



Burlington Fire Department

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Section: 03 - Safety	
SOG Number: 03.01	Effective Date: May 1, 2018
Subject: Blood Borne Pathogens and Infection Control	
By Order of Fire Chief Steven A. Locke	

I. Purpose:

The purpose of this program is to reduce occupational exposure risk to blood borne/airborne/food borne pathogens to personnel performing assigned duties. In addition, to reduce exposure to pathogens and infection for patients and non-department personnel in the care of the Burlington Fire Department. Provide for appropriate handling of and follow-up for any personnel who may have an exposure incident. Further, to provide compliance with OSHA standard 29 CFR 1910.1030.

II. Scope:

All personnel of the Burlington Fire Department are part of an Emergency Medical System, and this policy shall apply to all personnel. This will include administrative and support staff who may provide first aid to walk-in patients.

III. Definitions:

Blood: Human blood, human blood components, and products made from human blood.

Body Fluids: Fluids the body produces including, but not limited to, blood, semen, mucus, feces, urine, vaginal secretions, breast milk, amniotic fluids, cerebrospinal fluid, synovial fluid, pericardial fluid, and any other fluids that might contain HIV and HBV viruses.

Body Substance Isolation (BSI): An infection control strategy that considers all body substances potentially infectious. BSI includes avoiding contact with body substances where possible and using appropriate Personal Protective Equipment (PPE) when contact is necessary in providing Emergency Medical Care.

Contaminated: The presence or reasonably anticipated presence of blood, body fluids or any other potentially infectious materials on an item or surface.

Decontamination: The use of physical or chemical means to remove, inactivate, or destroy blood borne, airborne, or food borne pathogens on a surface or item to the point where the substance is no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Disinfection: The process used to inactivate virtually all recognized pathogenic microorganisms, but not necessarily all microbial forms, such as bacterial endospore.

Exposure Incident: A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with bloods, body fluids, or other potentially infectious materials; or inhalation or airborne pathogens, ingestion of food borne pathogens and/or toxins.

Infection Control Program: The fire departments' formal program relating to the control of infectious and communicable disease hazards where employees, patients, or the general public could be exposed to blood, body fluids, or other potentially infectious materials in the fire department work environment. Burlington Fire Department's written infection control program is attached as Appendix A.

Other Potentially Infectious Materials: Body fluid that is visibly contaminated with blood; body fluids in situations where it is difficult or impossible to differentiate between body fluids; sputum, saliva, and other respiratory secretions; and any unfixed tissue or organ from a living or deceased human.

Pathogens: Microorganisms such as bacteria, virus, or fungus that is capable of causing disease.

Pathogens, Airborne: Microorganisms which can produce infection and/or cause disease in humans after being inhaled through the nose or mouth.

Pathogens, Blood borne: Pathogenic microorganisms which are present in human blood and can cause disease in humans.

Pathogens, Food borne: Microorganisms which are present in food or drinking water and can cause infection and/or disease in humans.

Parenteral: Piercing of mucous membranes or skin barrier due to such events as needle sticks, human bites, cuts, or abrasions.

Personal Protective Equipment (PPE): Specialized clothing or equipment worn by personnel for protection against infectious or communicable disease.

Sharps Containers: Containers which are closable, puncture-resistant, disposable, and leak-proof on the sides and bottom; red in color or display the universal biohazard symbol; and designed to store sharp objects.

Sterilization: Use of physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores.

Universal Precautions: An approach to infection control in which human blood and human body fluids are treated as if known to be infectious for HIV, Hepatitis, and other blood borne pathogens.

University of Vermont – Medical Center: The level 1 Trauma Center located at 111 Colchester Avenue in Burlington, Vermont.

IV. Guidelines:

A). Universal Precautions.

1. Universal Precautions is the policy of treating all bodily fluids as though they were contaminated and avoiding contact with them when possible. This policy shall be utilized at all times during patient care and whenever reasonable potential for exposure exists.

B). Personal Protective Equipment PPE.

1. When patient contact becomes necessary in performance of emergency medical care, or when reasonable potential for exposure exists, appropriate PPE shall be worn. PPE is provided by the Burlington Fire Department. PPE includes; gloves, face shields, eye goggles, splash gowns, structural firefighting clothing, SCBA, N95 and HEPA filters designed (provided in BFD ambulances for air-borne pathogens) to be utilized with SCBA masks. Medical gloves may be worn under firefighting gloves when conditions dictate.

2. To be effective in body substance isolation, PPE must be removed and handled appropriately after use. Removal of PPE is done in such a manner to ensure contaminants do not come into contact with skin. Disposable items shall be placed into approved containers and non-disposable items shall be disinfected using a 10% bleach solution or contracted services.

C). Engineering Controls and Work Practices.

1. Hand washing shall be used and is proven to remove most contaminants; both biological and chemical.
2. Employees shall wash their hands after each call. Hand washing facilities are available at each station and at UVMHC. Should hand washing not be possible or feasible after a call, antibacterial towelettes or alcohol based hand wash may be utilized until hand washing is practical.
3. If contamination soaks through clothing or gets into contact with skin (eyes, etc.), appropriate washing, flushing, showering, etc. shall occur.
4. Sharps shall be handled safely at all times. Sharps shall not purposely be capped, sheared, or bent at any time. Sharps shall be placed into approved sharps containers immediately after use, whether contaminated or not. Sharps containers should be kept readily available, ergonomically accessible, and emptied when appropriate. Sharps containers are disposable and should not be opened once sharps are present.
5. During use of sharps in a moving ambulance, employees should notify the driver, "sharps are out". This will allow the driver to handle the vehicle in a manner which will reduce the chance of needle stick as well as allow for easier IV attempts. If necessary, the driver may even stop the vehicle until sharps are safely disposed.
6. Food and drink consumption or transport shall not be allowed in BFD ambulances.
7. Apparatus or vehicles transporting food products should take care to avoid placing the food products in areas where medical equipment is stored.
8. Contaminating equipment by placing into body fluids should be avoided when possible (ie. placing medical bag on patient's floor in body fluids). Disposable equipment that becomes contaminated should be disposed of properly and

contaminated, non-disposable equipment should be placed into an approved container until disinfection can be accomplished.

9. Contaminated PPE should be removed and disposed of prior to entering the vehicle cab in order to prevent contamination of steering wheels or other riding positions of ambulances or other BFD apparatus. If contact is unavoidable, disinfect contaminated surfaces as soon as feasible (ie. radio mic, handles, etc.).
10. In addition, consideration for patients who have a history, or have symptoms of tuberculosis or other air-borne diseases should include:
 - a. HEPA filter adapters for an SCBA face piece to be used by members in patient compartments
 - b. Isolation of cab area from patient compartment; air turnover through the exhaust in the patient area.
 - c. Patients should be placed on oxygen with a non-rebreather mask. There are no contra-indications for oxygen.

D). Housekeeping.

1. In the event of contamination to personal clothing (uniform or firefighting turnouts) such clothing shall be removed and laundered as outlined in Departmental Standard Operating Guideline - *03.02 Protective Clothing Inspection and Maintenance, Section B. 4. c.*
2. Contaminated clothing should be removed to avoid contact with skin and placed into an appropriately marked container. Station clothes washing machines are not appropriate for washing contaminated clothing. Clothing will be laundered in the extractors housed in Fire Stations 1, 2, and 4. Defensive™ Fabric Sanitizer will be used in the final rinse cycle to decontaminate fabrics.
3. Cleaning and disinfecting of contaminated equipment shall be done with an EPA approved disinfectant (ie. Heptagon™, Miracle™ or 1/10 bleach solution) and should occur as soon as possible after use. Facilities at UVM-Medical Center should be used when possible. If disinfection is conducted in quarters, care should be used to avoid

contamination in the station. At no time is cleaning or disinfecting to be done in kitchens, bathrooms, or other living spaces of stations.

5. Cleaning of equipment and apparatus:

a. Ambulances:

- (1) After each use; stretchers, surfaces touched by patients, equipment used, areas where contamination is known or reasonably suspected to have occurred.
- (2) Weekly; equipment bags, commonly used equipment (e.g. bp cuffs, stethoscopes, etc.), interior surfaces, cab area, doors, door handles, all equipment, interiors and exteriors of cabinets and equipment bags.

b. Other Apparatus:

- (1) After each use; any equipment used.
- (2) Weekly; commonly used equipment, all equipment, equipment bags, storage areas.

c. Equipment used in invasive procedures such as laryngoscopes must be disinfected. This equipment shall be cleaned in a 10% bleach solution.

E). Post-Exposure Procedures and Documentation

1. An exposure incident is a specific eye, mouth, or other mucous membrane, non-intact skin or parenteral contact with blood, body fluids, or other potentially infectious materials, or inhalation of airborne pathogens, ingestion of food borne pathogens and/or toxins. If this should occur, the incident should be reported to the incident commander, following appropriate first aid (e.g. flushing eyes, etc.). In the event of an exposure to body fluids, the person(s) exposed should proceed with the ambulance and be evaluated immediately at the UVMHC Emergency Department for initial screening/treatment. Follow-up medical evaluation should be done with the exposed person's personal physician or by appointment with the City's medical providers as specified on page 10 in Appendix A, "Exposure Control Plan".
2. Form I-1 Incident Exposure Record, and Employees Injury Report, and Form A-44 Supervisor's Incident Investigation shall be utilized to document the exposure and investigation. A workers' compensation "First Report of Injury" form shall be done as well. Worker's Compensation Insurance Report Entry shall be completed online at HBInsurance/BTV prior to the end of shift.

Here is the link: http://www2.hbinsurance.com/btv/contacts_hb.php

Follow-up workers' compensation documentation for subsequent evaluation/treatment with personal physicians shall also be completed.

3. The department infection control officer should be notified immediately.

V. Responsibility:

It is the responsibility of all members to read, understand and follow this Standard Operating Guideline.

A). Exposed Firefighter:

1. Stop working when safe to do so and decontaminate immediately.
 - a. Needle Stick/Sharps – Wash site with soap and water or alcohol disinfectant.
 - b. Splash – Flush with water or saline for 3-5 minutes.
2. Notify your Company Officer or Senior FF of the exposure.
 - a. The exposed Firefighter (FF) shall be evaluated at UVMHC ED within the first hour.
 - b. The FF must be at the Emergency Department (ED) at the same time the “Donor Patient” is in the ED, allowing blood work to be drawn on the “Donor Patient”.
 - c. The FF must also be evaluated at the ED even if the “Donor Patient” is not transported to the ED.

3. Exposed FF shall notify the ED Charge Nurse or the Administrative Nurse Coordinator of the exposure.
 - a. Exposed FF shall request the ED Charge Nurse or the Administrative Nurse Coordinator to run tests on the “Donor Patient”.
 - b. Expect “Donor Patient” test result of HIV & HBV within 1 hour.
 - c. The HCV test results will take a few hours.
4. Complete a BFD I-1 Incident Exposure Form and submit it to your Company Officer.
5. Follow-up with either the City Physician or a Primary Care Physician.
 - a. See Appendix A for questions and information on HIV, HBV & HCV.

B). Company Officer / Senior Firefighter:

1. Have the FF stop working and decontaminate immediately.
2. Ensure the FF is evaluated at UVMMC within the hour.
3. Notify Car-12 of the exposure.
 - a. Communicate to Car-12 the disposition of the patient
 - (1) Transported to UVMMC ED
 - (2) Not transported to UVMMC ED
 - (3) Waiting for Medical Examiner

C). Car -12 Officer (Shift Commander):

1. Ensure the FF is seen at UVM Medical Center within the first hour of exposure.
2. Contact the Fire Department ICO/Safety Officer.
3. Contact the Chief Engineer, Deputy Chief of Administration and Deputy Chief of Operations.
4. Inquire about the patient disposition.
5. Ensure exposure paperwork is completed:
 - a. I-1 Incident exposure Form
 - b. A-45 Witness Report
 - c. BFD Employee Injury Report

- d. A-44 Supervisor’s Investigation
- e. Enter into Hickok & Boardman @ hbinsurance.com/BTV

D). Deputy Chief of Administration:

- 1. Ensure exposure paperwork is completed.
 - a. I-1 Incident exposure Form
 - b. A-45 Witness Report
 - c. BFD Employee Injury Report
 - d. A-44 Supervisor’s Investigation
 - e. Confirm entry into Hickok & Boardman
 - f. Ensure exposure paperwork is forwarded to HR & Chief of Training & Safety
 - g. Coordinate with Human Resources (HR) for completion

E). Human Resources:

- 1. Enters exposures per VOSHA requirements.

Revision History			
Revision Date	Section	Summary	Principal Author
		Originally published as SOG 1.8.1, 01/2006.	BC Williams BC Crady
April 18, 2018	Definitions IV. D V. 3. a. V. C. Appendix	Updated to reflect organizational & operational changes within the Fire Department including the ability to decontaminate clothing in house.	DC Collette, et. al.

APPENDIX A

Exposure Control Plan (ECP)

Policy:

The Burlington Fire Department is committed to providing a safe work environment for all emergency personnel and supporting staff. The following exposure control plan (ECP) is provided to minimize occupational exposure to foreign pathogens.

The ECP includes:

- a. Implementation of various methods of exposure control through department Standard Operating Guidelines (SOG) including:
 - Universal Precautions
 - Engineering and work practice controls
 - Provision and use of Personal Protective Equipment (PPE)
- b. Hepatitis B vaccination, including counseling and risk assessment
- c. Training of employees
- d. Determination of employee exposure
- e. Post-exposure evaluation and follow-up
- f. Documentation and record keeping
- g. Procedures for evaluating an exposure incident
- h. Provisions for annual review of this plan, SOG's, equipment, and procedures regarding exposure control.

Scope:

All personnel of the Burlington Fire Department are considered at risk for occupational exposure due to all job descriptions including involvement in emergency medical care.

Program Administration:

In accordance with OSHA 29 CFR 1910.1030 and Ryan's Law, the Department must designate an Infection Control Officer. The Infection Control Officer (ICO) shall be the Battalion Chief in Charge of Training and Safety.

The Department ICO is responsible for implementation of the BBP program and will maintain, review, and update the ECP at least annually, and whenever necessary to include new or modified tasks or procedures.

The EMS Deputy Chief, or his/her designee in charge of medical supplies will ensure the provision of all necessary personal protective equipment, engineering equipment (e.g. sharps containers), or other equipment as required by the standard. He/she will ensure that adequate supplies are available at all times.

Company officers will ensure each apparatus is appropriately stocked with proper personal protective equipment and materials for disposal of and/or disinfection of contaminated material.

The ICO will ensure all post exposure medical actions are performed and appropriate records are maintained. Exposure records and health records will be kept strictly confidential and maintained by Human Resources in a location of their choice.

The Battalion Chief in Charge of Training and Safety will be responsible for training, documentation and record keeping regarding education, and making the written ECP available to employees.

Methods of Implementation and Control:

Exposure Control Plan

All employees receive an explanation of this ECP during their initial training session. Further, engineering and control practices will be included as part of annual training required in blood borne pathogens. All employees have opportunity to review this plan by contacting the Training Chief.

Universal Precautions (UP)

As stated in department SOG 1.8.1, Universal Precautions shall be followed whenever potential for exposure exists.

Personal Protective Equipment (PPE)

As stated in department SOG 1.8.1, appropriate PPE shall be worn whenever potential exposure exists.

The Deputy Chief of EMS or his/her designee in charge of medical supplies shall ensure that all equipment used in providing medical care, or used in the handling or disposal of contaminated materials, be to approved standards.

The Burlington Fire Department recognizes potential need for changes in

engineering controls and work practices. This process will be done through the following methods. 1) review of incidents by the Safety Committee and ICO, 2) changes in OSHA, state, or district regulations or by medical control, and 3) through practices and equipment updates brought to the attention of the ICO by employees. 4) Through Quality Assurance Quality Improvement self-identified improvement practices.

The employees of the Burlington Fire Department are encouraged to address issues regarding the improvement of equipment and practices. Several trade journals are made available to all employees as reference material. They may include, but are not limited to, Firehouse, Fire Engineering, Fire Chief, Fire Rescue, JEMS, IFSTA updates, NFPA updates, IAFF publications, and state or district publications. In addition, outside training opportunities are posted as available, after assessment from the Training Division (e.g. local or regional postings, National Fire Academy, etc.).

Housekeeping

Material contaminated or potentially contaminated with bodily fluids shall be handled and/or disposed of as stated in Department SOG 1.8.1.

At no time will kitchen, bathroom or other living areas be used for storage or handling of contaminated materials.

Laundry

As stated in SOG 03.02, employees who have clothing or protective gear that become contaminated shall handle them appropriately. Contaminated clothing shall be laundered in the extractors located in Fire Station 1, 2, and 4.

When laundering, the employee shall use Defensive™ Fabric Sanitizer in the final rinse.

Labels/Markings

Materials contaminated with bodily fluids shall be placed into approved containers which are red in color and/or have appropriate biohazard markings.

The ICO will ensure employees receive information regarding hepatitis B vaccinations including; safety, benefits, efficacy, methods of administration, and availability.

Hepatitis B vaccination series is available at no cost and within ten days of initial

assignment. Vaccination is encouraged unless:

- 1) documentation exists that the employee has previously received the series
- 2) antibody testing reveals that the employee is immune.
- 3) medical evaluation shows that vaccination is contraindicated.

If the employee chooses to decline vaccination, the employee must sign a declination form indicating they have been advised of availability and recommendations for receiving the vaccination. Documentation of refusal of the vaccination is kept at Human Resources.

Vaccinations will be provided by either:

Concentra
7 Fayette Drive, Unit 1
So. Burlington, 05403
(802) 658-5756

Champlain Medical Urgent Care
150 Kennedy Drive
So. Burlington, 05403
(802) 448-9370

Following a medical evaluation, a copy of the health care professional's written opinion will be obtained and provided to the employee. It should be limited to whether the employee requires the hepatitis B vaccine, and whether the vaccine was administered.

Post-Exposure Evaluation and Follow-Up:

An Exposure Incident is defined by a specific eye, mouth, or other mucous membrane, non-intact skin, or parenteral (through the skin) contact with blood or other potentially infectious materials that results from the performance of an employee's duties. Should an exposure incident occur, the following steps should be taken after initial first aid (cleaning the wound, flush eyes or other mucous membrane, etc.):

Notify the Company Officer (CO) or immediate supervisor who will begin the process and provide documentation of any work-related injury according to SOP 03.2.1.

The Shift Commander will immediately notify the Department ICO as per SOG 1.8.1.

In the event the ICO is unavailable the Shift Commander will be delegated the ICO's responsibilities.

The exposed employee will proceed to the UVMHC Emergency Department per SOG 1.8.1 where initial counseling and baseline blood work will be conducted.

The ICO will ensure that the Attending Emergency Department physician attempts to obtain permission for blood analysis from the source patient.

The ICO will coordinate with UVMMC staff to obtain a report of the results of the source patient's blood analysis, and will report the findings to the exposed employee.

The exposed employee will be encouraged to seek consultation regarding the exposure with his/her personal physician, or;

The Department will immediately facilitate a confidential medical evaluation at either:

Concentra
7 Fayette Drive, Unit 1
So. Burlington, 05403
(802) 658-5756

Champlain Medical Urgent Care
150 Kennedy Drive
So. Burlington, 05403
(802) 448-9370

The ICO shall be responsible for collecting and documentation of exposure information. The ICO shall also ensure the employee's healthcare provider receives a copy of the OSHA regulation and a copy of this plan.

Procedures for Evaluating the Circumstances Surrounding an Exposure Incident:

Burlington Fire Department recognizes the importance of maintaining confidentiality of both an employee who may have had an exposure incident and a possible source patient. Confidentiality will be maintained at all times. It is also important to review incidents as an engineering practice for revising safety procedures and equipment. It is the policy of the Department exposure incidents reviewed by the safety committee shall be anonymous (either by blacking out member information or by the ICO submitting pertinent information separately).

The Safety Committee and ICO should review circumstances of all exposure incidents including:

- Engineering controls in use at the time
- Work practices followed
- Description of device being used (including type and brand)
- Protective equipment or clothing used at the time of the exposure incident (gloves, shield, etc.)
- Location of the incident (address, ambulance en route, etc.)
- Procedure being performed when an incident occurred
- Training issues (taking care to maintain confidentiality)

If it is determined revisions to the ECP are needed, changes to SOG's, or training are appropriate, the safety committee and/or ICO will ensure changes are initiated.

Employee Training:

All employees will receive blood borne pathogens training through the Training Division. Initial training is provided as employee orientation, through initial state EMS certification, and through the probationary training program. Additional training is provided annually through annual re-certification and mandatory continuing education, department wide training, company level training, and through posted outside training opportunities.

At a minimum, employees should be trained in the following:

- Epidemiology, symptoms, and transmission of blood borne pathogen diseases
- Explanation of this ECP and department SOG's regarding blood borne pathogens
- Explanation of methods to recognize tasks and practices that may involve exposure to blood and other potentially infectious materials (OPIM), including what constitutes an exposure incident
- Explanation of the use of engineering controls, work practices, and PPE
- Explanation of the types, uses, location, removal, handling, decontamination, and disposal of PPE
- Information on the hepatitis B vaccination, including information on its efficacy, safety, method of administration, benefits of being vaccinated, and that the vaccine will be offered free of charge, explanation of the procedures, investigation, and follow-up that will occur following an exposure incident.
- Information on post-exposure medical follow up and laws and/or policy pertaining to patient confidentiality, including members as well as possible source patients
- Opportunity for interactive questions and answers

The Battalion Chief in Charge of Training shall be responsible to ensure training is conducted for documentation, qualified persons administer the training, and training materials are readily available. Training materials are available at the training office located at 132 North Avenue, Burlington, VT 05401.

Recordkeeping

Training Records

Training records are completed and maintained for each employee upon completion of training in the computer database. Additionally, certification records are maintained by the Training Division and through the state EMS

office. These records are the responsibility of the Battalion Chief in Charge of Training and are maintained for a minimum of three years.

Medical Records

Medical records are maintained for each employee. Human Resources is responsible for the maintenance of required medical records. These records are confidential and kept at Human Resources for the duration of employment plus thirty years.

Included Forms/Documents:

Hepatitis B Vaccine Declination Form
Hepatitis A Vaccine Declination Form
Informed Consent for Hepatitis A and Hepatitis B Vaccinations
BFD form I-1 Incident Exposure Record
BFD form A-44 Supervisor's Incident Investigation

References:

Burlington Fire Department SOP 03.01 Blood Borne Pathogens (included in this document).

NFPA 1581 Standard on Fire Department Infection Control Program (not adopted)

OSHA 29 CFR 1910.1030 Occupational Exposure to Blood Borne Pathogens

OSHA 3130 Occupational Exposure to Blood Borne Pathogens - Precautions for Emergency Responders

USFA Guide to Managing an Emergency Service Infection Control Program

Vermont Department of Health: Emergency Medical Services Infection Control Officer Manual