

Standard Operating Guidelines

INFECTION CONTROL

Guideline # 330.02

Date: 1/07 R

Purpose:

This document is a teaching tool designed to educate emergency response personnel about infection control in the Jackson Township Fire District 3. The goal of infection control is to prevent infection from occurring in the patient, emergency response personnel, and their families.

The dangers faced by emergency response personnel are not always obvious. The occupational hazards of AIDS, hepatitis and other communicable diseases are unseen and real. An effective Infection Control Program provides the means to minimize, but not eliminate, health risks.

Employer Responsibilities

Jackson Township Fire District # 3 provides policies that exist to:

- Teach all health care workers in its employ about the epidemiology, modes of transmission, and prevention of HIV and other blood-borne infections.
- Emphasize the need for routine use of universal blood and body fluid precautions for all patients.
- Provide equipment and supplies necessary to minimize the risk of infection with HIV and other blood-borne pathogens.
- Monitor employee adherence to recommended protective measures. When monitoring reveals a failure to follow recommended precautions, appropriate counseling, education or retraining will be provided. If these measures are unsuccessful, appropriate disciplinary action will be considered.
- Are responsible for implementation of exposure control plan and will be responsible for upgrading it.

Employee Responsibilities

The employee must learn the basics of infection control, including modes of disease transmission, and exposure risks. Each employee is responsible for ensuring compliance with the policies and guidelines outlined in the Infection Control Manual.

Definition of Terms

Communicable Disease	A communicable disease is a disease that can be transmitted from one person to another. It is also known as a contagious disease.
Infectious Disease	An infectious disease is an illness or disease resulting from invasion of a host by disease-producing organisms such as bacteria, viruses, fungi or parasites.
Occupational Risk	Occupational exposure may occur in many ways, including needle sticks, cut injuries, or aerosols of body fluids. Health care workers are in high risk for blood-borne infections due to routinely increased exposure to body fluids from potentially infected patients. Any exposure

	to a communicable disease carries a certain amount of risk. Emergency response personnel are in an occupation that directly exposes them to body fluids and they must be considered at substantial risk of occupational exposures.
Blood	Human blood, human blood components and products made from human blood.
Bloodborne Pathogens	Pathogenic microorganisms that are present in human blood and can infect and cause disease in humans. These pathogens include, but are not limited to, Hepatitis B virus (HBV), and Human Immunodeficiency Virus (HIV). Note: Change will include Hepatitis A & Hepatitis D as bloodborne pathogens.
Contaminated	The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
Exposure Incident	A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.
Occupational Exposure	Reasonably anticipated skin, eye, mucous membrane or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Other Potentially Infectious Materials (OPIM)

1. The following human body fluids:
 - a) semen
 - b) vaginal secretions
 - c) cerebrospinal fluid
 - d) synovial fluid
 - e) pleural fluid
 - f) pericardial fluid
 - g) peritoneal fluid
 - h) amniotic fluid
 - i) saliva in dental guidelines
 - j) any body fluid visibly contaminated with blood
 - k) all body fluids in situations where it is difficult or impossible to differentiate between body fluids
2. Any unfixed tissue or organ, (other than intact skin), from a human, (living or dead).
3. HIV-containing cells or tissue cultures, organ cultures, and HIV or HBV-containing cultures medium or other solutions
4. Blood, organs or other tissue from experimental animals infected with HIV or HBV.

Regulated Waste

1. Liquid or semi-liquid blood or OPIM.
2. Contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed.
3. Items that are caked with dried blood or OPIM and are capable of releasing these materials during handling
4. Contaminated sharps
5. Pathological and microbiological wastes containing blood or OPIM.

Universal Precautions

An approach to infection control whereby all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV and other bloodborne pathogens.

Body Substance Isolation

The Centers for Disease Control (CDC) recommends the use of "Body Substance Isolation" when emergency response personnel work with blood or body fluids from any patient. This precaution says that emergency response personnel must consider all body substances from any patient as potentially infectious. Body Substance Isolation exceeds Universal Precautions, which states that blood, or certain body fluids from any patient may be potentially infectious.

Modes of Transmission

A communicable disease can be spread through two means: direct and indirect transmission. Bloodborne diseases spread through direct blood-to-blood contact. Blood is the single greatest source of HIV and HBV in the workplace setting. Airborne diseases spread via droplets expelled into the air by a productive cough or sneeze.

Measures For Prevention

Health History

A complete and detailed health history for each employee is a critical preventive measure. An individual's health history helps to identify potential high-risk areas that may require special attention. All emergency response personnel will participate in a pre-employment physical. Emergency response personnel will receive periodic examinations as recommended in post exposure situations.

Immunizations/Vaccinations

Immunizations reduce the risk of contracting a communicable disease. This protects the health of the workers and their families.

Due to the nature of emergency services, the CDC highly recommends that all personnel maintain immunizations against Hepatitis B.

The employee is responsible for ensuring that all recommended immunizations and/or vaccinations are up to date. Jackson Township Fire District 3 complies with the OSHA mandate by providing the Hepatitis-B vaccination free of charge to all emergency response personnel. Although Jackson Township Fire District 3 cannot require anyone to receive the immunization, it strongly recommends they do.

Any Jackson Fire District 3 emergency responder who declines the vaccination must complete and sign a waiver. Such an individual may change their mind at any time and receive the vaccination free of charge.

Personal Protective Equipment

Emergency response personnel often work in unpredictable and uncontrolled situations. To minimize the risk of exposure, safe work practices and appropriate protective equipment must be used. Personal protective equipment includes protective equipment for eyes, face, head and extremities. Jackson Fire District 3 will provide, and emergency response personnel must use, personal protective clothing to reduce personal exposure to infected blood or body fluids.

Personal protective clothing must be maintained in a sanitary and reliable condition. Such clothing must be properly used when necessary because of hazard or environment. Emergency response personnel must ensure that any personal cuts, abrasions, wounds, etc., are always properly dressed for their own protection and the patient's. Employees will ensure that adequate supplies of the personal protective equipment are available.

Gloves

Disposable gloves are a standard component of emergency response equipment in the Jackson District # 3. Gloves should be donned by all personnel before initiating any emergency care tasks involving delivery of patient care. Gloves must be of appropriate material, usually intact latex or intact vinyl, of appropriate quality for the guidelines done and of appropriate size for each emergency response personnel. Gloves should be changed after contact with each patient. Employees should replace a torn glove when possible. Unit drivers should change gloves before entering compartment. This will prevent contamination of the steering wheel, radio, seats, etc.

Masks and Eye Protection

Personnel are required to use masks and protective eyewear, or face shields, when there exists a possibility for exposure to contaminated body fluids from the following:

- mucosal membranes
- eyes, mouth or nose
- where splashes or aerosols of material are likely to occur

Such protective equipment is mandatory when providing emergency care to a patient's airway. Masks may be placed on a patient when the potential for airborne transmission of disease exists. Routine care does not require the use of masks.

Handwashing

Handwashing is the single most important means of preventing the spread of infection. After removing gloves, hands and other skin surfaces will be washed thoroughly. Personnel should scrub hands briskly for 10-15 seconds with warm water and soap. Handwashing signs will be posted in all fire station restrooms. ***Emergency response personnel should never wash their hands in food preparation areas.*** When facilities are not available, personnel should use a waterless hand cleaner according to manufacturer's directions. Waterless microbacterial hand cleaner is available on all response vehicles.

Resuscitation Equipment

Mechanical respiratory devices are available to all emergency response personnel that respond, or potentially respond, to medical emergencies or victim rescues. Disposable resuscitation equipment should be the primary means of artificial ventilation.

Engineering Controls and Work Practices

Engineering controls and work practice controls will be used to prevent or minimize exposure to bloodborne pathogens. The specific engineering and work practice controls we will use and where they will be used are listed below:

Examples of work practice controls include, but are not limited to:

- providing readily accessible hand washing facilities
- washing hands immediately or as soon as feasible after removal of gloves
- At non-fixed sites (i.e., emergency scenes, mobile blood collection sites) which lack hand washing facilities, providing interim hand washing measures, such as antiseptic towelettes and paper towels or liquid disinfectant. Employees can later wash their hands with soap and water as soon as feasible.
- washing body parts as soon as possible after skin contact with blood or other potentially infectious materials occurs
- prohibiting the recapping or bending of needles
- shearing or breaking contaminated needles is prohibited
- labeling
- equipment decontamination
- prohibiting eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses in work areas where there is a likelihood of occupational exposure
- prohibiting food and drink from being kept in refrigerators, freezers, shelves, cabinets or on counter tops or bench tops where blood or other
- potentially infectious materials are present

- requiring that all guidelines involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, splattering, and generation of droplets of these substances
- placing specimens of blood or other potentially infectious materials in a container which prevents leakage during collection, handling, processing, storage, transport or shipping
- Examining equipment that may become contaminated with blood or other potentially infectious materials before servicing or shipping and decontaminating such equipment as necessary. Items will be labeled per the guideline if not completely decontaminated.

Scene Management

Incident Command

Emergency response personnel will use the Incident Command System to manage the emergency scene effectively. This includes the following infection control measures, but is not limited to:

- proper use of PPE (gloves, masks, eye protection, etc.)
- proper packaging and disposal of contaminated equipment

The Incident Commander will assure that personnel answer infection control questions arising from contact with the public consistently. Citizen inquiries about the use of PPE will be answered as follows:

- "Our use of personal protective equipment is as much for the patient's safety as ours. Wearing such equipment assures your safety, and ours, from any contaminants that may be present."

Care And Cleaning

Equipment Categories

There are two distinct levels of patient care equipment, each of which requires a different level of cleaning/decontamination.

Non-Critical Equipment	Such as stethoscopes and blood pressure cuffs. This level of equipment requires cleaning.
Semi-Critical Equipment	Such as back boards, vehicle walls and floors, communication headsets, defibrillators. This level of equipment requires disinfecting.

Cleaning

Cleaning is the physical removal of dirt and debris. Personnel should use soap and water, combined with scrubbing action. The scrubbing action is the KEY to rendering all items safe for patient use. Cleaning is generally sufficient for non-critical equipment. However, if non-critical equipment has become grossly contaminated with blood or body fluids, they also must be disinfected.

Disinfecting

Disinfecting is reducing the number of disease-producing organisms by physical or chemical means. Personnel should clean the item with soap and water, then apply a disinfecting solution. Solutions such as bleach and water at a 1:10 dilution ratio are acceptable disinfectants. A fresh disinfectant solution must be made every day. Do not use bleach solution in the cleaning of electronic

equipment. Refer to the MSDS for each disinfectant solution to decide what personal protective equipment may be needed.

Remember that disinfectants can be toxic or caustic. Disinfecting solutions should have an EPA registry number and show that they are effective against mycobacterium tuberculosis. Routine disposal of the germicidal cleaning water in the drainage is acceptable.

Cleaning/Disinfecting Areas

Used equipment from an emergency incident should be bagged and transported to the designated cleaning area. Each station will allocate a specific area for cleaning contaminated equipment:

- the area must only be used for cleaning contaminated equipment
- this area should not be used for the cleaning of SCBA facepieces
- this area needs to be away from the station living quarters
- the area must be conspicuously marked with limited access to prevent accidental exposures

Medical equipment should never be cleaned or disinfected in the station's living quarters, especially food preparation or eating areas. MSDS sheets for each disinfectant will be posted at a prominent place in the designated cleaning area.

Uniforms that are grossly blood soiled should be disposed of as biomedical waste.

Care Of Specific Contaminated Equipment

Cleaning Guidelines

Item	Cleaning Guideline
Airways (including ET tubes, Oropharyngeal, Nasopharyngeal)	Dispose
B/P Cuffs	Cleaning (Golden Glo)
Backboards	Cleaning (Golden Glo)
Bite Sticks	Dispose
Bulb Syringe	Dispose
Cannulas, Masks	Dispose
Cervical Collars	Dispose or Cleaning (Golden Glo)
Dressings and Paper products	Dispose
Drug Boxes	Disinfecting (1:10 Bleach/Water Solution)
Electronic Equipment	Disinfecting (1:10 Bleach/Water Solution)
Emesis Basins	Dispose
Firefighter Protective Equipment	Launder
Humidifiers, Regulators, Tanks	Cleaning (Golden Glo)
KED	Disinfecting (1:10 Bleach/Water Solution)
Laryngoscope/blades	High-Level Disinfectant (Cidex)
Linens	Dispose or Launder
MAST Suit	Disinfecting (1:10 Bleach/Water Solution)
Needles/Syringes	Dispose
Penlights	Dispose or Cleaning (Golden Glo)
Pocket Masks	Dispose or High-Level Disinfectant (Cidex)
Restraints	Cleaning (Golden Glo)
Resuscitators (BVM)	Dispose or High-Level Disinfectant (Cidex)
Scissors	Disinfecting (1:10 Bleach/Water Solution)
Splints	Cleaning (Golden Glo)
Stethoscope	Cleaning (Golden Glo)

Laundry

The following contaminated articles will be laundered: Shirts, pants, coats, and sweaters. Laundering will be performed by an authorized company.

The following requirements must be met, with respect to contaminated laundry:

- Handle contaminated laundry as little as possible and with a minimum of agitation.
- Use appropriate personal protective equipment when handling contaminated laundry.
- Place wet contaminated laundry in leak-proof, labeled or color-coded containers before transporting.
- Never sort or rinse contaminated laundry in areas of its use.
- Bag contaminated laundry at its location of use.

Job Classifications Having Occupational Exposure

Below are listed the job classifications in our facility where all employees will have reasonably anticipated exposure to human blood and other potentially infectious materials:

Job Title	Dept./Location
FF/EMT, EMS duty	Jackson Sta. 55
FF/EMT, FF assist lift	Jackson Sta. 55
FF/EMT, FF extrication	Jackson Sta. 55
FF/EMT, Emergency Trans.	Jackson Sta. 55

Occupational Exposures

The following is a quick reference guide concerning the different levels of exposure that personnel may encounter:

Level I	Contact limited to merely being in the presence of a person suspected of having a communicable disease; contamination of personal protective equipment.	No special action required by response personnel; decontamination of affected personal protective equipment.
Level II	Exposure to healthy, intact skin or from victim's body fluids.	Complete - Communicable Disease Exposure Form . Forward all copies of the completed form to the supervisor.
Level III	Whenever there is contact with infected blood or body fluids through open wounds, mucous membranes or parenteral routes. Any of the following is a level III exposure. <ul style="list-style-type: none">• Blood or body fluid contact with rescuer's mucous membrane of eyes, nose or mouth.• Blood or body fluid in contact with non-intact skin.• Cuts with sharp instruments covered with blood or body fluid.• Any injury sustained while cleaning contaminated equipment.	

Post Exposure Follow-Up

Documentation

When an employee has an exposure to a communicable disease, Level II or greater, the incident must be documented within twenty-four hours of the suspected exposure on a **Communicable Disease Exposure Form**. This documentation protects both the employee and the department. Proper documentation is essential for insurance and compensation claims, and is useful for quality assurance and compliance monitoring.

All employee medical records, including communicable disease exposures, are strictly confidential. The Communicable Disease Exposure Form will be forwarded to the Infection Control Coordinator who will investigate the incident further. It will be up to the employer to maintain and update all medical records of its employees for 30 years.

Notification

The Ryan White Comprehensive AIDS Resources Emergency Act of 1990 mandates that the receiving hospital's Infection Control Practitioner must notify the Department's Infection Control Coordinator within forty-eight hours of a communicable disease diagnosis in a patient treated by a pre-hospital team member.

Upon notification, the Infection Control Coordinator Supervisor will notify the involved employee(s) and initiate any necessary follow up. It is the responsibility of the Infection Control Coordinator to document the incident and coordinate any follow-up activities.

Verification

Verification is the process of deciding if a reported exposure poses a real health risk to the employee. The Infection Control Coordinator Supervisor will advise the employee of any required follow up treatment. The Operational Medical Director and/or the Epidemiologist at the receiving hospital will determine the appropriate follow up treatment. The employee will be verbally notified of any treatment within twenty-four hours. If an exposure requires follow up treatment follow the guideline in Jackson Township Volunteer Fire Co. No. 1.

Treatment

Treatment is medical care given to reduce the chance of contracting a communicable disease after exposure. The type and timing of treatment varies with different diseases. Depending on the disease, treatment may be short-term or long-term. Diseases that usually require post-exposure treatment include, but are not limited to:

- HIV
- Hepatitis B
- Non-A, Non-B, Hepatitis
- Meningitis
- Tuberculosis

Emergency response personnel will be informed of the results medical evaluation. They must be told about any medical conditions resulting from exposure to blood or other potentially infectious materials that require further evaluation or treatment.

Level III Exposure Protocol

1. Injuries involving unused, sterile needles should be reported to the Department's Safety Officer the same as any other minor injury. Care at the time of injury should consist of:
 - a) Local wound care
 - b) Consideration of need for tetanus-diphtheria toxoid
2. Level III Occupational Exposures with a known contamination source should be handled as follows:
 - a) The hospital receiving the patient will be contacted and informed that a level III Occupational Exposure has occurred.
 - b) The Infection Control Supervisor will contact the Infection Control Practitioner at the receiving hospital to find out whether the patient is a carrier for the HIV or Hepatitis B virus.
 - c) Determination of risk will be based on:
 - i) Interview of patient
 - ii) Interview of patient's physician
 - iii) Review of patient's chart
 - d) The injured firefighter/provider should be interviewed regarding any history of Hepatitis, risk factors for exposure to Hepatitis B, and Hepatitis B immunization status. The following blood tests will be requested:
 - i) Anti-Hep BsAg, (antibody to Hepatitis B surface antigen)
 - ii) HIV antibody
 - iii) Any personnel receiving a Level III exposure from a HIV positive patient should have an additional HIV antibody test done six weeks post exposure.
 - iv) The above tests need to be redone at 3, 6, 12 month intervals.

The results of these tests will be provided to the firefighter/provider with counseling from a physician. The results of these tests will remain in strict confidence between the firefighter/provider and the attending physician. The employee will provide their supervisor with information necessary to comply with worker's compensation laws, and other Fire Department policies only. These tests will be done at the expense of the Jackson Township Volunteer Fire Co. No. 1.

Clinical Action Required For Level III Occupational Exposures

Patient Test Status	JTFD Personnel Status	Action Required For JTFD Personnel
Hepatitis BsAg positive	Anti-Hep BsAg negative	Administer Hepatitis B immune globulin within forty-eight hours of the injury. This should be done even if they have received all the Hepatitis B vaccine doses. Hepatitis B vaccine should be given within seven days of administration of the immune globulin. Repeat the Hepatitis-B vaccine at one and six-month intervals post injury.
Hep BsAg negative	Anti-Hep BsAg negative	Administer the Hepatitis B vaccine. Repeat the Hepatitis B vaccine at one and six-month intervals post injury.
Hepatitis B core antibody positive, Hep BsAg negative	Not pertinent	The patient is not infectious; patient is recovering from an infection. No therapy needed.
Hepatitis B core antibody positive, Hep BsAg negative and anti-Hep BsAg negative	Not pertinent	Patient has an infection with Hepatitis B and is possibly infectious. Treat personnel with standard immune serum globulin
Anti-Hep BsAg positive	Not pertinent	Immunity to Hepatitis B is assured or they have contracted Hepatitis B. In either case prophylaxis against Hepatitis B is not needed.
Elevated SGPT and SGOT levels	Not pertinent	Hepatitis non-A, non-B is a possibility. Administer immune serum globulin.
Positive test for Hepatitis A	Not pertinent	Administer immune serum globulin.

Level III Occupational Exposures From An Unknown Source

The following guidelines shall be followed from an exposure from an unknown source:

1. Test done for anti-Hep BsAg
2. Above test repeated at 3, 6, 12-month intervals post exposure.
3. If firefighter/provider tests anti-Hep BsAg negative:
 - a) Receive Hepatitis B immune globulin
 - b) Repeat doses at one and six month intervals post exposure
4. Prophylactic treatment for the presence of the HIV virus. The Operational Medical Director, in consultation with the Epidemiologist at the receiving hospital, will decide what agent is most appropriate.

Reporting Requirements

Employers have a responsibility under various federal and state laws and regulations to report occupational illnesses and injuries. Existing programs in the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services; the Bureau of Labor Statistics, Department of Labor, and the Occupational Safety and Health Administration receive such information for the purposes of surveillance and other objectives. State Health Departments report cases of infectious disease, including HIV and HBV, to the Centers for Disease Control.

Confidentiality Of Patient Information Disclosures

All patient related information must be considered confidential. Generally, notification laws emphasize patient confidentiality, not full disclosure to the attending emergency response personnel.

The social stigma associated with AIDS, or testing positive for the virus that causes AIDS (HIV), is very strong in this country. Anyone can become a victim of this deadly disease, and not always through behavior on their parts. No matter the means through which a person gets, the disease AIDS, these people suffer humiliation, harassment, neglect, and abandonment by our society. This is just as true for the hemophiliac that gets AIDS from a blood transfusion as it is for the intravenous drug user.

EMS personnel learn things about patients through their patient care contact that the patient's most intimate friends, or relatives, don't know. They obtain this information because the patients trust them. EMS personnel have a tremendous moral responsibility not to betray those confidences, as well as a legal one.

Health Maintenance System

The health maintenance system is designed to optimize the health of workers, and to minimize the risk of getting an occupational infection or injury. The health maintenance system includes: pre-entry, (or pre-employment), health assessment, periodic reassessment, reporting of communicable disease exposures, and an employee assistance program.

Work Restrictions

Under certain circumstances, the supervising physician may prescribe work restrictions or light duty assignment to employees. These restrictions may be for infection control purposes or for other medical reasons. Workers who are pregnant must provide the Department with written documentation from their private physician showing the extent of work limitations, i.e., full duty, light duty, etc.

Any emergency response person having a communicable disease, such as influenza, lesions with morbid oozing of fluids, or HBV, will be assigned to duty that does not require patient contact. This determination will be made through consultation with the employee's private physician, the Health Department, and the Operational Medical Director. Members undergoing follow up for post-exposure reasons must keep medical appointments and will be provided with the necessary time off to attend such appointments.

Training

The Training & Safety Division will assure that all high-risk employees receive education on precautionary measures, epidemiology, modes of transmission and prevention of HIV/HBV.

High-risk employees will receive training regarding the location and proper use of personal protective equipment, work practices, and precautions to be used in handling contaminated articles and infectious waste.

Training records will show the dates of training sessions, the content of those training sessions, the names of all persons conducting the training, and the names of all whom attended the training. Training records will be maintained for five years. ***All newly hired firefighters will receive this training before any patient care contact.***

All employees who have or are reasonably anticipated to have occupational exposure to bloodborne pathogens will receive training conducted by Jackson Volunteer Fire Co No 1 and District # 3

Jackson Volunteer Fire Co. No. 1 will provide training on the epidemiology of bloodborne pathogen diseases. OSHA pamphlet Occupational Exposure to Bloodborne Pathogens and Fact Sheets, located in the Appendix Section and from the infection controls S.O.P. will be used to inform employees of the epidemiology, symptoms, and transmission of bloodborne diseases. In addition, the training program will cover, at a minimum, the following elements:

- A copy and explanation of the guideline
- Epidemiology and symptoms of bloodborne pathogens
- Modes of transmission
- Our Exposure Control Plan and how to obtain a copy
- Methods to recognize exposure tasks and other activities that may involve exposure to blood
- Use and limitations of Engineering Controls, Work Practices, and PPE
- PPE - types, use, location, removal, handling, decontamination, and disposal
- PPE - the basis for selection

References

- OSHA Instruction CPL 2-2.44B, Enforcement Guidelines for Occupational Exposures to Hepatitis B Virus and Human Immunodeficiency Virus, February 27, 1990
- Code of Federal Regulations 1910.1030, Occupational Exposure to Bloodborne Pathogens
- National Fire Protection Association 1500, Standard for Fire Department Occupational Safety and Health Programs, 1987
- National Fire Protection Association 1581, Standard on Fire Department Infection Control Program, May 1991
- Centers for Disease Control, Morbidity and Mortality Weekly Report, Vol. 38, No. S-6, 1989
- Guide to Developing and Managing an Emergency Service Infection Control Program, United States Fire Administration, June 1991

Approved:

Date:

Chief:

