NFPA 1581
Standard on Fire Department Infection Control Program

2000 Edition

National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101
An International Codes and Standards Organization

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Fire Department Infection Control Program

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This edition of NFPA 1581, Standard on Fire Department Infection Control Program, was prepared by the Technical Committee on Fire Service Occupational Medical and Health, and acted on by the National Fire Protection Association, Inc., at its November Meeting held November 14–17, 1999, in New Orleans, LA. It was issued by the Standards Council on January 14, 2000, with an effective date of February 11, 2000, and supersedes all previous editions.

This edition of NFPA 1581 was approved as an American National Standard on February 11, 2000.

Origin and Development of NFPA 1581

This document was developed to address measures to provide infection control practices. These practices are necessary for persons providing emergency medical care and who come in contact with potentially infectious victims or other persons in both emergency and non-emergency settings.

The requirements were developed to be compatible with guidelines and regulations from the U.S. Centers for Disease Control (CDC) and the U.S. Department of Health and Human Services that apply to public safety and emergency response personnel.

The Committee began its work in 1988, and the proposed document was entered into the 1992 Annual Meeting standards cycle.

The fire service continues to report that a majority of their responses are emergency medical service (EMS) related. The need for a proactive infection control policy and program is paramount in working in this environment. It is also paramount that fire departments that do not provide emergency medical services have a proactive infection control program. The variety of responses that fire departments are called to, including domestic violence, hazardous materials/waste, and even routine structural fires, can and do have the potential for infecting a fire department member.

In the 1995 edition of the standard numerous revisions were made to assist both users and enforcers of the document. The areas of revisions included those on decontamination of equipment and apparatus, clean areas for equipment to be stored, living quarters for personnel, as well as the relationship of these subject areas to the overall health and safety of members.

Technical committee members realized that for this edition areas addressing CDC requirements, the relationship with the medical control facility, and record keeping requirements needed to be updated. In doing so, they also included updated appendix material on Disease Information for Emergency Responders in Appendix A.

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This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on occupational medicine and health in the working environment of the fire service.

Contents

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Appendix A.

Information on referenced publications can be found in Chapter 7 and Appendix B.

Chapter 1 Administration

1-1 Scope.

1-1.1 This standard contains minimum requirements for a fire department infection control program.

1-1.2 These requirements apply to organizations providing fire suppression, rescue, emergency medical care, and other emergency services including public, military, private, and industrial fire departments.

1-1.3 This standard does not apply to industrial fire brigades that also can be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

1-2 Purpose.

1-2.1 The purpose of this standard is to provide minimum criteria for infection control in the fire station, in the fire apparatus and during procedures at an incident scene, and at any other area where fire department members are involved in routine or emergency operations.

1-2.2* The requirements of this standard are intended to meet or exceed applicable federal regulations of the Occupational Safety and Health Administration and guidelines of the U.S. Centers for Disease Control.

1-2.3 The requirements in this standard are designed to provide minimum levels of protection for members and patients and for the public at fire department facilities.

1-2.4 Nothing herein is intended to restrict any jurisdiction from exceeding these minimum requirements.

1-3* Definitions.

1-3.1 Blood. Human blood, human blood components, and products made from human blood.

1-3.2 Body Fluids. Fluids that 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 or HBV viruses.

1-3.3 Body Substance Isolation. An infection control strategy that considers all body substances potentially infectious.

1-3.4 Cleaning. The physical removal of dirt and debris, which generally is accomplished with soap and water and physical scrubbing.

1-3.5 Cleaning Gloves. See Gloves, Cleaning.

1-3.6 Contaminated. The presence or the reasonably anticipated presence of blood, body fluids, or other potentially infectious materials on an item or surface.

1-3.7 Contaminated Sharps. Any contaminated object that can penetrate the skin including, but not limited to, needles, lancets, scalpels, broken glass, and jagged metal or other debris.

1-3.8 Decontamination. The use of physical or chemical means to remove, inactivate, or destroy bloodborne, airborne, or foodborne 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. *(See A-6-3.8.)*

1-3.9 Disease Transmission. The process that includes a sufficient quantity of an infectious agent, such as a virus or bacteria; a mode of transmission, such as blood for HBV and HIV or airborne droplets for tuberculosis; a portal of entry, such as a needle stick injury, abraded skin, or mucous membrane contact; and a susceptible host.

1-3.10* Disinfection. The process used to inactivate virtually all recognized pathogenic microorganisms but not necessarily all microbial forms, such as bacterial endospore.

1-3.11 Emergency Medical Care. The provision of treatment to patients, including first aid, cardiopulmonary resuscitation, basic life support (First Responder or EMT level), advanced life support (Paramedic level), and other medical procedures that occur prior to arrival at a hospital or other health care facility.

1-3.12 Emergency Medical Operation. Delivery of emergency medical care and transportation prior to arrival at a hospital or other health care facility.

1-3.13* Engineering Controls. Physical features or mechanical processes within fixed facilities or vehicles that are implemented to improve efficiency, safety, or comfort associated with their operation or use.

1-3.14 Environmental Surface. Interior patient care areas, both stationary and in vehicles, and other surfaces not designed for intrusive contact with the patient or contact with mucosal tissue.

1-3.15 Exposure Incident. A specific eye, mouth, 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 foodborne pathogens and/or toxins.

1-3.16 Eyewear. See Splash-Resistant Eyewear.

1-3.17* Face Protection Devices. Devices constructed of protective clothing materials, designed and configured to cover part or all of the wearer's face or head.

1-3.18 Fire Apparatus. Any vehicle—including those used for rescue, fire suppression, emergency medical services, hazardous materials operations, wildland, or other functions—operated by a fire department member.

1-3.19 Fire Department. An organization providing rescue, fire suppression, and related activities, including emergency medical operations; this includes any public, private, or military organization engaging in this type of activity.

1-3.20 Fire Department Facility. Any building or area owned, operated, occupied, or used by a fire department on a routine basis; not including locations where a fire department could

be summoned to perform emergency operations or other duties, unless such premises are normally under the control of the fire department.

1-3.21 Fire Department Member. See Member.

1-3.22 Fluid-Resistant Clothing. Clothing worn for the purpose of isolating parts of the wearer's body from contact with body fluids.

1-3.23 Garment. An item of clothing that covers any part of the wearer's skin, excluding accessory items such as gloves or face protection devices, including but not limited to full body clothing such as suits, coveralls, and patient/victim isolation bags; and non-full body clothing such as aprons, sleeve protectors, and shoe covers.

1-3.24* Gloves. An element of the protective ensemble designed to provide minimum protection to the fingers, thumb, hand, and wrist.

1-3.24.1 Gloves, Cleaning. Multipurpose, multi-use gloves that provide limited protection from abrasion, cuts, snags, and punctures during cleaning and that are designed to provide a barrier against body fluids, cleaning fluids, and disinfectants.

1-3.24.2 Gloves, Emergency Medical. Single-use, patient examination gloves that are designed to provide a barrier against body fluids meeting.

1-3.25 Handwashing Facility. A facility providing an adequate supply of running potable water, soap, and single-use towels or hot-air drying machines.

1-3.26 Hepatitis.

1-3.26.1 Hepatitis, HBV. Hepatitis B virus.

1-3.26.2 Hepatitis, HCV. Hepatitis C Virus.

1-3.26.3 Hepatitis, Non-A/Non-B Hepatitis. Hepatitis Virus that cannot be classified by Hepatitis A, HBV, or HCV.

1-3.27 HIV. Human immunodeficiency virus.

1-3.28* Health and Safety Officer. The member of the fire department assigned and authorized by the fire chief as the manager of the safety and health program and who performs the duties and responsibilities specified in this standard.

1-3.29 Health Data Base. A compilation of records and data relating to the health experience of a group of individuals, maintained in such a manner that it is retrievable for study and analysis over a period of time.

1-3.30 Immunization. The process or procedure by which a person is rendered immune.

1-3.31* Industrial Fire Department. An organization providing rescue, fire suppression, and related activities at a single facility or facilities under the same management, whether for profit, not for profit, or government owned or operated, including industrial, commercial, mercantile, warehouse, and institutional occupancies.

1-3.32 Infection Control Officer. The person or persons within the fire department who are responsible for managing the department infection control program and for coordinating efforts surrounding the investigation of an exposure.

1-3.33* Infection Control Program. The fire department's 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.

1-3.34* Kitchen. An area designated for storage, preparation, cooking, and serving of food for members.

1-3.35 Leakproof Bags. Bags that are sufficiently sturdy to prevent tearing or breaking and can be sealed securely to prevent leakage that are red in color or display the universal biohazard symbol.

1-3.36 Mask. A device designed to limit exposure of the nasal, oral, respiratory, or mucosal membranes to airborne pathogens.

1-3.37 Medical Gloves. See Gloves, Emergency Medical.

1-3.38 Medical Waste. Items to be disposed of that have been contaminated with human waste, blood, or body fluids; or human waste, human tissue, blood, or body fluids for which special handling precautions are necessary.

1-3.39 Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. For the purposes of this standard, a fire department member can be a full-time or part-time employee, can be a paid or unpaid volunteer, can occupy any position or rank within the fire department, and might or might not engage in emergency operations.

1-3.40 Mucous Membrane. A moist layer of tissue that lines the mouth, eyes, nostrils, vagina, anus, or urethra.

1-3.41 Needle. A slender, usually sharp, pointed instrument used for puncturing tissues, suturing, drawing blood, or passing a ligature around a vessel.

1-3.42 Occupational Exposure. An exposure incident that resulted from performance of a member's duties.

1-3.43 Other Potentially Infectious Materials. Any body fluid that is visibly contaminated with blood; all 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 dead human.

1-3.44 Pathogens. Microorganisms such as a bacteria, virus, or fungus that is capable of causing disease.

1-3.44.1* Pathogens, Airborne. Microorganisms that can produce infection and/or cause disease in humans after being inhaled through the nose or mouth.

1-3.44.2* Pathogens, Bloodborne. Pathogenic microorganisms that are present in human blood and can cause diseases in humans.

1-3.44.3* Pathogens, Foodborne. Microorganisms that are present in food or drinking water and can cause infection and/or disease in humans.

1-3.45 Parenteral. Piercing of the mucous membranes or the skin barrier due to such events as needle sticks, human bites, cuts, and abrasions.

1-3.46 Patient. An individual, living or dead, whose body fluids, tissues, or organs could be a source of exposure to the member.

1-3.47* Personal Protective Equipment (PPE). Specialized clothing or equipment worn by a member for protection against an infectious or communicable disease hazard.

1-3.48 Pocket Mask. A double-lumen device that is portable, pocket-size, and designed to protect the emergency care provider from direct contact with the mouth/lips or body fluids of a patient while performing artificial respiration.

1-3.49 Post-Exposure Prophylaxis. Administration of a medication to prevent development of an infectious disease following known or suspected exposure to that disease.

1-3.50 Regulated Waste. Liquid or semi-liquid blood, body fluids, or other potentially infectious materials; contaminated items that would release blood, body fluids, or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood, body fluids, or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood, body fluids, or other potentially infectious materials.

1-3.51 Resuscitation Equipment. Respiratory assist devices such as bag-valve masks, oxygen demand valve resuscitators, pocket masks, and other ventilation devices that are designed to provide artificial respiration or assist with ventilation of a patient.

1-3.52 Risk. A measure of the probability and severity of adverse effects that result from an exposure to a hazard.

1-3.53 Shall. Indicates a mandatory requirement.

1-3.54 Sharps Containers. Containers that are closable, puncture-resistant, disposable, and leakproof on the sides and bottom; red in color or display the universal biohazard symbol; and designed to store sharp objects after use.

1-3.55 Should. Indicates a recommendation or that which is advised but not required.

1-3.56 Source Individual. Any individual, living or dead, whose blood, body fluids, or other potentially infectious materials has been a source of occupational exposure to a member.

1-3.57 Splash-Resistant Eyewear. Safety glasses, prescription eyewear, goggles, or chin-length faceshields that, when properly worn, provide limited protection against splashes, spray, spatter, droplets, or aerosols of body fluids or other potentially infectious material. *(See Face Protection Devices.)*

1-3.58 Standard. A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

1-3.59* Sterilization. The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores.

1-3.60 Structural Fire-Fighting Gloves. See Gloves.

1-3.61 Structural Fire-Fighting Protective Clothing. Garments primarily intended for structural fire fighting and rescue operations including, but not limited to, coats, trousers, gloves, hoods, footwear, and helmets.

1-3.62* Universal Precautions. An approach to infection control in which human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Chapter 2 Program Components

2-1 Policy.

2-1.1* The fire department shall have a written infection control policy with the goal of identifying and limiting the exposure of members to infection during the performance of their assigned duties and within the fire department working and living environment.

2-1.2 As part of the overall fire department safety and health program, the fire department shall implement an infection control program that meets the requirements of this standard.

2-1.3 The fire department shall provide for the cleaning and disinfection or disposal of the following:

(1) Personal protective equipment
(2) Structural fire-fighting protective equipment
(3) Station/work uniforms
(4) Other clothing
(5) Emergency medical equipment

2-1.4* Members with infections that constitute, in the course of performing their duties, a risk of infection to patients or other members shall be evaluated by a fire department physician to determine the functions that such members are able to perform.

2-1.5 Members with extensive skin lesions or severe dermatitis on hands, arms, head, face, or neck shall not engage in direct patient contact, handle patient care equipment, or handle medical waste.

2-2* Risk Management.

2-2.1* The fire department shall incorporate infection control in the written risk management plan that meets the requirements specified in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

2-2.2 The written risk management plan shall include the identification, evaluation, control, and monitoring of risks to the following:

(1) Fire department facilities
(2) Fire department vehicles
(3) Emergency medical operations
(4) Cleaning and disinfecting of protective clothing and equipment
(5) Other situations that pose a risk to members through occupational exposure to a communicable disease

2-3 Training and Education.

2-3.1* The fire department shall conduct initial and annual training and education programs for all members in accordance with federal or state regulations.

2-3.2 The training program shall include the following:

(1) Proper use of personal protective equipment
(2) Standard operating procedures for safe work practices in infection control
(3) Proper methods of disposal of contaminated articles and medical waste
(4) Cleaning and decontamination
(5) Exposure management
(6) Medical follow-up

2-3.3* The education program shall provide information on the epidemiology, modes of transmission, and prevention of infectious diseases.

2-3.4 Members shall be educated in the potential reproductive health risks to the individual as well as to the fetus.

2-4 Infection Control Officer.

2-4.1 The fire department shall have a designated infection control officer. The position of infection control officer shall be full-time or part-time, depending on the size and character of the fire department.

2-4.1.1 Additional assistant infection control officers shall be appointed where the activities, size, or character of the fire department warrants extra infection control officers. If the infection control officer is not available, additional assistant infection control officers shall be appointed to ensure proper coverage.

2-4.1.2 In the absence of the infection control officer and assistant infection control officers, alternate members shall be assigned to perform the duties and responsibilities that need immediate attention, regardless of the position.

2-4.2* The infection control officer shall be responsible for maintaining a liaison with the fire department physician, the health and safety officer, the infection control representative at health care facilities, and other health care regulatory agencies.

2-4.3 When notified of an exposure incident, the infection control officer shall ensure the notification, verification, treatment, and medical follow-up of members. The infection control officer also shall ensure that proper documentation of the exposure incident is recorded as specified in 2-6.4 of this standard.

2-4.4 The infection control officer shall examine compliance procedures and engineering controls to ensure their effectiveness in accordance with the operational requirements of this standard.

2-4.5 The infection control officer shall be a designated member of the fire department's occupational safety and health committee.

2-5 Health Maintenance.

2-5.1* The fire department shall ensure that members have access to an appropriate immunization program that includes immunization against influenza and vaccination against hepatitis B.

2-5.2 The fire department shall ensure that all members have adequate immunity, as determined through consultation with a physician, according to NFPA 1582, *Standard on Medical Requirements for Fire Fighters*.

2-5.2.1 The immunization program shall be provided at no cost to the member.

2-5.2.2 Where specific or local conditions dictate, the fire department shall offer the members immunizations for the following:

(1) Hepatitis A
(2) Measles, Mumps, Rubella (one after age 18)
(3) Td (Tetanus/Diptheria) every 10 years
(4) Meningococcal disease
(5) Other diseases as dictated by specific incidents or local conditions

2-5.3 The fire department shall make available or ensure that members have access to tuberculosis screening at least annually.

2-5.4 Members shall meet the medical requirements specified in NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, prior to being medically certified for duty by the fire department physician.

2-5.5 In the event of any perceived occupational exposure, the member shall receive a confidential medical evaluation, post-exposure prophylaxis where medically indicated, counseling, and evaluation of reported illness by the fire department physician or his/her designee.

2-5.6 A confidential health data base shall be established and maintained for each member. Any exposures shall become part of a member's confidential health data base as specified in NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, and in accordance with 29 *CFR* 1910.20, "Access to Employee Exposure and Medical Records."

2-6 Exposure Incidents.

2-6.1 If a member has sustained an exposure incident, the exposed area shall be immediately and thoroughly washed using water on mucosal surfaces, and soap and running water on skin surfaces. If soap and running water are not available, waterless soap, antiseptic wipes, alcohol, or other skin cleaning agents that do not need running water shall be used until soap and running water are obtained.

2-6.2 The fire department shall have an established procedure to be used by members for reporting an exposure incident immediately and for notifying the infection control officer within 2 hours of the exposure incident.

2-6.3* The fire department shall ensure that a member who has experienced an exposure incident receives medical guidance, evaluation, and, where appropriate, post-exposure prophylaxis as soon as practical but at least within 24 hours. Appropriate, confidential, post-exposure counseling and testing shall be made available.

2-6.4* All exposure incidents shall be recorded in writing as soon as possible after the incident using a standardized form designed to allow for efficient follow-up. The record shall include the following:

(1) Description of the tasks being performed when the exposure incident occurred
(2) Source of transmission
(3) Portal of entry
(4) Personal protective equipment utilized
(5) Disposition of medical management

2-6.5 The record of exposure incidents shall become part of the member's confidential health data base as specified in Chapter 8 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

2-6.6 A complete record of the member's exposure incidents shall be available to the member upon request.

2-6.7 Exposure incident data, without personal identifiers, also shall be added to the fire department health data base as specified in Chapter 8 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

2-6.8 Due to the hazardous nature of some communicable diseases, a member shall be required to report to the infection control officer when the member has received a confirmed exposure incident and is being medically treated or tested due to presenting signs or symptoms. The fire department physician shall determine fitness-for-duty status after reviewing documentation of a member's exposure, as required in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

Chapter 3 Fire Department Facilities

3-1* General. All fire department facilities shall comply with applicable and appropriate health and infection control laws, regulations, and standards for public use facilities.

3-2 Kitchen Areas.

3-2.1 All food preparation surfaces shall be of a nonporous material. All surfaces directly used for holding or hanging food preparation containers and utensils shall be of a nonporous material.

3-2.2 Shelving shall be provided above sinks to drip-dry cleaned food preparation containers. All drainage from shelving shall run into a sink or drainage pan that empties directly into a sanitary sewer system or septic system.

3-2.3 All kitchens shall have sinks with a double basin or two sinks. A sprayer attachment shall be provided. Sinks, adjacent countertops and dish drainage areas, and splash guards around the sink shall be of a nonporous material.

3-2.4* Kitchens in fire department facilities shall include the following appliances:

(1) Range
(2) Oven
(3) At least one refrigerator
(4) Dishwasher

3-2.5 Perishable food that needs cold storage shall be kept at a temperature of 38°F (3°C) or lower. Perishable food that needs freezer storage shall be kept at a temperature of 0°F (−18°C) or lower. All foods removed from their original manufactured packaging shall be kept in tightly sealed food containers or shall be wrapped with plastic food wrap.

3-2.6 Kitchens equipped with a dishwasher shall be capable of supplying water for washing at 140°F (64°C).

3-2.7 Food preparation and storage areas shall meet local health standards.

3-3 Sleeping Areas.

3-3.1* A minimum of 60 ft^2 (5.57 m^2) of floor space per bed shall be provided in sleeping areas.

3-3.2 Proper ventilation, heating, and cooling shall be provided in sleeping areas.

3-4 Bathrooms.

3-4.1* Doors, sinks, and other bathroom fixtures shall be designed to prevent or minimize the spread of contaminants.

3-4.2 A clearly visible sign reminding members to wash their hands shall be posted prominently in each bathroom.

3-4.3 Bathrooms shall meet local standards.

3-5 Laundry Areas.

3-5.1* The fire department shall provide for cleaning of the following:

(1) Personal protective equipment
(2) Station/work uniforms
(3) Structural fire-fighting equipment

Such cleaning shall be performed by either a cleaning service that is equipped to handle contaminated clothing or a fire department facility that is equipped to handle contaminated clothing.

3-5.2 Where cleaning provided by the fire department is conducted in fire stations, the fire department shall provide at least one washing machine and clothes dryer for the purpose of cleaning personal protective equipment and station/work uniforms in the designated cleaning area as specified in Section 3-7.

3-5.3 If structural fire-fighting equipment is to be cleaned at a fire department facility, a separate and dedicated machine for the sole purpose of cleaning structural fire-fighting equipment shall be provided.

3-5.4 Laundry areas shall be kept neat and orderly, as required in Chapter 7 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

3-6 Equipment Storage Areas.

3-6.1* Emergency medical supplies and equipment stored in fire department facilities, other than those stored on vehicles, shall be stored in a dedicated, enclosed area to protect them from temperature degradation, contamination, and other physical damage. The storage area shall be secured and labeled.

3-6.2 Open and reusable emergency medical supplies and equipment shall not be stored in personal clothing lockers or in areas used for the following:

(1) Food preparation and cooking
(2) Living
(3) Sleeping
(4) Recreation
(5) Personal hygiene, unless physically separated in a locker or room

3-6.3 Potentially contaminated personal protective equipment shall be stored in a dedicated, well-ventilated area or room.

Such equipment shall not be stored in personal clothing lockers or in areas used for the following:

(1) Food preparation and cooking
(2) Living
(3) Sleeping
(4) Recreation
(5) Personal hygiene

3-6.4 Areas or containers for the temporary storage of contaminated medical supplies or equipment prior to disinfection or disposal shall be separated physically from members in facilities or on vehicles. Such areas or containers shall not be used for any other purpose.

3-7 Cleaning Areas.

3-7.1 A designated cleaning area shall be provided in each fire station for the cleaning of personal protective equipment, por-

table equipment, and other clothing. The cleaning area shall have proper ventilation, lighting, and drainage connected to a sanitary sewer system or septic system.

3-7.2 The designated cleaning area shall be physically separate from areas used for the following:

(1) Food preparation
(2) Cleaning of food and cooking utensils
(3) Personal hygiene
(4) Sleeping
(5) Living

3-7.3 The designated cleaning area shall be physically separate from the disinfecting facility.

3-8 Disinfecting Facilities.

3-8.1* Fire departments that provide emergency medical operations shall provide or have access to disinfecting facilities for the cleaning and disinfecting of emergency medical equipment. Medical equipment shall be disinfected at a fire station only where a disinfecting facility that meets the requirements of Section 3-8 is provided. Disinfection shall not be conducted in fire station kitchen, living, sleeping, or personal hygiene areas.

3-8.2 Disinfecting facilities in fire stations shall meet the following requirements:

(1) They shall be lighted.
(2) They shall be vented to the outside environment.
(3) They shall be fitted with floor drains connected to a sanitary sewer system or septic system.
(4) They shall be designed to prevent contamination of other fire station areas.

3-8.3 Disinfecting facilities shall be equipped with rack shelving of nonporous material. Shelving shall be provided above sinks to drip-dry cleaned equipment. All drainage from shelving shall run into a sink or drainage pan that empties directly into a sanitary sewer system or septic system.

3-9 Disposal Areas.

3-9.1 Medical waste or other regulated waste shall be disposed of in a designated disposal area. Such waste shall not be disposed of in fire station kitchen, living, sleeping, or personal hygiene areas.

3-9.2 The designated disposal area shall be physically separate from areas used for the following:

(1) Food preparation
(2) Cleaning of food and cooking utensils
(3) Personal hygiene
(4) Sleeping
(5) Living

3-9.3 The designated disposal area shall be physically separate from the designated cleaning area and the disinfecting facility.

3-9.4 The designated disposal area shall be secured and labeled.

3-9.5 The designated disposal area, and the handling, storage, transportation, and disposal of medical waste or other regulated waste, shall comply with all applicable state and local laws and regulations.

Chapter 4 Fire Department Apparatus

4-1* General. All fire department vehicles involved in providing any level of emergency medical services (EMS) shall comply with applicable and appropriate health and infection control laws, regulations, and standards.

4-2 Vehicles Used to Transport Patients. The provisions of Section 4-2 shall apply to all department vehicles including, but not limited to, rescue vehicles, ambulances, and nonemergency vehicles that are used to transport patients to or from hospitals or other health care facilities.

4-2.1 For the purpose of this standard, the term *ambulance* shall be defined in accordance with the U.S. General Services Administration (GSA) Federal Specifications for the Star-of-Life Ambulance as "a vehicle for emergency medical care which provides: a drivers compartment; a patient compartment to accommodate an emergency medical technician (EMT)/paramedic and [up to] two litter patients . . . so positioned that the primary patient can be given . . . life support during transit."

4-2.2* All engineering controls directed toward infection control in ambulances shall meet or exceed the relevant criteria contained within the GSA Federal Specifications for the Star-of-Life Ambulance. The controls shall include, but shall not be limited to, those referenced in this NFPA standard.

4-2.3 Engineering controls shall be used to augment, but not to replace, safe infection control training and practices and appropriate personal protective clothing and equipment, as outlined in this standard and in relevant federal regulations.

4-2.4 Ambulance Ventilation.

4-2.4.1 Ventilation systems in fire department ambulances shall meet or exceed the ventilation criteria in 3.13.6 of the GSA Federal Specifications.

4-2.4.2 When the vehicle is stationary, ventilation systems shall provide complete ambient air exchanges in both drier and patient compartments at least every 2 minutes.

4-2.4.3 Ventilation within each compartment shall be separately controlled.

4-2.4.4 Fresh air intakes for the ventilation system shall be located towards the front of the vehicle.

4-2.4.5 Exhaust vents shall be located on the upper rear of the vehicle.

4-2.4.6 Ventilation for the patient compartment shall be supplied by the heater–air conditioner or by separate power intake or exhaust ventilation systems.

4-2.5* Ambulance Ambient Air Filtration. All ambulances operating in jurisdictions meeting U.S. Centers for Disease Control (CDC) criteria for moderate or high risk for tuberculosis (TB) transmission shall have properly fitted, high efficiency particle (HEPA) filters integrated into the patient compartment ventilation system.

4-2.6 Ambulance Interior Surfaces.

4-2.6.1 The interior surfaces of all fire department ambulances shall meet or exceed 3.10.17 of the GSA Federal Specifications.

4-2.6.2 The following shall be comprised of or covered by nonabsorbent, washable material:

(1) Seats
(2) Mounted cushions
(3) Cots
(4) Floors
(5) Counters
(6) Shelves
(7) Bulkheads
(8) Container linings

4-2.6.3 The materials required by 4-2.6.2 shall be physically and chemically inert to detergents and other solvents or solutions used for cleaning or disinfecting, or both, as described in U.S.F.A. Publication #FA-112, June, 1995, *Guide to Developing and Managing an Emergency Service Infection Control Program.*

Chapter 5 Emergency Medical Operations Protection

5-1 Personnel.

5-1.1 Prior to any contacts with patients, members shall cover all areas of abraded, lacerated, chapped, irritated, or otherwise damaged skin with adhesive dressings.

Exception: Members restricted by the requirements of 2-1.5 shall not have contact with patients.

5-1.2* Any member who has skin or mucosal contact with body fluids shall thoroughly wash the exposed area immediately using water or saline on mucosal surfaces and soap and running water on skin surfaces. If soap and running water are not available, waterless soap, antiseptic wipes, alcohol, or other skin cleaning agents that do not need running water shall be used until soap and running water are obtained.

5-1.3 After removal of any personal protective equipment, including gloves, all members shall wash their hands immediately or as soon as feasible.

5-2 Personal Protective Equipment.

5-2.1 Members engaging in any emergency medical care shall don emergency medical gloves prior to initiating such care to protect against the variety of diseases, modes of transmission, and unpredictable nature of the work environment. Emergency medical gloves shall be a standard component of emergency response equipment. Latex-free gloves shall be provided for members with a latex allergy, or for members providing care for a patient with a latex allergy.

5-2.2 Emergency medical gloves shall be removed as soon as possible after the termination of patient care, taking care to avoid skin contact with the glove's exterior surface, and shall be disposed of in accordance with 6-5.5. Hands shall be washed as specified in Section 6-1 following removal of emergency medical gloves.

5-2.3 All personal protective equipment used in emergency medical care shall meet the requirements of NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations.*

5-2.4 Personal protective equipment used in emergency medical care, including masks, splash-resistant eyewear, gloves, and fluid-resistant clothing, shall be present on all fire department vehicles that provide emergency medical operations.

5-2.5 Prior to beginning any emergency medical care, members shall don personal protective equipment (PPE) that meets the requirements of NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*, and that is commensurate with the situation being handled.

5-2.5.1 Masks, splash-resistant eyewear, and fluid-resistant clothing shall be used by members providing treatment during situations involving spurting blood, trauma, childbirth, or other situations where gross contamination is anticipated.

5-2.5.2 Respiratory protection shall be used during situations involving potential exposures to airborne pathogens and specified by CDC TB Guidelines.

5-2.6 Resuscitation equipment, including pocket masks, shall be available on all fire department vehicles that provide emergency medical operations. The equipment shall be used by members performing airway management.

5-2.7 Structural fire-fighting gloves shall meet the requirements of NFPA 1971, *Standard on Protective Ensemble for Structural Fire Fighting.*

5-2.8 Structural fire-fighting gloves shall be worn by members in any situation where sharp or rough surfaces or a potentially high heat exposure is likely to be encountered, such as patient extrication.

5-2.9* Medical gloves shall not be worn under structural fire-fighting gloves to prevent complications caused by exposure of skin to heat, such as burns, dripping or melting of gloves, or a combination thereof.

5-2.10 Cleaning gloves shall be reusable, heavy-duty, mid-forearm length, and designed to provide limited protection from abrasions, cuts, snags, and punctures. Gloves shall provide a barrier against body fluids, cleaning fluids, and disinfectants.

5-2.11 Cleaning gloves, splash-resistant eyewear, and fluid-resistant clothing shall be worn by members during cleaning or disinfecting of clothing or equipment potentially contaminated during emergency medical operations.

5-2.12 Members shall not eat, drink, smoke, apply cosmetics or lip balm, or handle contact lenses while wearing cleaning gloves.

5-3 Handling of Sharp Objects.

5-3.1 All members shall take precautions during procedures to prevent injuries caused by needles, scalpel blades, and other sharp instruments or devices.

5-3.2 All used sharp objects, such as needles, scalpels, catheter styles, and other contaminated sharp objects, shall be considered infectious and shall be handled with extraordinary care.

5-3.3 Except for automatic or self-sheathing, needles shall not be manually recapped, bent, or broken. Following use, all sharp objects shall be placed immediately in sharps containers. Sharps containers shall be located in all patient transport vehicles and shall be readily available in such items as drug boxes, trauma kits, and IV kits.

Chapter 6 Cleaning, Disinfecting, and Disposal

6-1 Skin Washing.

6-1.1 Hands shall be washed as follows:

(1) After each emergency medical incident
(2) Immediately or as soon as possible after removal of gloves or other personal protective equipment

(3) After cleaning and disinfecting emergency medical equipment
(4) After cleaning personal protective equipment
(5) After any cleaning function
(6) After using the bathroom
(7) Before and after handling food or cooking and food utensils

6-1.2 Hands and contaminated skin surfaces shall be washed with nonabrasive soap and water by lathering the skin and vigorously rubbing together all lathered surfaces for at least 10 seconds, followed by thorough rinsing under running water.

6-1.3 Where provision of handwashing facilities is not feasible, appropriate antiseptic hand cleansers in conjunction with clean cloth, paper towels, or antiseptic towelettes shall be used. Where antiseptic hand cleansers or towelettes are used, hands shall be washed with nonabrasive soap and running water as soon as feasible.

6-2 Disinfectants.

6-2.1 All disinfectants shall be approved by and registered with the U.S. Environmental Protection Agency (EPA) and also shall be registered as tuberculocidal.

6-2.2 Care shall be taken in the use of all disinfectants. Members shall be aware of the flammability and reactivity of disinfectants and shall follow the manufacturer's instructions. Disinfectants shall be used only with adequate ventilation and while wearing appropriate infection control garments and equipment including, but not limited to, cleaning gloves, face protection devices, and aprons.

6-2.3 Disinfecting shall take place in the designated disinfecting facility as specified in Section 3-8.

6-3 Emergency Medical Equipment.

6-3.1 Where emergency medical equipment cleaning is performed by members, it shall take place in a designated disinfecting facility as specified in Section 3-8, and appropriate personal protective equipment shall be available, including the following:

(1) Splash-resistant eyewear
(2) Cleaning gloves
(3) Fluid-resistant clothing

6-3.2 Dirty or contaminated emergency medical equipment shall not be cleaned or disinfected in fire station kitchen, living, sleeping, or personal hygiene areas.

6-3.3 Personal protective equipment shall be used wherever there is a potential for exposure to body fluids or potentially infectious material during cleaning or disinfecting.

6-3.4 Prior to cleaning and disinfecting, dirty or contaminated emergency medical equipment shall be stored separately from cleaned and disinfected emergency medical equipment.

6-3.5 Disinfectants meeting the requirements specified in 6-2.1 shall be used. The disinfectant manufacturer's instructions for use shall be followed.

6-3.6 Dirty or contaminated runoff from emergency medical equipment and cleaning and disinfecting solutions shall be drained into a sanitary sewer system or septic system.

6-3.7 Emergency medical equipment, metal, and electronic equipment shall be cleaned in a manner appropriate for the equipment and then disinfected. Only disinfectants that are chemically compatible with the equipment to be disinfected and that meet the requirements specified in 6-2.1 shall be used. The disinfectant manufacturer's instructions for use shall be followed.

6-3.8* Reusable emergency medical equipment that comes in contact with mucous membranes shall require cleaning and a high-level disinfection or sterilization after each use. The medical equipment manufacturer's instructions shall be followed.

6-3.9* Environmental surfaces shall be cleaned in a manner appropriate for the surface and then disinfected. Only disinfectants that are chemically compatible with the surface to be disinfected and that meet the requirements specified in 6-2.1 shall be used. The disinfectant manufacturer's instructions for use shall be followed.

6-4 Clothing and Personal Protective Equipment.

6-4.1* The fire department shall clean, launder, and dispose of personal protective equipment at no cost to the member. The fire department also shall repair or replace personal protective equipment as needed to maintain its effectiveness, at no cost to the member.

6-4.2 If a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible.

6-4.3 All personal protective equipment shall be removed prior to leaving the work area.

6-4.4 Clothing that is contaminated with large amounts of body fluids shall be placed in leakproof bags, sealed, and transported for proper cleaning or disposal.

6-4.5 Cleaning or disinfecting of contaminated structural fire-fighting clothing, personal protective garments, station/work uniforms, or other clothing shall take place in the proper area as specified in either Section 3-5 or Section 3-7. To avoid the possibility of spreading infectious diseases by cross-contamination, the cleaning of contaminated personal protective equipment, station/work uniforms, or other clothing shall not be done at home.

6-4.6* Structural fire-fighting protective clothing, gloves, station/work uniforms, and protective footwear shall be cleaned and dried according to the manufacturer's instructions as needed and at least every 6 months. Chlorine bleach or cleaning agents containing chlorine bleach shall not be used.

6-4.7 When a garment is contaminated, it shall be cleaned as soon as possible.

6-4.8 When personal protective equipment is removed, it shall be placed in an appropriate designated area or container for storage until cleaned or disposed of.

6-4.9 Self-contained breathing apparatus (SCBA) respirator cleaning, maintenance, and care shall follow Paragraph H of the OSHA Respiratory Protection Standard 29 *CFR* 1910.134 and Appendix B-2, "Respiratory Cleaning Procedures."

6-5* Disposal of Materials.

6-5.1 Sharps containers shall be disposed of in accordance with applicable federal, state, and local regulations.

6-5.2 Contaminated sharps shall be discarded immediately or as soon as feasible in containers with the following features:

(1) Closable
(2) Puncture resistant
(3) Leakproof on sides and bottom
(4) Labeled or color-coded in accordance with Section 6-8

6-5.3 During use, containers for contaminated sharps shall meet the following requirements:

(1) They shall be easily accessible to personnel.
(2) They shall be located as close as is feasible to the immediate area where sharps are used or anticipated to be found, such as in laundries.
(3) They shall be maintained upright throughout use.
(4) They shall be replaced routinely and not be allowed to overfill.

6-5.4 When moving containers of contaminated sharps from the area of use, the containers shall be closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping. They shall be placed in a secondary container if leakage is possible.

6-5.5 The following shall be placed in leakproof bags, sealed, and disposed of as medical waste:

(1) Contaminated disposable medical supplies and equipment
(2) Contaminated disposable personal protective equipment
(3) Contaminated wastes

6-5.6 Noncontaminated disposable medical supplies and equipment, noncontaminated disposable personal protective equipment, and noncontaminated wastes shall be permitted to be collected in closable waste containers and shall be disposed of properly. Such waste collection containers shall not be located in any fire station kitchen, living, or sleeping area.

6-5.7 Where it has been determined by the infection control officer that it is not possible for normally nondisposable items to be disinfected, they shall be placed in leakproof bags, sealed, and disposed of as medical waste.

6-6 Linen.

6-6.1 Contaminated laundry shall be handled as little as possible and with a minimum of agitation. Contaminated laundry shall be bagged or put into containers at the location where used and shall not be sorted or rinsed at the location of use.

6-6.2 Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with Section 6-8.

6-6.3 Wherever contaminated laundry is wet and presents a reasonable likelihood of soaking through or leaking from the bag or container, the laundry shall be placed and transported in bags or containers that prevent soak-through or leakage, or both, of fluids to the exterior.

6-6.4 The employer shall ensure that employees who have contact with contaminated laundry wear appropriate personal protective equipment.

6-6.5 Where a fire department ships contaminated laundry to a facility that does not utilize universal precautions in the handling of all laundry, the facility generating the contaminated laundry shall place such laundry in bags or containers that are labeled or color-coded.

6-7 Housekeeping.

6-7.1 The fire department shall ensure that the worksite is maintained in a clean and sanitary condition. The fire department shall determine and implement an appropriate written schedule for cleaning and method of decontamination based on the following:

(1) Location within the facility
(2) Type of surface to be cleaned
(3) Type of soil present
(4) Tasks or procedures performed

6-7.2 All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

6-7.3 All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials using any cleaner or disinfectant agent that is intended for environmental use. Environmental and working surfaces shall include the following:

(1) Floors
(2) Woodwork
(3) Ambulance seats
(4) Counter tops

6-7.4 Contaminated work surfaces shall be decontaminated with an appropriate disinfectant at the following times:

(1) After completion of emergency medical operations
(2) Immediately or as soon as feasible where surfaces are overtly contaminated
(3) Immediately after any spill of blood or other potentially infectious materials
(4) At the end of the workshift if the surface was possibly contaminated since the last cleaning

6-7.5 All bins, pails, cans, and similar receptacles intended for reuse that have a reasonable likelihood of becoming contaminated with blood or other potentially infectious materials shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.

6-8 Labeling.

6-8.1 Warning labels shall be affixed to containers of regulated waste and other containers used to store, transport, or ship blood or other potentially infectious materials such as sharps containers.

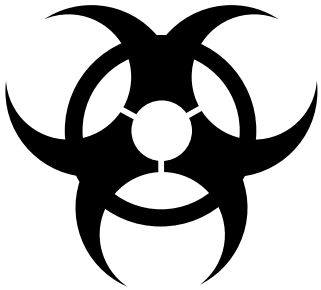
6-8.2 Labels required by Section 6-8 shall include the symbol shown in Figure 6-8.2.

The labels shall be fluorescent orange or orange-red, or predominantly so, with lettering or symbols in a contrasting color.

6-8.3 The labels required shall be affixed as closely as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

6-8.4 Red bags or red containers shall be permitted to be substituted for labels.

FIGURE 6-8.2 DOT (Dept. of Transportation) symbol for biohazards.



6-8.5 Labels required for contaminated equipment shall be in accordance with 6-8.5 and also shall specify which portions of the equipment remain contaminated.

6-8.6 Regulated waste that has been decontaminated shall not be required to be labeled or color-coded.

Chapter 7 Referenced Publications

7-1 The following documents or portions thereof are referenced within this standard as mandatory requirements and shall be considered part of the requirements of this standard. The edition indicated for each referenced mandatory document is the current edition as of the date of the NFPA issuance of this standard. Some of these mandatory documents might also be referenced in this standard for specific informational purposes and, therefore, are also listed in Appendix B.

7-1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 1997 edition.

NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, 2000 edition.

NFPA 1971, *Standard on Protective Ensemble for Structural Fire Fighting*, 2000 edition.

NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*, 1997 edition.

7-1.2 Other Publications.

7-1.2.1 U.S. Centers for Disease Control Publications. U.S. Government Printing Office, Superintendent of Documents, Washington, DC 20402.

TB Guidelines.

7-1.2.2 U.S. Fire Administration Publications. Publications Office, U.S. Fire Administration, 16825 South Seton Avenue, Emmitsburg, MD 21727.

Publication #FA-112, June, 1995, *Guide to Developing and Managing an Emergency Service Infection Control Program.*

7-1.2.3 U.S. Government Publication. U.S. Government Printing Office, Superintendent of Documents, Washington, DC 20402.

Title 29, *Code of Federal Regulations*, Part 1910.20, "Access to Employee Exposure and Medical Records."

Title 29, *Code of Federal Regulations,* Part 1910.134 and Appendix B-2, "Respiratory Cleaning Procedures."

U.S. General Services Administration Federal Specifications

Appendix A Explanatory Material

Appendix A is not a part of the requirements of this NFPA document but is included for informational purposes only. This appendix contains explanatory material, numbered to correspond with the applicable text paragraphs.

A-1-2.2 "Applicable federal regulations of the Occupational Safety and Health Administration" refers specifically to 29 *CFR* 1910.1030, "Bloodborne Pathogens," Final Rule.

"Guidelines of the Centers for Disease Control and Prevention" refers specifically to *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health Care and Public Safety Workers.*

A-1-3 For a more complete glossary of terms associated with infection control, refer to the United States Fire Administration Publication #FA-112, June, 1995, *Guide to Developing and Managing an Emergency Service Infection Control Program.*

A-1-3.10 Disinfection. Disinfection is not the same as sterilization.

A-1-3.13 Engineering Controls. The engineering controls described in this standard are designed to reduce the risk of occupational exposure to infectious diseases for fire department members.

A-1-3.17 Face Protection Devices. Face protection devices might include splash-resistant eyewear, hooded visors, or respirators.

A-1-3.24 Gloves. The requirement for FDA registration of gloves provides further benefit to the emergency responder. The FDA currently does not require that medical gloves used in emergency medical response be registered as medical devices. Yet, these same gloves, when worn by emergency personnel inside hospitals and other health care provision organizations, are required to be registered as Class 1 medical devices with the FDA.

Although FDA registration is not a certification of the product, it is a process by which the manufacturer is required to provide substantiation for any and all claims made regarding the performance of the product (such as its viral barrier performance, levels of quality assurance, and sterility) in either product packaging or marketing literature. The FDA either affirms or denies these claims.

Therefore, this requirement helps to ensure that fire service and emergency medical service personnel are provided with accurate information about the products they purchase.

A-1-3.28 Health and Safety Officer. The individual can be the incident safety officer or it can also be a separate function.

A-1-3.31 Industrial Fire Department. The industrial fire department generally is trained and equipped for specialized operations based on site-specific hazards present at the facilities.

A-1-3.33 Infection Control Program. This program includes, but is not limited to, implementation of written policies and standard operating procedures regarding exposure follow up measures, immunizations, members' health screening programs and educational programs.

A-1-3.34 Kitchen. Cleaning and washing of food service equipment and utensils also is conducted in this area.

A-1-3.44.1 Pathogens, Airborne. Some infectious particles naturally persist for long periods in the environment, or are weaponized by packaging that causes them to be released in

aerosol suspension (e.g., anthrax). This standard is mainly concerned with pathogens that are transmitted from human to human in droplets or aerosols of respiratory secretions. Examples of diseases transmitted in this way include, but are not limited to, the following:

(1) Tuberculosis (TB)
(2) Pertussis
(3) Meningococcal disease
(4) Viruses, such as the following:
    a. Measles
    b. German measles (rubella)
    c. Chicken pox (varicella)
    d. Mumps
    e. Influenza

A-1-3.44.2 Pathogens, Bloodborne. Examples of bloodborne pathogens include human immunodeficiency virus, hepatitis B virus, and hepatitis C virus.

A-1-3.44.3 Pathogens, Foodborne. Examples of foodborne pathogens that produce disease through establishment of infection by the ingested microorganisms in the gastrointestinal tract include *Salmonella*, *Shigella*, *Campylobacter*, and certain strains of *E. coli*. Infection with these organisms is usually characterized by fever and abdominal pain in addition to the symptoms of gastroenteritis described above. The onset of symptoms typically occurs 12 hours to 24 hours after ingestion of the contaminated food. Proper refrigeration inhibits growth of pathogenic microorganisms in food; adequate cooking both kills the microorganisms and destroys their toxins.

Following ingestion of contaminated food, disease can result either from establishment of infection by the microorganisms, themselves, or from the effects of toxins which had previously been released into the food by the microorganisms.

A-1-3.47 Personal Protective Equipment. Personal protective equipment for cleaning and disinfecting includes splash-resistant eyewear, cleaning gloves, and fluid-resistant clothing.

A-1-3.59 Sterilization. This procedure typically is not performed at fire department facilities or by members.

A-1-3.62 Universal Precautions. Under circumstances in which differentiation between body fluids is difficult or impossible, all body fluids are considered potentially infectious materials. *(See Body Substance Isolation.)*

A-2-1.1 Sample Policy Statements. The following examples are reprinted from the United States Fire Administration Publication #FA-112, *Guide to Developing and Managing an Emergency Service Infection Control Program.*

(a) *Example 1:* The Fire Department recognizes the potential exposure of its fire fighters, in the performance of their duties, to communicable diseases. To minimize the risk of exposure, the Fire Department will implement an infection control program.

The infection control program will include standard operating procedures; initial training and continuing education in infection control practices; a vaccination program; the provision of proper infection control clothing and equipment; decontamination procedures for clothing and equipment; procedures for the disposal of medical waste; a system for reporting and managing exposures; a system for tracking exposures and ensuring confidentiality; monitoring of compliance with the standard operating procedures; the design of fire department facilities to minimize risk of infection; and a public information campaign.

Finally, exposure to communicable disease shall be considered an occupational health hazard, and any communicable disease contracted as the result of a documented workplace exposure shall be considered occupationally related.

(b) *Example 2:* The Fire Department recognizes the potential exposure of its members to communicable diseases in the performance of their duties and in the normal work environment. The Fire Department is committed to a program that will reduce this exposure to a minimum and will take whatever measures are feasible to protect the health of its members.

In the emergency care setting, the infectious disease status of patients is frequently unknown by fire department personnel. All patients must be considered infectious. Blood and body fluid precautions must be taken with all patients.

To minimize the risk of exposure, the Fire Department will provide its members with proper infection control protective equipment, including disposable medical gloves, face masks, gowns, and eyewear, and will provide necessary cleaning and disinfecting supplies. The Fire Department also will provide initial instruction and continuing education in preventative health care practices so that fire fighters possess a basic awareness of infectious diseases, understand the risks and severity of various types of exposures, and exhibit proper skills in infection control.

Standard prophylactic medical treatment will be given to exposed members, and necessary immunizations will be made available to protect members from potential exposure to infectious disease.

Fire Department members will contact the fire department infection control representative after any actual or suspected exposure to a contagious disease. The infection control representative will contact the hospital to initiate patient follow-up and determine the need for treatment of the exposed individual. A contagious disease exposure tracking system is a component of the medical records system that is maintained for each member.

The Fire Department believes that its members have the right to be fully informed if a patient is found to carry a communicable disease and if a probable exposure occurred. The responsibility for informing the Fire Department should rest with the medical institution receiving the patient and should occur as soon as possible after the medical institution becomes aware of the condition.

The Fire Department also recognizes the health concerns that may be involved in the station work environment, where a number of members share living quarters and work areas and, in some cases, use the same equipment. There is a particular need to isolate this environment from the infectious hazards that members may encounter in providing emergency care to the general public. There is also a need to provide facilities and equipment that do not expose members to additional health risks. This also extends to preventing the spread of health risks encountered in the work environment to a member's home, family, and friends.

The Fire Department also believes that infectious disease exposure should be considered an occupational health hazard and supports the presumption that contracting a contagious disease should be considered an occupationally related condition.

Therefore, the Fire Department hereby adopts NFPA 1581, *Standard on Fire Department Infection Control Program.*

It is possible that an existing program or policy meets the requirements of this standard; if so, the program or policy might need to be adopted, in whole or in part, in order to comply with this standard. An example of such an existing program or policy is a corporate infection control program or an employee immunization program.

A policy statement provides members with awareness that the department considers infection control to be an important issue.

The written policy statement should define the purpose, scope, and philosophy of the infection control program clearly. See Figure A-2-1.1.

FIGURE A-2-1.1 Sample Infection Control Program Policy Statement.

Infection Control Program Policy Statement

Purpose: To provide a comprehensive infection control system that maximizes protection against communicable diseases for all members, and for the public that they serve.

Scope: This policy applies to all members, career and volunteer, providing fire, rescue, or emergency medical services.

This department recognizes that communicable disease exposure is an occupational health hazard. Communicable disease transmission is possible during any aspect of emergency response, including in-station operations. The health and welfare of each member is a joint concern of the member, the chain of command, and this department. Although each member is ultimately responsible for his or her own health, the department recognizes a responsibility to provide as safe a workplace as possible. The goal of this program is to provide all members with the best available protection from occupationally acquired communicable disease.

It is the policy of this department to do the following:

- To provide fire, rescue, and emergency medical services to the public without regard to known or suspected diagnoses of communicable disease in any patient.
- To regard all patient contacts as potentially infectious. Universal precautions will be observed at all times and will be expanded to include all body fluids and other potentially infectious material (body substance isolation).
- To provide all members with the necessary training, immunizations, and personal protective equipment (PPE) needed for protection from communicable diseases.
- To recognize the need for work restrictions based on infection control concerns.
- To encourage participation in member assistance and critical incident stress debriefing (CISD) programs.
- To prohibit discrimination of any member for health reasons, including infection or seroconversion, or both, with HIV, HBV, or HCV virus.
- To regard all medical information as strictly confidential. No member health information will be released without the signed written consent of the member.

A-2-1.4 Table A-2-1.4 summarizes information on the specific diseases/infections that are of greatest concern.

Table A-2-1.4 Disease Information for Emergency Response Personnel

Disease/Infection	Mode of Transmission	Is Vaccine Available?	Signs and Symptoms
AIDS/HIV (human immunodeficiency virus)	Needle stick, blood splash into mucous membranes (e.g., eyes, mouth), blood contact with open wound	No	Fever, night sweats, weight loss, cough
Varicella (Chicken pox, Shingles)	Respiratory aerosols and contact with moist vesicles	Yes	Fever, rash, cutaneous vesicles (blisters)
Infectious Diarrhea: *Campylobacter, Salmonella, Shigella, E. Coli*	Foodborne	No	Fever, diarrhea, vomiting, abdominal pains
Rubella (German measles)	Respiratory aerosols and contact with respiratory secretions	Yes	Fever, rash
Hepatitis A and E	Contaminated food/water	Yes	Fever, loss of appetite, jaundice, fatigue
Hepatitis B (HBV) (serum hepatitis)	Needle stick, blood splash into mucous membranes (e.g., eye or mouth), blood contact with open wound; possible exposure during mouth-to-mouth resuscitation	Yes	Fever, fatigue, loss of appetite, nausea, headache, jaundice
Hepatitis C	Same as hepatitis B	No	Same as hepatitis B
Hepatitis D	Same as hepatitis B; dependent on HBV (past or present) to cause infection	No	A complication of HBV infection; can increase severity of HBV infection
Herpes simplex (cold sores)	Contact of mucous membrane with moist lesions; fingers at particular risk for becoming infected	No	Skin lesions located around mouth
Influenza	Respiratory aerosols	Yes	Fever, fatigue, loss of appetite, nausea, headache
Lice: head, body, pubic	Close head to head contact; both body and pubic lice require intimate contact (usually sexual) or sharing of intimate clothing	No	Severe itching and scratching, often with secondary infection; scalp and hairy portions of body may be affected; eggs of head lice (nits) attach to hairs as small, round, gray lumps
Rubella (Measles)	Respiratory aerosols and contact with secretions	Yes	Fever, rash, bronchitis
Meningitis: Meningococcal	Respiratory aerosols	Yes but only in extraordinary circumstances	Fever, severe headache, stiff neck, sore throat
Meningitis	Many different causes	No	Fever, severe headache, stiff neck, sore throat
Mononucleosis	Contact with respiratory secretions or saliva, such as with mouth-to-mouth resuscitation	No	Fever, sore throat, fatigue
Mumps (infectious parotitis)	Respiratory aerosols and contact with saliva	Yes	Fever, swelling of salivary glands (parotid)
Scabies	Close body contact	No	Itching, tiny linear burrows or "tracks," vesicles — particularly around fingers, wrists, elbows, and skin folds
Syphilis	Primarily sexual contact; rarely through blood transfusion or contact with skin lesions	No	Genital and cutaneous lesions, nerve degeneration (late)
Tuberculosis, pulmonary	Airborne	No	Fever, night sweats, weight loss, cough
Pertussis (Whooping cough)	Direct contact with oral secretions; Respiratory aerosols	Yes	Violent cough at night, whooping sound when cough subsides

A-2-2 The risk of occupational exposure to a communicable disease poses a real hazard on a daily basis for department members. It is possible for an occupational exposure to a communicable disease to occur during a variety of emergency operations involving delivery of service to the public. Prevention aspects should be properly addressed through a written infection control program.

Infection control should be integrated into the department's overall risk management process. By utilizing the risk management process, risks are identified according to the job tasks performed by department members. Risks should be evaluated based on the frequency and severity of occurrence within the community. Control measures should be implemented based upon the risk evaluation and services performed by the department. A monitoring process evaluates the effectiveness of this program and determines if changes should be made.

Risk management is an ongoing process that should be continually evaluated and revised based on the needs and requirements of the department. The health and safety officer, infection control officer, and the department's occupational safety and health committee should ensure that evaluations and revisions occur at least annually.

A-2-2.1 The risk to personnel of exposure to infection poses a real hazard and should be properly addressed through a written infection control program that should include, but should not be limited to, the following:

(1) Training and education
(2) Personal protective equipment
(3) Health maintenance and vaccinations
(4) Appropriate supervision
(5) Incident operations
(6) Facility safety
(7) Medical follow-up of an occupational exposure

Infection control should be integrated into the department's overall risk management process. By utilizing the risk management process, risks are identified in conjunction with the services that a department provides. Risks should be evaluated based on the probability and severity of occurrence within the community. Control measures should be implemented based on the risk evaluation and services performed by the department. A monitoring process evaluates the effectiveness of the risk control techniques.

Risk management is an ongoing process that should be continually evaluated and revised based on the needs and requirements of the department. The health and safety officer, infection control officer, and the department's occupational safety and health committee should ensure that evaluations and revisions occur at least annually.

A-2-3.1 For infectious disease training guidelines, the following should be consulted:

(1) *Infection Control for Emergency Response Personnel: The Supervisor's Role (Student Manual)*, U.S. Fire Administration, National Fire Academy
(2) *A Curriculum Guide for Public Safety and Emergency Response Workers, Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus*, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention
(3) *Training for Hazardous Material Response: Infectious Diseases*, International Association of Fire Fighters (IAFF)

A-2-3.3 See Table A-2-1.4 and Appendix B.

A-2-4.2 The infection control officer needs to maintain contact with any person or agency that affects or impacts the fire department infection control program, whether internal, external, local, statewide, or nationwide.

Networking is a very important part of the infection control program. One resource is the Association of Practitioners of Infection Control (APIC). This hospital-based organization provides information regarding all components of the infection control program.

A-2-5.1 Members who choose to decline immunizations offered by the department are required to sign a written declination. The declination becomes part of the member's confidential health data base as specified in Section 8-4 of NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*. Members are allowed to recant at any time and receive offered immunizations.

A-2-6.3 For appropriate post-exposure guidelines, reference should be made to 29 *CFR* 1910.1030, "Bloodborne Pathogens," Final Rule; *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health Care and Public Safety Workers*; and *Guidelines for Infection Control in Hospital Personnel*, by Walter Williams, MD, MPH, Hospital Infections Program, Center for Infectious Disease, Centers for Disease Control and Prevention, Atlanta, Georgia.

For guidance on post-exposure counseling, reference should be made to "Public Health Service Guidelines for Counseling and Antibody Testing to Prevent HIV Infection and AIDS," *Morbidity and Mortality Weekly Review*, Centers for Disease Control and Prevention.

A-2-6.4 Recordkeeping should be in accordance with the requirements of 29 *CFR*, 1910.1030, "Bloodborne Pathogens," Final Rule. Figure A-2-6.4 is an example of an exposure report form.

FIGURE A-2-6.4 Sample exposure report form.

Fire Department Infectious Exposure Form

Exposed member's name: _____ Rank: _____

Soc. Sec. No.: _____

Field Inc. No.: _____ Shift: _____ Company: _____ District: _____

Name of patient: _____ Sex: _____

Age: _____ Address: _____

Suspected or confirmed disease: _____

Transported to: _____

Transported by: _____

Date of exposure: _____ Time of exposure: _____

Type of incident (auto accident, trauma): _____

What were you exposed to?

❑ Blood ❑ Tears ❑ Feces ❑ Urine ❑ Saliva ❑ Vomitus ❑ Sputum ❑ Sweat

❑ Other _____

What part(s) of your body became exposed? Be specific: _____

_____

_____

Did you have any open cuts, sores, or rashes that became exposed? Be specific: _____

_____

_____

How did exposure occur? Be specific: _____

_____

_____

Did you seek medical attention? ❑ yes ❑ no

Where? _____ Date: _____

Contacted infection control officer? Date: _____ Time: _____

Supervisor's signature: _____ Date: _____

Member's signature: _____ Date: _____

A-3-1 State and local laws and regulations are usually very specific about infection control standards for public use facilities. Public health agencies provide standards for food storage, preparation, and handling, as well as for disposal of general and medical or other regulated waste. Hotel bureaus sometimes have the ability to provide standards for sleeping areas and bathrooms.

Emergency response agencies can learn important lessons from such state and local agencies, which monitor infection control in public use facilities. The agencies serve as valuable resources in developing standard operating procedures or guidelines for infection control in fire department facilities and in designing or remodeling facilities.

A-3-2.4 Because of the potential for excessive use by a large number of people, commercial-grade appliances are needed in many fire department facilities. Such appliances often have a larger capacity and more durability for continuous or repeated use.

When determining the number of refrigerators needed, consideration should be given to the number of members who are to use a refrigerator or the amount of use the refrigerator is to receive. A large number of people using a small refrigerator results in the door being opened often, causing the refrigerator to lose its ability to maintain a proper temperature and resulting in the spoilage of food or the accumulation of bacteria or other sources of foodborne diseases.

A-3-3.1 Separate bedding lockers and clothing lockers should be provided for each member requiring a bed.

A-3-4.1 Bathrooms are a significant source of infection if they are improperly designed or if members fail to practice proper hygiene, or both.

Bathrooms should have push-to-open doors for egress, without handles. Such doors assist in eliminating a place for infectious agents to accumulate and breed. It should not be necessary for users to grasp sink faucets in order to turn them off or on. If grasping is necessary, users should use a paper towel to turn faucets off after drying their hands.

Hand-drying materials should be disposable, or an air-drying machine should be available. Such materials or machines decrease the possibility of infectious agents accumulating or breeding on a cloth that is used repeatedly.

The flush valve on toilets and urinals should be of a foot operated or electric eye–type that does not require the use of hands for operation.

A-3-5.1 Commercial models of washers (front-loading) and dryers are recommended to prevent agitator damage to clothing.

A-3-6.1 The intent of this storage requirement is to ensure that emergency medical supplies are located in an area, separate from other functional areas, to minimize contamination. Temperature-sensitive materials should be stored in accordance with manufacturer's recommendations.

A-3-8.1 Where the fire department provides only emergency medical operations at the first responder level, there should be at least one disinfecting facility available. Where the fire department provides basic life-support or advanced life-support emergency medical operation, there should be a disinfecting facility in each fire station from which such services are provided.

A-4-1 Relevant OSHA standards and CDC airborne pathogens regulations should be referenced.

A-4-2.2 Each of the engineering controls enumerated in this NFPA standard references the relevant section from the GSA Federal Specifications.

A-4-2.5 HEPA filters are useful in decreasing the likelihood of transmission of airborne infections to EMS providers during patient care. Relevant circumstances include, but are not limited to, patients with tuberculosis or contingencies involving deployment of biological weapons.

A-5-1.2 If germicidal agents are readily available, they should be used in lieu of soap when washing skin surfaces.

A-5-2.9 The intent of this requirement is to ensure that members are not unnecessarily injured by melting, dripping, or burning caused by medical gloves worn under structural fire-fighting gloves. It is possible for fire-fighting gloves worn by members to be subjected to high heat without showing any external signs of damage, while the medical gloves degrade inside the fire-fighting glove, causing injury to the fire fighter.

A-6-3.8 The following disinfection and sterilization methods should be used for equipment used in emergency medical operations:

(a) *Sterilization.* Destroys all forms of microbial life, including high numbers of bacterial spores.

(1) Methods. Steam under pressure (autoclave), gas (ethylene oxide), dry heat, or immersion in an EPA-approved chemical sterilant for a prolonged period of time (for example, 6 hours to 10 hours) or according to manufacturer's instructions. Liquid chemical sterilants should be used only on instruments that are impossible to sterilize or disinfect with heat.

(2) Use. For instruments or devices that penetrate skin or contact normally sterile areas of the body such as scalpels and needles. Disposable invasive equipment eliminates the need to sterilize such items. Where indicated, however, arrangements should be made with a health care facility for sterilization of reusable invasive instruments.

(b) *High-Level Disinfection.* Destroys all forms of microbial life, except high numbers of bacterial spores.

(1) Methods. Hot water pasteurization [176°F to 212°F (80°C to 100°C) for 30 minutes], exposure to an EPA-regulated sterilant, as specified in A-6-3.8(a), except that a short exposure time (for example, 10 minutes to 45 minutes) should be used, or adherence to manufacturer's instructions.

(2) Use. For reusable instruments or devices that come into contact with mucous membranes (such as laryngoscope blades and endotracheal tubes).

(c) *Intermediate-Level Disinfection.* Destroys *Mycobacterium tuberculosis,* vegetative bacteria, most viruses, and most fungi, but does not kill bacterial spores.

(1) Methods. EPA-registered hospital-disinfectant, chemical germicides that have a label claim for tuberculocidal activity; commercially available hard-surface germicides or solutions containing at least 500 ppm free available chlorine (a 1:100 dilution of common household chlorine bleach — approximately one-half cup of chlorine bleach per gallon of tap water).

(2) Use. For surfaces that come into contact only with intact skin (such as stethoscopes, blood pressure cuffs, and splints) and that have been visibly contaminated with body fluids. Surfaces should be precleaned of visible material before the germicidal chemical is applied for disinfection.

(d) *Low-Level Disinfection.* Destroys most bacteria, some viruses, some fungi, but not Mycobacterium tuberculosis or bacterial spores.

(1) Methods. EPA-registered hospital disinfectants (no label claim for tuberculocidal activity).

(2) Use. For routine housekeeping or removal of soiling in the absence of visible body fluid contaminates. These agents are excellent cleaners.

(e) *Environmental Disinfection.* Environmental surfaces that have become soiled should be cleaned and disinfected.

(f) *Housekeeping.*

(1) General. Employers should ensure that the worksite is maintained in a neat condition, free of any contamination. The employer should determine and implement an appropriate written schedule for cleaning and decontamination. The method of decontamination should be based on location within the facility, type of surface to be cleaned, type of contamination, and tasks or procedures to be performed, such as the following:

a. Personal protective equipment, and other clothing should be cleaned or laundered, or both.
b. Emergency medical equipment should be cleaned and disinfected.
c. Invasive medical instruments should be cleaned and sterilized.
d. Contaminated surfaces should be cleaned and disinfected with a disinfectant appropriate for the surface.
e. Contaminated work surfaces should be decontaminated immediately or as soon as feasible after comple-