminated. Red bags or red containers may be substituted for the biohazard labels.

- 8.1.4 Labels must be fluorescent orange or orange-red in color with contrasting lettering.

Pre-Exposure Hepatitis B Vaccination

- 8.2 Hepatitis B vaccine shall be made available after the employee has received training.
- 8.3 Vaccination against Hepatitis B virus is strongly encouraged for at risk employees.
- 8.4 Employees may decline the immunization by signing the hepatitis b declination form.
- 8.5 The vaccine is provided for at risk employees at no charge.
- 8.6 Employees will be notified of side effects and risks.
- 8.7 The Hepatitis B vaccination must be made available within 10 working days of initial assignment, after appropriate training has been completed.
- 8.8 The standard immunization schedule is followed: 0, 1, 6 months. (Employees who have received 1 or 2 vaccine doses will be continued on the standard schedule regardless of time between immunizations).
- 8.9 If an employee vacates his/her position at the city and currently in the vaccination process, he/she will be responsible for completing the series of hepatitis b vaccinations with their own time and expense.
- 8.10 If the series is interrupted after the first dose, the second dose should be administered as soon as possible. The second and third injections, should be separated by an eight week interval. If only the third dose is delayed, it should be given as soon as possible.

The City of Hickory follows United States Public Health Service (USPHS) guidelines. See details below.

Current US Public Health (USPHS) Guidelines do not recommend routine post-vaccination testing. According to the current guidelines, employees who have **ongoing** contact with patients or blood are at **ongoing** risk for percutaneous injuries **should** be tested for anti-HBs one to two months after the completion of the three-dose vaccination series. Non-responders must receive a second three-dose series and be retested after the second series.

Any person who performs tasks involving contact with blood, blood-contaminated body fluids, other body fluids, or sharps should be vaccinated against hepatitis B. Pre-vaccination serologic screening for previous infection is not indicated for persons being vaccinated because of occupational risk. If the vaccination series is interrupted after the first dose, the second dose should be administered as soon as possible. The second and third doses should be separated by an interval of at least 2 months. If only the third dose is delayed, it should be administered when convenient. HCP who have contact with patients or blood and are at ongoing risk for

percutaneous injuries should be tested 1–2 months after completion of the 3-dose vaccination series for anti-HBs. Persons who do not respond to the primary vaccine series (i.e., anti-HBs <10 mIU/mL) should complete a second 3-dose vaccine series or be evaluated to determine if they are HBsAg-positive. Revaccinated persons should be retested at the completion of the second vaccine series. Persons who do not respond to an initial 3-dose vaccine series have a 30%–50% chance of responding to a second 3-dose series (165). Persons who prove to be

HBsAg-positive should be counseled regarding how to prevent HBV transmission to others and regarding the need for medical evaluation. Non-responders to vaccination who are HBsAg-negative should be considered susceptible to HBV infection and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to HBsAg-positive blood. Any blood or body fluid exposure sustained by an unvaccinated, susceptible person should lead to the initiation of the Hepatitis B vaccine series.

8.11 The Occupational Health Nurse will administer the vaccination, schedule appointments, and provide consultation and follow-up.

8.12. Titer levels shall be completed per Department Head approval.

9 Co-Worker Procedures for Exposure

9.1 The co-worker shall initiate or assist in limiting additional exposure to the injured or exposed person and to contact emergency medical services if needed.

9.2 The coworker shall notify the supervisor of any exposure incident to the employee or anyone else that occurred on city property during the delivery of a city service.

9.3 The coworker shall identify and document the source of exposure.

9.4 The coworker shall immediately clean the exposed body area thoroughly with soap and water for 15-30 seconds. If soap and water are unavailable use a cleanser of any type (non-caustic). Washing the area as soon as possible after contact decreases the likelihood of transmission of pathogens.

9.5 Use of an alcohol-based cleanser such as Purell shall be used if soap and water are unavailable.

9.6 Eyes should be rinsed with water or saline irrigation as soon as possible. They should be flushed at least 15 minutes. If the mouth is exposed, rinse/flush with clean water.

9.7 Notify the Occupational Health Nurse about the exposure within 24 hours per OSHA standard and to ensure protocol was followed.

9.8 If the coworker is injured, follow normal procedures for contacting the City Nurse or obtaining emergency treatment. (The Hart Industrial Clinic is open from 0700-1900 Monday through Thursday and 0700-1730 on Friday. After these hours or on weekends seek attention at Frye Regional Emergency Dept. or Catawba Valley Medical Emergency Dept.). If possible, the source individual should be tested unless there is medical information indicating they are positive for HIV, HBV, or HCV. In this case the co-worker shall be counseled and prophylaxis treatment will be performed per M.D.

recommendation. If treatment is necessary this should begin within 2 hours after the exposure.

9.9 If treatment is rendered by an emergency service and exposure has occurred, the coworker should:

- Notify attending medical personnel that you are a City of Hickory employee who has had an exposure to blood or body fluids.
- Request an exposure panel for yourself and the source person. The exposure panel includes a rapid Single Use Diagnostic System (SUDS) test for HIV detection, Hepatitis B core, Hepatitis B surface antigen, and Hepatitis C.
- The lab personnel will notify the house supervisor. The supervisor will need a pager number or phone number so the coworker can be contacted about the initial Single Use Diagnostic (SUDS) test results.
- To ensure proper protocol has been followed the Occupational Health Nurse should be contacted within 24 hours of the incident.

9.10 The Supervisors Accident report must be completed within 24 hours of the incident.

10 Post-exposure Evaluation and Follow-up

10.1 An employee shall be defined as having been occupationally exposed under the following conditions:

- The source is HIV positive and/or hepatitis B positive (or status of source is unknown) and one of the following has occurred:
- The employee has suffered a piercing injury with a contaminated sharp.
- The employee has had contact on a body surface, abraded skin or mucous membrane (eyes, nasal, mouth), or abraded skin with contaminated blood or body fluid.
- The employee has received a bite that breaks the skin.

10.2 An employee will not be defined as having been occupationally exposed under the following conditions:

- The source is hepatitis B negative, even if the source is a member of a high-risk group.
- Contact of intact skin with contaminated blood or body fluid.
- Piercing injury with a non-contaminated sharp.
- Exposure or contact with urine, or tears where there is no visible blood.

10.3 Any exposure from blood to blood, blood to eyes, blood to mouth, or blood to mucous membranes should be evaluated within 24 hours by the physicians at the Hart Clinic or either hospital.

10.4 The source individual's blood shall be tested after consent is obtained in order to determine the presence of HBV, HIV, and HCV. If consent is not obtained, the employer

shall establish that legally required consent cannot be obtained.

- 10.4.1 Testing of the source individual's blood may be done at the emergency room if further treatment is required or at Hart Industrial Clinic if the incident occurs during the clinic's normal operating hours.
- 10.4.2 If the source individual refuses testing the magistrate will sign for consent to be obtained for exposure testing on the source individual.
- 10.5 Results of the source individual's testing shall be made available to the exposed employee and the exposed employee shall be informed of applicable regulations and laws concerning disclosure of the identity and infectious status of the source individual.
- 10.6 The exposed employee's blood shall be collected as soon as feasible and tested after employee consent is obtained. Exposure protocol will be followed.
- 10.7 Post exposure testing will be performed at the time of exposure, at six weeks, three months, six months, and twelve months if deemed necessary by the attending physician.
- 10.8 The exposed employee shall be offered counseling and shall receive medical evaluations for reported illnesses following an exposure incident as required by a licensed physician or by a licensed healthcare professional under the supervision of a physician.
- 10.9 Confidentiality must be maintained with respect to the source individual and the exposed employee.
- 10.10 Following an exposure incident, employers are required to document, at a minimum, the route(s) of exposure, and the circumstances under which the exposure incident occurred. To be useful, the documentation must contain sufficient detail about the incident. There should be information about the following:
 - The engineering controls in use at the time and work practices followed;
 - Description of the device in use;
 - The protective equipment or clothing used at the time of the exposure incident;
 - Location of the incident and procedures being performed when the incident occurred;
 - Sharps Injury Log will be maintained in manner that protects employee privacy and contains the type and brand of device/s involved in the incident; the location of the incident; and a description of the incident.
 - Employee's training.
 - The source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law.
 - The employer should then evaluate the policies and "failures of controls" at the time of the incident to determine actions that could prevent future

incidents.

- An accident report shall be completed within 24 hours of the incident.
- A Form-19 report shall also be completed.

10.11 Post-exposure documentation will be maintained by the Occupational Health Nurse.

10.12 Employees will be notified by the Occupational Health Nurse when exposure follow-ups are due.

10.13 Any worker's compensation claim in relation to an occupational exposure must be documented at the time of exposure by blood testing, in order to establish a baseline.

10.14 Tetanus is also a risk when a break in the skin has occurred or exposure has occurred with the eyes, mouth, or nose. Any exposure or injury that occurs after the recommended 5-10 year "window" shall result in a tetanus booster as soon as possible during post-exposure treatment at the Hart Clinic, the hospital or post-exposure by the Occupational Health Nurse.

11 Information and Training

11.1 Training shall be provided by the Human Resources Department. Training will be provided at no cost and during working hours.

11.2 Training will consist of:

- Making available a copy of the OSHA bloodborne pathogens standard for employee reference.
- Reviewing the City's policy and procedure.
- Discussing bloodborne pathogens including modes of transmission, HBV vaccination, HIV exposure, and personal protective equipment.
- Distributing written material that explains HBV, HCV, and HIV.
- An explanation of methods that will prevent or reduce exposure including engineering controls, work practices, and personal protective equipment.
- Information on the types, proper use, location, removal, handling, decontamination and/or disposal of personal protective equipment.
- Information on the appropriate actions to take and persons to contact if an emergency occurs, procedures to follow if an exposure incident occurs, and the medical follow-up that will be made available.
- Explanation of signs and labels used.
- Opportunity for interactive question and answer period at conclusion of training will be offered.

11.3 Annual training will be provided within one year of the previous training.

12 Record Keeping

12.1 The medical record for each coworker covered by this policy will include the coworker's name and social security number; a copy of the coworker's hepatitis B vaccination status, including dates of the vaccinations; copies of all results of examinations, medical testing, and follow-up procedures; copies of the healthcare professional's written opinion; and a copy of the information provided to the healthcare professional.

12.2 Medical records will be maintained by the Occupational Health Nurse.

12.3 Medical records will be confidential and will not be disclosed or reported without the coworker's written consent to any person within or outside the workplace except as required by law. The co-worker shall be notified by phone or via interoffice mail regarding the results of the post-exposure testing.

12.4 Medical records shall be kept for at least the duration of employment plus 30 years.

12.5 Training records will be maintained by the Human Resources Department and will include the following elements:

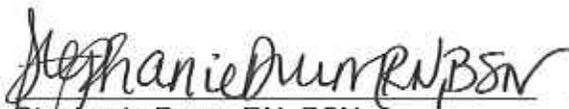
- The names of coworkers attending the sessions.
- The dates of the sessions.
- The contents or a summary of the training sessions.
- The names and qualifications of the persons conducting the training.

12.6 Training records shall be maintained for 3 years from the date on which the training occurred.

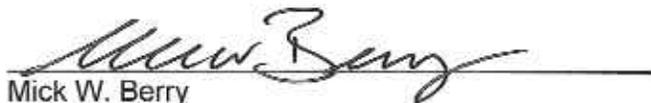
Attachments:

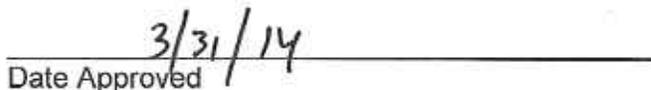
Consent/Declination Form for Hepatitis B Vaccine
Exposure to Blood/Infectious Material Form
Magistrate Forms for Non-Compliant Source Individuals
Basic Infection Control Guidelines
Basic TB Control Guidelines

Revised: March 13, 2014


Stephanie Drum, RN, BSN


Todd Shoebridge, Risk Manager


Mick W. Berry


Date Approved



CITY OF HICKORY

I understand the benefits and risks of the hepatitis b vaccine and I voluntarily consent to receive the hepatitis b vaccine at this time. I understand that I must complete the series of three injections in order to obtain full benefit of the vaccine.

NAME (PRINT) _____
 SIGNATURE _____
 DEPARTMENT _____
 ALLERGIES _____
 PHONE _____

	Dosage 1 G,S,K	Dosage 2 G,S,K	Dosage 3 G,S,K
Manufacturer and Lot #			
Date Administered			
Left Deltoid			
Right Deltoid			

CLINICIAN SIGNATURE _____

HEPATITIS B ANTIBODY SCREEN:

_____/_____/_____
 DATE PERFORMED

RESULTS: _____

BOOSTER SHOT RECORD:

	Dosage 1	Dosage 2	Dosage 3
Manufacturer and Lot #			
Date Administered			
Left Deltoid			
Right Deltoid			

I understand that due to my occupational exposure to blood or other potentially infectious material, I may be at risk of acquiring Hepatitis B Virus (HBV). I was given the opportunity to be vaccinated with Hepatitis B vaccine at no charge to me. However, I **DECLINE** Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at an increased risk of acquiring Hepatitis B, a serious disease. If in the future I want to be vaccinated with Hepatitis B vaccine, I understand that I can receive the vaccine series at no charge to me.

Coworker Signature _____

Blood Borne Pathogens

- 1- Introduction
 - a. Purpose of Program
 - b. Overview of Regulation
 - c. Objectives
- 2- Blood borne Diseases (HIV, HBV, HCV)
 - a. Epidemiology
 - b. Signs/Symptoms
 - c. Transmission
- 3- Methods to Reduce/Prevent Exposure
 - a. Universal Precautions
 - b. Work Practice Controls
 - c. PPE's
 - d. Treatment
- 4- Basic Infection Control/s
 - a. Hand washing
 - b. Surfaces
 - c. Clothing
 - d. Shoes
 - e. Other
- 5- Hepatitis B Vaccine
 - a. Efficacy
 - b. Safety
 - c. Method of Administration
 - d. No charge to co-workers with occupational exposure
- 6- Reporting/Incidents
 - a. Wound Treatment
 - b. Medical Follow-Up
 - c. Notifying Supervisor
 - d. Notifying Occupational Health Nurse, Stephanie Drum, RN
 - e. Clinic/Hospital protocol
 - f. Post-Exposure Follow-Up and Evaluation
- 7- Labels/Signs
- 8- Co-worker Responsibilities
- 9- Forms
- 10-Other Infectious Diseases
 - a. Tuberculosis
 - b. MRSA
 - c. Clostridium/Norovirus

Trainer: Stephanie Drum, RN, BSN (Ofc. 323-7404)
Occupational Health Nurse
Revised 1/14



**City of Hickory
Exposure to Blood/Infectious Material Report**

Information provided to Dr. _____ M.D.

Employee Name: _____

Date of Incident: _____

Time of Incident: _____

Location of Exposure Incident: _____

Nurse was contacted by: _____ @ _____

Job Title: _____

Employee's Description of Exposure: _____

Source Person: _____

Where was initial blood work completed?

FRMC _____

CVMC _____

Hart Industrial _____

Other _____

Tetanus/Diphtheria : _____

HBV Immune Yes or No

1- Type of Exposure/Injury: _____

- a) Superficial _____
- b) Moderate (Skin puncture) _____
- c) Severe (Deep Cut and Profuse Bleeding) _____
- d) Skin to Skin _____
- e) Mucous Membranes _____
- f) Human Bite _____

2- What type of PPE was used at the time of the incident (Gloves, Mask, etc...)

3- What type of sharp caused the exposure and was it contaminated with blood?

4- If item was a sharp what did it penetrate?

- a) A pair of gloves _____
- b) Double gloves _____
- c) No gloves _____
- d) Glasses/Goggles _____
- e) Clothing or uniform _____
- f) Shoes/Boots _____

5- Measures taken after exposure: _____

6- Could a different work practice control have prevented the injury? _____

Attachments:

- 1- Employee's medical records relevant to appropriate treatment, including vaccination status.
- 2- Source Person's records pertinent to the incident (if source is known).

Notes:

Nurse's Signature _____ Date _____

**EMPLOYEE ANTIBODY TESTING CONSENT AND
AUTHORIZATION TO RELEASE MEDICAL INFORMATION**

I, _____, an employee of the City of Hickory, believe that I have been involved in an "exposure incident" which means that I have been exposed to blood or other potentially infectious materials in such a manner as to present a risk of transmission of HIV, HBV, or HCV.

I understand that, pursuant to law, I am entitled to consult with an on-duty physician for testing, treatment, and/or counseling that may be recommended by such physician.

I understand that, subject to my consent, blood will be collected as soon as feasible and tested for HIV, HBV and/or HCV.

_____ I consent to baseline blood collection, but do not consent to HIV, HBV or HCV serology testing.

_____ I consent to baseline blood collection and to HIV, HBV and HCV serology testing.

_____ I consent to baseline blood collection and testing for HIV, HBV and HCV only.

_____ I have/have not received a Hepatitis B vaccination.

I understand that my employing agency, the City of Hickory, is required by law to maintain certain medical records and information pertaining to this exposure incident. Such information, required to be maintained, includes, but is not limited to, a copy of all results of examinations, medical testing and follow-up procedures as required by 29 CFR 1910.1030 paragraph (f) (3), a copy of my treating physician or health care professional's written opinion, required by paragraph (f) (5) and a copy of the information provided to the health care professional as required by paragraphs (f) (4) (ii) (B) (C) and (D).

In order to effectuate the purpose and intent of federal law, I hereby authorize any treating physician, other health care provider, and/or laboratory to disclose any and all medical testing and laboratory results, diagnosis, treatment, counseling records or any other necessary, required or requested pertinent information or records to the City of Hickory for follow-up treatment and record keeping purposes. I understand that this information shall be kept confidential and will not be disclosed or reported, without my express written consent, to any person within or outside the work place except as may be authorized by law.

Employee printed name

Employee signature

Date

NORTH CAROLINA
CATAWBA COUNTY

IN THE GENERAL COURT OF JUSTICE
DISTRICT COURT DIVISION
FILE NO. _____

IN THE MATTER OF _____)
)
)
)

ORDER

THE COURT, having previously ordered that the Director of the County Health Department or other licensed physician authorized to act on behalf of said department conduct an investigation of the exposure incident alleged to have occurred at _____ hours on the _____ day of _____, 200____, pursuant to the provisions of North Carolina General Statutes 130A-144, 130A-148, and 10A NCAC 41A .0202 and .0203.

Having considered all available evidence to include the Affidavit of the moving party and the investigative report of _____, the investigating health official;

This Court finds that there is probable cause to believe that an employee was exposed to the above-named defendant/source person in a manner that poses a significant risk of transmission of the HIV, HBV or HCV virus by such defendant/source person;

IT IS NOW, THEREFORE, ORDERED:

1. That _____, the defendant/source person named herein, submit to withdrawal of a sufficient quantity of his/her blood by qualified medical personnel so that his/her blood can be tested for the presence of HIV, HBV, and HCV.

2. That the Sheriff of Catawba County or any other law enforcement officer with territorial jurisdiction is commanded to transport the above-named defendant/source person to an appropriate medical facility (i.e. hospital emergency room) if necessary, for the purpose of withdrawing blood.

3. In accordance with this Order, the Sheriff or other law enforcement personnel are authorized to use whatever force is reasonably necessary to secure compliance with and execution of this Order.

4. Any qualified medical personnel withdrawing the defendant's blood pursuant to this Order shall do so with or without the consent of the defendant and, if necessary, shall do so through the process of physical restraint.

5. The results of the defendant's blood test, to the extent it reveals the presence or the absence of the HIV, HBV or HCV virus shall be communicated to the Director of the Catawba County Health Department who shall forthwith communicate said results to the City Nurse of the City of Hickory, P.O. Box 398, Hickory, North Carolina 28603, who will coordinate the communication of such results either directly to the exposed officer or to his treating physician.

This _____ day of _____, 200_____.

District Court Judge

NORTH CAROLINA
CATAWBA COUNTY

IN THE GENERAL COURT OF JUSTICE
DISTRICT COURT DIVISION
FILE NO. _____

IN THE MATTER OF)
)
)
)
_____)

ORDER

THE COURT, having considered the Motion of _____ in the above-captioned matter and having reviewed the Affidavit or sworn statement attached thereto, hereby issues the following Order pursuant to the provisions of North Carolina General Statutes 130A-144 and 130A-148.

IT IS NOW, THEREFORE, ORDERED:

1. That the defendant/source person, _____, be detained for as long as reasonably necessary to allow for investigation by public health officials and for testing for HIV virus infection, HBV infection and/or HCV infection if such testing should be deemed required or necessary by public health officials pursuant to North Carolina General Statutes 130A-144 and 130A-148;

2. The Director of the County Health Department or any licensed physician authorized to act on behalf of said department and who has knowledge of or is served a copy of this Order, is hereby directed to immediately conduct an investigation of the exposure incident described in the attached Motion and accompanying Affidavit pursuant to the provisions of North Carolina General Statutes 130A-144 and 130A-148 and 10A NCAC 41A.0202 and .0203 to determine whether the circumstances surrounding the exposure and the defendant's risk for being a carrier of either HCV, HBV or HIV is substantiated.

3. The investigation conducted pursuant to this Order shall include but not be limited to a review of the Motion and supporting Affidavit attached herewith and an interview with the moving party, if necessary, to determine whether a needle stick, non-intact skin or mucous membrane exposure or other exposure to blood or body fluids that poses a significant risk of HIV, HBV or HCV transmission has occurred.

4. If necessary or appropriate, the investigating health department official shall interview the defendant/source individual named herein and notify his/her attending physician or other occupational health care provider that an exposure has occurred.

5. The treating physician or other occupational health care provider of the defendant/source person named herein or any person in charge of a medical facility having custody or possession of his/her medical records shall upon request and proper identification, permit the local health department director or other investigating health department official to examine, review and/or obtain copies of medical records in his/her possession or under his/her control which pertains to the diagnosis or treatment of the defendant/source person to the extent that such diagnosis or treatment relates to HIV, HBV or HCV.

6. The attending physician, occupational health care provider or person in charge of a medical facility in possession of the medical records of the defendant/source person shall reveal to the investigating health department official whether the defendant/source person is infected with HIV, HBV or HCV if such information is available.

7. The director of the county health department or other investigating health department official shall determine whether in his/her medical judgment a significant risk of transmission of HIV, HBV or HCV exists.

8. If, in the opinion of the investigating health department official, there exists a significant risk of transmission of HIV, HCV or HBV by the above-named source person, he/she shall request that the defendant/source person voluntarily submit to the withdrawal of the blood by qualified medical personnel for the purpose of being tested for the presence of the HIV, HBV and HCV virus. The source person shall be informed that any such testing shall be done without cost to him pursuant to the provisions of 10A NCAC 41A .0202 and .0203.

9. The investigating health department official shall communicate the findings and the results of his/her investigation to the undersigned without undue delay, and in any event, not more than twenty hours from the signing of this Order.

Issued at _____ this the _____ day of _____,
200____.

Magistrate

NORTH CAROLINA

IN THE GENERAL COURT OF JUSTICE

CATAWBA COUNTY

IN THE MATTER OF)
)
)
)
_____)

MOTION

_____, an employee of the City of Hickory, hereby moves the Court, pursuant to North Carolina General Statutes 130A-144 and North Carolina General Statutes 130A-148 and 10A NCAC 41A.0202 and 0203 for an Order requiring that the above-captioned individual be detained for a reasonable period of time for investigation by public health officials and for testing for HIV, HBV and HCV if required by public health officials.

The underlying facts and circumstances establishing the probable cause for this requested action are set out in detail in the attached affidavit herewith or have been orally presented and sworn to the magistrate by the officer.

WHEREFORE, your Movant respectfully moves the Court for the Order above requested.

This the _____ day of _____, 20__.

Employee

Arnita Dula, NC Bar No. 27795
City of Hickory Staff and Police Attorney
Post Office Box 398
Hickory, NC 28603
Telephone: (828) 323-7564

Blood Borne Pathogens

- 1- Introduction
 - a. Purpose of Program
 - b. Overview of Regulation
 - c. Objectives
- 2- Blood borne Diseases (HIV, HBV, HCV)
 - a. Epidemiology
 - b. Signs/Symptoms
 - c. Transmission
- 3- Methods to Reduce/Prevent Exposure
 - a. Universal Precautions
 - b. Work Practice Controls
 - c. PPE's
 - d. Treatment
- 4- Basic Infection Control/s
 - a. Hand washing
 - b. Surfaces
 - c. Clothing
 - d. Shoes
 - e. Other
- 5- Hepatitis B Vaccine
 - a. Efficacy
 - b. Safety
 - c. Method of Administration
 - d. No charge to co-workers with occupational exposure
- 6- Reporting/Incidents
 - a. Wound Treatment
 - b. Medical Follow-Up
 - c. Notifying Supervisor
 - d. Notifying Occupational Health Nurse, Stephanie Drum, RN
 - e. Clinic/Hospital protocol
 - f. Post-Exposure Follow-Up and Evaluation
- 7- Labels/Signs
- 8- Co-worker Responsibilities
- 9- Forms
- 10- Other Infectious Diseases
 - a. Tuberculosis
 - b. MRSA
 - c. Clostridium/Norovirus

Basic Infection Control Guidelines

• **Hands-On Tips for Employees:**

- Routinely wash your hands with soap as soon as you arrive at the office and several times throughout the day, including before and after lunch, after using the restroom, and in between meetings. Wash your hands vigorously for at least 20 seconds.
- Because germs can be transmitted from virtually anything you come in contact with, keep a surface cleaner or disinfecting spray or wipes handy for daily wipe-down of the two most common items you touch each day, your desktop and telephone. Some products are designed to kill the germs that lead to cold and flu suffering — read the product label to be sure.
- Clean your office and restroom doorknobs regularly. Wipes are great for this task.
- Use a disinfectant spray in your office garbage can. Has it ever been disinfected?
- If you're sick, stay home! If you have a temperature 101 or above it is a good idea to remain at home to avoid spreading the illness to other employees.

• **Hands-On Tips for Employers:**

- Consider providing each of your employees (or each floor or section) with personal cleaning supplies such as wipes, sprays and disinfectants to keep their personal environments clean and healthy.
- Send an office-wide e-mail encouraging hygienic activities at work and at home, to help prevent sickness for themselves and others.
- Always ensure restrooms and kitchen areas are supplied with enough and proper cleaning products for hands and surfaces, including disinfectants and multi-surface cleaners.

• **When to Wash Hands at the Workplace**

- **Recommendations:**
- Each time you use the restroom
- Before and after staff meetings if food is served
- After scanning newspapers or magazines in your break room
- Before and after your lunch
- After using your friend's keyboard or tools
- Before and after a meet and greet activity in your office
- When using shared office equipment like copiers, phones, etc





Tuberculosis Exposure Guidelines and General Information

The following information is general information and may be utilized in the event of a questionable Tuberculosis exposure, or for one's general knowledge and education.

Definition:

Tuberculosis (Tb) is an infectious disease caused by bacteria. It most commonly affects the lungs but can also affect bones, kidneys, liver, brain, joints, intestines, skin, lymph nodes, and reproductive organs. *TUBERCULOSIS:* Tuberculosis is a systematic disease most commonly affecting the lungs. However, tuberculosis may also occur in any other body organs or tissue, but Pulmonary Tuberculosis is the only infectious type. The etiological agent of tuberculosis, *Mycobacterium Tuberculum*, is carried through the air in infectious droplets which are produced when a person with active tuberculosis sneezes, coughs, speaks or sings. When people breathe the air contaminated by an infected person, they may become infected with the tuberculosis bacillus. Ventilation is important in the reducing the viable organisms in a space. Covering the person's mouth will reduce the number of organisms excreted into the air. Respirators may prevent inhalation of any airborne organisms. Effective anti-tuberculosis therapy quickly eliminates a large number of a person's bacilli and renders most people non-infectious after two weeks of medication. Tuberculosis bacilli enter the lungs and establishes an infection. The tuberculin skin test is used to identify persons who have been infected. The skin test will show positive within 2 10 weeks after exposure. Individuals who are infected but show no clinical signs or symptoms are not considered contagious. An average of 1 in 10 infected persons will develop the active state of the disease in their life time if not treated. Approximately 90% of people who are infected with TB will never develop disease. These people have a latent (inactive) infection (i.e., positive tuberculin skin test, but a normal chest x-ray and no TB symptoms) and are not infectious to others. However, in 10% of people the TB bacteria will grow and spread, causing tissue damage. People with TB disease of the lungs or airway may be infectious to others until they have received their initial phase of treatment with TB medications.

Terms

CXR- chest x-ray

HCW- health-care worker

HIV- human immunodeficiency virus

MM- millimeters

OHN- Occupational Health Nurse

Mtb- *Mycobacterium tuberculosis*

Purified protein derivative (PPD): Purified tuberculin preparation used in Mantoux tuberculin skin tests.

Tb- tuberculosis

Tb infection: A condition in which living tubercle bacilli are present in the body without disease. Tb infection without Tb disease cannot be transmitted. Persons with Tb infection have no symptoms of Tb disease and generally have a positive Tb skin test.

TST- tuberculin skin test

Purified protein derivative (PPD): Purified tuberculin preparation used in Mantoux tuberculin skin tests.

Epidemiology of Tuberculosis in the U.S.

A. From 1985 to 1992, the number of new TB cases increased by 14 percent.

B. Five major factors contributed to this resurgence:

- a. Increased TB in the HIV-infected population
- b. Increased immigration from countries where TB is common
- c. Transmission of *M. tb* in health-care settings, health-care facilities, correctional facilities, and shelters
- d. Deterioration of the public health infrastructure
- e. Rise in multidrug-resistant TB (MDR-TB)

1. In recent years, more than 500 cases of TB disease in HCWs have been reported to the CDC, representing just over two percent of U.S. cases annually.

2. HCWs who have contact with TB patients, without the benefit of appropriate control measures, continue to be at significant risk of TB infection and TB disease.

C. Transmission

It is spread when a person who is sick with TB disease (**active TB) of the lung or throat coughs, sneezes, or speaks, the TB germs are sent into the air.** These germs can stay in the air for several hours, especially in enclosed spaces. Persons breathing in air containing TB germs can inhale the bacteria and become infected. It is not easy to catch. It usually takes several hours of close contact with a person who has active TB to be infected with the bacteria.

Not all people with active TB disease are sick enough to spread the disease and not all people who are exposed to TB become infected. Your risk of becoming infected depends on the length and intensity of the exposure and how symptomatic the sick person is. Brief or distant exposure

to TB, or exposure to someone without a cough, **rarely leads to infection. It usually takes lengthy contact** (i.e., sharing air space for **several hours over a period of several days) with someone with active TB disease for a person to become infected.** Therefore, keep the length of your exposure as brief as possible.

1. Transmission may occur when a person inhales air containing the droplet nuclei. The risk of transmission depends primarily on:
2. Degree of infectiousness of the person with TB disease (source)
3. Duration of exposure
4. Characteristics of the environment in which exposure occurred
5. TB infection is caused by the multiplication of *M. tb* in the alveoli of the lung.

Persons with TB infection have no symptoms, have a negative chest x-ray, and are not contagious. Such persons usually have a positive reaction to the purified protein derivative (PPD) tuberculin skin test.

6. TB infection may progress to TB disease.
7. If a person's immune system fights the bacteria by building a wall to stop them from spreading, the person will have what is called latent TB infection. These people do not feel sick and cannot spread the bacteria to others.

D. Symptoms:

Excessive coughing

Coughing up mucus or blood

Chest pain when breathing or coughing

Fever > 100 deg. Over 2 weeks

Night sweats

Recent unexplained weight Loss > 10 lbs.

Loss of appetite

Tiredness

E. Treatment:

At least 4 different medications (antibiotics). The pills can cure TB disease if they are taken every day for 6 months or longer. Sometimes, the TB bacteria are resistant to the medication.

The tuberculosis risk is higher in the following national subpopulations according to the Center for Disease Control:

- * Persons with HIV infection

- * Close contacts of infectious tuberculosis cases
- * Persons with medical conditions which increase the risk of tuberculosis
- * Foreign-born persons from high prevalence countries
- * Low-income populations, including high risk minorities
- * Alcoholics and intravenous drug users
- * Residents of long-term care facilities i.e., health care settings, correctional institutions, homeless shelters, convalescent homes, and drug treatment centers

F. Occupational Exposure: Means confined space contact with an unconfirmed case that later is determined to be infectious, suspected or confirmed case of Tuberculosis.

G. Confined Space: A work area with limited natural or mechanical ventilation that presents a hazard of accumulation of air contaminants or oxygen deficiency.

H. Particle Mask: Also known as a surgical mask. Any preformed nose and mouth cover used to keep exhaled pathogens from being spread around the surrounding area or prevent the inhalation of large particles. These masks will not prevent the inhalation of Tuberculosis bacterium, they are used to reduce the aerosolization of the Tuberculosis bacterium.

I. Respirator: An approved respiratory device that prevents the inhalation of harmful airborne contaminants.

J. Transmission

Transmission may occur when a person inhales air containing the droplet nuclei. The risk of transmission depends primarily on:

1. Degree of infectiousness of the person with TB disease (source)
2. Duration of exposure
3. Characteristics of the environment in which exposure occurred
4. TB infection is caused by the multiplication of *M. tb* in the alveoli of the lung.

Persons with TB infection have no symptoms, have a negative chest x-ray, and are not contagious. Such persons usually have a positive reaction to the purified protein derivative (PPD) tuberculin skin test.

5. TB infection may progress to TB disease.

K. Exposure and Administration of TB skin test:

1. If you believe you have been exposed to active TB while on the job, obtaining a TB skin test is recommended.
2. Complete an accident/risk report and Form 19.
3. Report to your Supervisor.
4. If after hours, then go to local E.R. for skin test, or call Human Resources for an appointment with the Occupational Health Nurse. If the exposure occurs during working hours and the OHN is unavailable, Hart Industrial may be used to complete the test.
5. After written medical consent is obtained, the Mantoux method skin test (PPD) is used. This intradermal injection of tuberculin derivative (.1 ml) is given on the posterior aspect of the forearm. A wheal or bubble forms immediately post- injection @ the site. Sites are **read 48 to 72 hours after** administration.
6. Induration less than 10 mm is a non-significant reaction, unless the patient has had close recent contact with a patient with infectious tuberculosis; someone with chest radiographs with fibrotic lesions likely to represent old healed tuberculosis or a person with known or suspected HIV infection.
7. Written documentation of administered skin test results will be provided to each employee upon request.

L. Mantoux tuberculin skin test

1. The Mantoux tuberculin skin test is the screening method used to determine TB infection.
2. TSTs are applied and interpreted by OHN (if during working hours or may be completed the following day).
3. Significant positive skin test reactions should be further assessed by obtaining a chest-x-ray by M.D. order and assessment. The recommendation is no longer than 30 days post exposure.
4. In accordance with CDC and OSHA directives, these tests are not self-read.

M. Record keeping:

Records of TB testing will be maintained on each employee in locked files separate from the co-worker's personnel records by the City of Hickory OHN in accordance with recordkeeping and confidentiality guidelines.

Individual HCW medical records:

1. Information about the following will be documented in the HCW medical records, as appropriate:
 - a. Results of TST and chest x-ray
 - b. TB symptom screening questionnaires
 - c. Documentation of results
2. Referral for medical evaluation, including evaluation for treatment of TB infection.
3. The provider/s at Hart Industrial Clinic will be informed of any positive reading/s.
4. A decision will be made at that time in regard to a chest x ray being performed and any further medical treatment or evaluations that need to be completed post exposure.

Factors that increase a person's risk of progression from TB infection to TB disease:

- HIV infection
- Diabetes mellitus
- Prolonged therapy with steroids
- Immunosuppressive therapy
- Chronic renal failure
- Injection drug use in persons known to be HIV-negative
- Some hematologic disorders such as leukemias and lymphomas
- Other specific malignancies, such as carcinoma of the head or neck
- End-stage renal disease
- Weight loss greater than 10 percent below ideal body weight
- Silicosis
- Gastrectomy and jejunioileal bypass
- Chronic malabsorption syndrome
- Chronic peptic ulcer disease
- Chronic alcoholism

General Tips for Firemen/Police Officers if encountering a suspected Tb patient, suspect, or family member with symptoms resembling Tb:

- 1- Ask them, "Are you sick"?
- 2- "How long have you been sick"?
- 3- If so, "Have you been sweating much at night, been fatigued, had a temperature, or coughing up blood"?
- 4- If you are in an enclosed area with someone you suspect may have active Tb, place a surgical mask on the person/s, if possible and wear an N95 respirator, if one is available. If one is not available, use a surgical mask yourself. This protects you and others.
- 5- Keep the windows down in the vehicle and place your air on a non-recirculating cycle. Ventilation is very important in these situations.

General Tips for Co-workers: If you suspect a person is infected with a communicable disease such as tuberculosis say nothing to the person and alert the Occupational Health Nurse or the Risk Manager in these cases immediately.

Sources:

www.cdc.gov

www.osha.gov

www.nih.gov

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Note: Submitted 3/13/14 as a document to be used as a co-worker guideline in the event of tuberculosis exposure/s.