Infection Control

Supersedes: 09-09-10
Effective: 10-31-14

GENERAL STATEMENT

This policy sets forth infection control practices and procedures for all Department members. The purpose is to decrease the risk of contamination and infection for patients, Department members, and the general public. The Department encourages input from employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation, and selection of effective engineering and work practice controls. All unprotected exposures shall be documented and thoroughly investigated to ensure compliance with existing procedures. This policy shall be reviewed annually and updated as necessary to reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.

DEFINITIONS For the purposes of this policy and procedure, the following shall apply:

Blood means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV), hepatitis C virus (HCV), Ebola virus disease, (EVD) and human immunodeficiency virus (HIV).

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

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

Contaminated Sharps means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

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

Designated Infection Control Officer (DICO) means the officer appointed by each ambulance service, EMS first response (EFR) service, as defined in 105 CMR 170.020, and first responder agency, as defined in 105 CMR 171.050, for the purposes of, but need not be limited to, (1) receiving notifications of exposures to infectious diseases dangerous to the public health from health care facilities and (2) notifying the indicated care provider(s) of an exposure to an infectious disease dangerous to the public health.

Engineering Controls means controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury

protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

Exposure Incident means 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.

EVD means Ebola Virus Disease

HBV means hepatitis B virus.

HCV means hepatitis C virus.

HIV means human immunodeficiency virus.

Needleless systems means a device that does not use needles for:

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

Other Potentially Infectious Materials means (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and 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); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral means piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.

Personal Protective Equipment is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

Sharps are discarded medical articles that may cause puncture or cuts, including but not limited to used and discarded hypodermic needles; syringes; broken medical glassware; scalpel blades; disposable razors; venipuncture equipment.

Source Individual means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.

Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

ASEPTIC PROCEDURE

Aseptic procedures shall be used to prevent cross contamination. This includes wearing appropriate protective barriers to contamination such as gloves and masks, and avoiding touching the hair, glasses, clothing or any other “unclean” surface or object immediately before or during treatment of the patient.

PRECAUTIONS

A Department member who has either been exposed to, exhibits the signs or symptoms of, or has been diagnosed with an infectious illness shall notify a Field Supervisor. Infectiousness will be determined by the BMC Department of Occupational and Environmental Medicine (OEM), Emergency Department physician, or the employee’s own health care provider. The Supervisor will notify the Shift Commander of the incident and have the Designated Infection Control Officer (DICO) notified of the exposure by email or phone. The Designated Infection Control Officer or the Occupational and Environmental Medicine will determine if it is necessary for the Department member to remain off-duty because of a potential infectious disease. Prior to returning to duty after a prolonged time away from work (> 6 months), members must check with the DICO or Medical Director to assure TB test is up to date. If not up to date, arrangements will be made to complete routine TB testing or if there is a history of + PPD, a TB screening form should be completed and returned to the DICO.

IMMUNIZATIONS

The Department strongly recommends that all members receive the hepatitis B vaccine and yearly tuberculosis (TB) testing. Annual PPD testing will be performed on all members who have patient contact, unless the member has a documented prior positive PPD. The PPD must be read by the DICO, Department Physician, appropriately trained Shift Commander or other health care provider that is familiar with reading TB tests. Members who are PPD+ will also have the opportunity to complete a symptom reporting review to screen for possible symptoms of re-activation. This will be reviewed by the DICO and a copy sent to OEM.

Members who have been away from work for a period that includes the date that their annual TB test would have been due will be contacted upon their return to schedule a TB test.

Members must have on file with the OEM documentation of immunity to measles, mumps, rubella, tetanus, diphtheria, and hepatitis B. Acceptable documentation shall be written records containing the appropriate vaccination dates (including month and year) or serologic test results. Members must also know whether or not they have had chickenpox (varicella) or the varicella vaccine with written documentation on record in the Department of Occupational and Environmental Medicine. Members who test positive for tuberculosis after a PPD (purified protein derivative) skin may be sent for chest x-ray if recommended by OEMS or BMC Tb clinic. If any member, particularly those with a history of positive PPD, experiences any of the following signs and

symptoms, the member must be evaluated at OEM or provide documentation of an acceptable evaluation from a personal physician: cough greater than two weeks, particularly if the cough is productive or there is hemoptysis; unintentional weight loss greater than ten (10) pounds; loss of appetite; easily fatigued without apparent reason; night sweats or fever for more than two (2) weeks.

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STERILE SUPPLIES

1. All sterile supplies and sterile solutions shall be kept sealed and in a clean dry area until used. Once sterility has been compromised, supplies shall be discarded immediately and replaced.
2. All solutions and sterile supplies on the ambulance shall be checked for expiration dates and for package integrity by the assigned members during the daily equipment check. Expired or contaminated solutions or supplies shall be returned to Materials Management.

HANDWASHING REQUIRED

Handwashing is required at the start of the shift, after using toilet facilities, after each patient contact, and after vehicle or equipment cleaning or maintenance. An alcohol- based solution for hand sanitizing is available on each ambulance and shall be used after patient contact or contact with blood/body fluids when running water and soap are not available. The handwashing procedure shall be repeated with soap and running water as soon as possible.

LAUNDRY

1. Linen (sheets, towels, pillowcases and blankets) that is stored on-board vehicles for patient use shall be placed inside a clear plastic bag. Sheets, towels, or pillowcases shall be changed between each patient use. Sheets, towels, or pillowcases that have been used or soiled shall be disposed of in the appropriated laundry receptacle at the receiving emergency department.
2. Woolen blankets should not be disposed of at the receiving facility. Soiled woolen blankets should be placed inside a blue plastic soiled linen bag, and stored in the exterior compartment of the ambulance until they are exchanged or replaced at Materials Management. In the event that Materials Management is closed, and there is an excess of soiled woolen blankets stored in the exterior compartment, the excess blankets shall be deposited in the designated laundry hamper at the District Station.

PATIENTS

1. All Blood and Body Fluids shall be considered potentially infectious.

2. All members must wear gloves whenever they are involved in patient care that may expose them to blood or bodily fluids.

3. A mask, fluid shield, goggles, or a gown shall be worn as described below:

   3.1. A member treating a patient who exhibits signs and symptoms of a respiratory infection or suspected communicable disease shall apply an N-95 or other Department approved respirator. Note: a beard or mustache may diminish the effectiveness of a respirator. A surgical mask shall be placed on the patient unless it would compromise patient care..

   3.2. A gown or Tyvek suit should be worn whenever there is the potential of gross contamination from blood or bodily fluids.

   3.3. A fluid shield mask and eye protection shall be worn whenever there is the possibility of contamination of the mucous membrane of the eye, nose or mouth by means of a splash or aerosolization of bodily fluids. A fluid shield mask should be worn while inserting an airway, performing intubation, suctioning a patient, assisting in childbirth, administering fluids / medications via an Intra-osseous infusion, or whenever an exposure is likely. A fluid shield mask shall also be worn whenever cleaning equipment that is contaminated with blood or bodily fluids.

4. Fluid shield masks, masks and gowns shall be discarded as hazardous infectious waste. The CDC recommends disinfecting visibly contaminated PPE using an EPA-registered disinfectant wipe prior to taking off equipment. Additionally, CDC recommends disinfection of gloved hands using either an EPA-registered disinfectant wipe or alcohol-based hand rub between steps of taking off PPE.

5. Latex-free supplies are stocked on all ambulances.

UNPROTECTED EXPOSURE; REPORTING PROCEDURE

1. “Unprotected exposure” shall mean an exposure capable of transmitting an infectious disease dangerous to the public health and is limited to the following:

   1.1. Puncture Wounds - including punctures resulting from used needles, glass and other sharp objects contaminated with blood, or human bites.

   1.2. Blood to blood contact through open wounds which includes open cuts, sores, rashes, abrasions or conditions which interrupt skin integrity; and

   1.3. Mucous membrane contact - including such contact as would occur with mouth-to-mouth resuscitation or eye splashing with infected fluids. Such fluids would include: blood, sputum, oral and nasal secretions.” (105 CMR 172.001)

2. If an unprotected exposure occurs, the affected area should be thoroughly washed as soon as possible. The Division Supervisor and the Designated Infection Control Officer shall be notified. The following paperwork shall be completed for each unprotected exposure:

   2.1. The Boston EMS Unprotected Exposure Report completed by Supervisor.

2.2. The Massachusetts Department of Public Health Unprotected Exposure Report completed by the employee.

2.3. The Worker's Compensation Form completed by the employee.

3. The following procedures shall be in effect:

3.1. An employee who has been exposed shall contact a Supervisor.

3.2. The employee shall complete the Massachusetts Department of Public Health Unprotected Exposure Report and the Worker's Compensation Form. *The employee shall use the EMS Headquarters address as his or her home address.* The Supervisor shall complete the Boston EMS Unprotected Exposure Report. The original of the Department of Public Health Unprotected Exposure Report shall be left with the designated person at the emergency department.

3.3. The Supervisor shall fax a copy of the Department of Public Health Unprotected Exposure Report and the Worker's Compensation Form to the Department of Occupational and Environmental Medicine at 617 638-8406. The employee shall then call the OEM at 617 638-8400 as soon as possible to make a follow-up appointment if required. The follow-up appointment shall be made as a continuation of the employee's work shift, i.e., before the start or after the end of the work shift when possible. The OEM is open Monday through Friday from 07:30 to 16:00.

3.4. In the event that the employee requires immediate treatment for the exposure and the Department of OEM is closed, the employee shall be seen at the Boston Medical Center-Menino Emergency Department or the facility that accepted the patient. However, in the event of a known blood splash in the eye, the employee may be treated at the hospital to which the patient is transported for immediate evaluation, irrigation and other therapy. Blood work on the employee does not need to be done immediately and can wait until the employee can go to OEM. If any treatment or blood work results are not done at BMC or OEM it will be the responsibility of the employee to assure results and vaccines are received at OEM.

3.5. The Supervisor shall respond to the Emergency Department at which the employee is being treated and ensure that the Department of Public Health Unprotected Exposure Report and the Worker's Compensation Form have been completed, and that the Occupational and Environmental Medicine Program has been notified of the exposure by voice mail. The Supervisor shall note this on the Supervisor's Shift Summary. The Supervisor shall send a copy of the Department of Public Health Unprotected Exposure Report and the Boston EMS Unprotected Exposure Report to the Designated Infection Control Officer. The Supervisor shall also send the original Worker's Compensation Form to EMS Headquarters addressed to the "Worker's Compensation Coordinator."

3.6. If the employee does not require immediate treatment, the Supervisor shall meet with the employee as soon as possible but before the end of the work shift. The Supervisor shall confirm that the Department of Public Health Unprotected Exposure Report and the Worker' Compensation Form have been

completed and faxed to the OEM. The Supervisor shall complete the Boston EMS Unprotected Exposure Report and forward all paperwork as described in the preceding paragraph (5).

3.7. The EMS Supervisor shall complete a Boston EMS Exposure report detailing the circumstances of the exposure, whether or not appropriate precautions appear to have been taken to prevent or minimize the exposure, and recommendations for the prevention of similar occurrences in the future. The report will then be forwarded to the Designated Infection Control Officer who will review the report, ensure appropriate follow-up appointments have been made and make additional comments or recommendations as necessary. To ensure patient privacy, detailed information regarding the employee's exposure should only be given to the Medical Director and DICO.

4. Whenever a receiving hospital notifies the Designated Infection Control Officer that a patient has been diagnosed with an infectious disease, the Designated Infection Control Officer shall contact the affected members as soon as possible.

5. Whenever the Dispatch Operations Center Supervisor receives a call from a hospital that a member may have been exposed to an infectious disease, the Supervisor shall notify the Designated Infection Control Officer.

6. A member requesting information about a patient relative to an infectious disease shall notify the Designated Infection Control Officer who will contact the receiving hospital for follow up, and inform the interested member of the results of such inquiry whenever possible. Information may only be given out if an exposure occurs and by law the hospital can only release information if the DPH form has been completed and received.

7. Although not considered an exposure, if a member transports a patient with lice and/or scabies and there is significant contact (i.e. exposed skin to exposed skin contact), the member shall notify a Field Supervisor and the Designated Infection Control Officer. Members should NOT self diagnose or self treat without consultation from the Medical Director or Designated Infection Control Officer.

8. The Designated Infection Control Officer shall maintain records regarding employee exposures. The information shall be recorded and maintained in accordance with HIPAA in such manner as to protect the confidentiality of the injured employee.

SHARPS

1. Boston EMS has implemented a "needleless" system and utilizes sharps designed with built-in safety features or mechanisms that effectively reduce the risk of an exposure incident. However, EMS personnel may still encounter contaminated needles at the scene of a drug overdose, patient's home, health care facility, or other location. When disposing of a sharp, needles shall not be recapped, bent or cut. The syringe, with or without the needle covered, shall be discarded in either the needle box supplied in each ambulance or the needle box carried inside all Department- issued ALS jump bags. Replacement containers are procured from Materials Management. All syringes/needles shall be removed from the scene of an incident and discarded in these containers.

2. All ambulances- ALS and BLS- are supplied with needle boxes. The needle boxes shall be secured either by an adhesive pad or within a bracket mounted near the point of use. All units shall discard used needle boxes at a receiving facility or Materials Management whenever the box is more than half-filled but before it is completely filled.
3. If a patient is encountered who has a needle in an extremity or other body part, the needle shall be removed and discarded in the needle box.

ROUTINE CLEANING

The cleaning and disinfection of equipment and surfaces inside the ambulance is important for the health and safety of our crews and patients. When cleaning the interior of the ambulance and equipment, include any surfaces that the patient might have had contact with, or that crews may have touched with gloved hands while caring for a patient.ie switches, radio controls etc.

Department members shall wear gloves while decontaminating equipment. Fluid shield masks shall be used if splashing is anticipated. Equipment shall only be decontaminated in areas that are designated as appropriate by the facility and/or staff. After patient contact, the equipment listed below shall be cleaned of all obvious debris before being sent to Materials Management for high-level disinfection. Once grossly decontaminated, the equipment shall be placed inside a red hazardous waste plastic bag. This bag shall be stored in the outside rear compartment on the passenger side of the ambulance until exchanged or replaced.

- Suction Equipment (except suction catheters which are disposable)
- Intubation and non-disposable airway equipment
- Any other contaminated equipment (stretcher straps, oxygen bags, etc.)

If there is a suspicion of EVD or potential exposure to blood or other body fluids, a victim transport kit (VTK) should be deployed as time allows, and the walls of the ambulance draped in plastic. This, along with wearing our own PPE will afford an additional barrier to the patient's bodily substances. It will also limit contamination of surfaces inside the ambulance and equipment.

The recommendations listed should be considered in the event that we transport a patient with a concern for a communicable disease prior to returning the ambulance to service.

- Don appropriate PPE including double glove, mask and face shield or gogles, Tyvek suit or fluid impervious hospital gown. Look for signs of visible contamination. Remove all visible body fluids with towel, paper towel and make sure to clean the area fully with a disinfectant.
- Clean all medical equipment and contact surfaces that you or the patient might have contacted with an EPA approved Hospital Based disinfectant as described below
- Do not attempt to clean, rather you should dispose of any nondurable or semi durable medical equipment that has concern for contamination. Example of semi durable: BP cuff, carrying case for AED or green bag.
- Place the used cleaning materials into a red "Biohazard" medical waste container

- Doff appropriate PPE in red "Biohazard" medical waste container making sure not to touch your face or mucous membranes while taking off PPE.
- Wash your hands with soap and water.

*If a concern exists that the vehicle is heavily contaminated in a situation with concern for EVD, the crew should consult the supervisor or shift commander. We can arrange to move the ambulance to where a contractor may clean it *

Should a member's clothing/uniform become contaminated with any patient's body fluids (e.g. blood, urine, emesis, sputum, or feces. Members should:

- Remove the contaminated clothing;
- Place the clothing in a red "Biohazard" bag or clearly labeled plastic bag;
- Clean underlying skin with soap and water (shower as needed) NO bleach on skin.
- Contact supervisor for further details regarding uniform and clothing disinfection, and reporting of possible pathogen exposure.

Selection of Disinfection & Cleaning Products:
The CDC recommends using an EPA-registered hospital disinfectant with label claims for viruses, like norovirus or influenza virus
Regardless of the product, it is ***very important*** to follow all label directions carefully, for maximum effectiveness. For example, many of the cleaning products require drying time prior to being wiped off in order to be effective.

NOTE: Bleach can burn human skin. Full-strength household bleach (sodium hypochlorite) should **never** be used on patients or personnel. Its use on durable medical equipment is not preferred.

DISPOSAL OF NON-SHARP HAZARDOUS INFECTIOUS WASTE

The term "hazardous infectious waste" (H.I.W.) means waste material with infectious characteristics causing or contributing to an increase in mortality, serious irreversible illness, or incapacitating reversible illness. It may also pose a hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise mismanaged. All hazardous or patient generated waste shall be disposed of at the receiving facility. Expendable non-sharp materials that have come in contact with a patient's blood or body fluid shall be sealed in two 3 mil (3/1000 inch) polyethylene bags. Each bag shall be sealed separately, and the outer bag shall be the red hazardous waste plastic precaution bag. These bags are stocked on board the ambulance. These sealed bags must be leak free from liquids and/or vapors. The sealed bag(s) shall be disposed of in a hazardous waste receptacle as soon as possible.

Related: Latex Free Kit SOP; DPH Unprotected Exposure Form; EMS Unprotected Exposure Form

105 CMR 172.000: Regulating the Reporting of Infectious Diseases Dangerous to the Public Health; Unprotected Exposure form available on-line at:

http://www.mass.gov/Eeohhs2/docs/dph/emergency_services/forms/ambulance_unprotected_exposure.pdf