NFPA 1581
Standard on Fire Department Infection Control Program

1995 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 Safety and Health and acted on by the National Fire Protection Association, Inc., at its Annual Meeting held May 22-25, 1995, in Denver, CO. It was issued by the Standards Council on July 21, 1995, with an effective date of August 11, 1995, and supersedes all previous editions.

This edition of NFPA 1581 was approved as an American National Standard on August 11, 1995.

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 nonemergency settings.

The requirements were developed to be compatible with guidelines and regulations from the U.S. Centers for Disease Control 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 this revision of NFPA 1581, members of the Technical Committee addressed numerous items dealing with decontamination, separation of equipment, location(s) of where equipment can be stored, and the overall concept of a safe and healthy work environment.

Since the first edition of the standard in 1990, additional federal regulations, guidelines, and informative publications have been issued. These references have been included in both the body of the standard and in the appendix. Sample infection control policy statements, programs, and exposure forms have been included in the appendix.

This document was voted on by the Association at the 1995 Annual Meeting in Denver, Colorado on May 24, 1995.

Technical Committee on Fire Service Occupational Safety and Health

John A. Sharry, *Chair*
Lawrence Livermore Nat'l Laboratory, CA

Donald Aldridge, Lion Apparel Inc., OH
Glenn P. Benarick, Fairfax Cnty Fire & Rescue, VA
Rep. NFPA Fire Service Section
Brenda Berkman, New York City Fire Dept., NY
Rep. Women in the Fire Service
Allan Burnham, United Plastic Fab, Inc., MA
Rep. Fire Apparatus Mfrs., Inc.
Donald J. Burns, New York City Fire Dept., NY
Edward Carter, Assn. of Fire Districts/State of New York, NY
Rep. Assn. of Fire Districts/St. of New York
Dennis R. Childress, Buena Park Fire Dept., CA
Boyd F. Cole, Underwriters Laboratories Inc., IL
James M. Connolly, M & M Protection Consultants, IL
David W. Dodson, Fire Dept. Safety Officers Assn., CO
Rep. Fire Dept. Safety Officers Assn.
Philip J. Eckhardt, Mine Safety Appliances Co., PA
Rep. Industrial Safety Equipment Assn.
Don R. Forrest, United Firefighters of LA City, CA
Jerry H. Garrett, U.S. Air Force - Fire Protection Directorate, AE
Gerard J. Hoetmer, Int'l City/Cnty Mgmt. Assn., DC
Jonathan D. Kipp, Compensation Funds of New Hampshire, NH
John LeCuyer, Aurora Fire Dept., CO
Richard A. Marinucci, Farmington Hills Fire Dept., MI
Rep. Int'l Assn. of Fire Chiefs
Gary Marrs, Oklahoma City Fire Dept., OK
Rep. Int'l Fire Service Training Assn.
Robert T. McCarthy, U.S. Fire Administration, MD
Roger A. McGary, Montgomery Cnty Dept. of Fire & Rescue Services, MD
Rep. The Alliance for Fire and Emergency Mgmt.
Robert D. Neamy, Los Angeles City Fire Dept., CA
William E. Perrin, Montana Fire Training School, MT
Rep. Nat'l Assn. of State Directors of Fire Training & Education
Floyd L. Pittard, Beaverton, OR
Rep. IAFC/Western Fire Chiefs Assn.
Jack Ross, City of Calgary Fire Dept., Canada
Rep. Canadian Assn. of Fire Chiefs
Neil Rossman, Rossman, Rossman & Eschelbacher, MA
Arthur C. Smith, NY Board of Fire Underwriters, NY
Rep. American Insurance Services Group, Inc.
Philip C. Stittleburg, Jenkins & Stittleburg, WI
Rep. Nat'l Volunteer Fire Council
Michael V. Vance, Southwest Toxicology Services, Inc., AZ

Alternates

Robert K. Andrews, M & M Protection Consultants, MI
(Alt. to J. M. Connolly)
Dee Armstrong, Fairfax Cnty Fire/Rescue Service, VA
(Alt. to B. Berkman)
Gary L. Briese, Int'l Assn. of Fire Chiefs, VA
(Alt. to R. A. Marinucci)
Angelo M. Catalano, NY State Assn. of Fire Districts, NY
(Alt. to E. Carter)
Kenneth R. Ethridge, TX Commission on Fire Protection, TX
(Vot. Alt. to TXCFP Rep.)
Richard D. Gerkin, Jr., Good Samaritan Hospital, AZ
(Alt. to M. V. Vance)
James C. Goodbread, U.S. Air Force, OK
(Alt. to J. H. Garrett)
Murrey E. Loflin, Virginia Beach Fire Dept., VA
(Alt. to G. P. Benarick)
Ron C. Miller, Fairbank, IA
(Alt. to P. C. Stittleburg)
William E. Newcomb, North Safety Equipment, RI
(Alt. to P. J. Eckhardt)
Rick Nichols, Pike Township Fire Dept., IN
(Alt. to J. LeCuyer)
Adam Dennis Piskura, Minnesota Technical College System, MN
(Alt. to W. E. Perrin)
Bradley J. Schmidt, Underwriters Laboratories Inc., IL
(Alt. to B. F. Cole)
Tony M. Varela, Los Angeles City Fire Dept., CA
(Alt. to R. D. Neamy)

Stephen N. Foley, NFPA Staff Liaison

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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 the occupational safety in the working environment of the fire service; and safety in the proper use of apparatus, tools, equipment, protective clothing, and protective breathing apparatus.

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 6 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 shall be applicable 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 shall not apply to industrial fire brigades that also might 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, 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 Centers for Disease Control and Prevention.

1-2.3 The requirements in this standard are designed to exceed those of an exposure control program and 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.

Airborne Pathogens. Pathogenic microorganisms that are present in airborne secretions and can cause diseases in humans. These pathogens shall include, but shall not be limited to, chicken pox, german measles (rubella), influenza, measles, meningococcal meningitis, mononucleosis, mumps, tuberculosis, and whooping cough (pertussis).

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

Bloodborne Pathogens. Pathogenic microorganisms that are present in human blood and can cause diseases in humans. These pathogens shall include, but shall not be limited to, human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), other non-A/non-B hepatitis viruses, and syphilis.

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.

Body Substance Isolation. An infection control strategy that considers *all* body substances potentially infectious.

Cleaning. The physical removal of dirt and debris. This generally is accomplished with soap and water and physical scrubbing.

Cleaning Gloves. See Gloves.

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

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.

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-5-3.8.*)

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.

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

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

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

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.

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.

Eyewear. See Splash-Resistant Eyewear.

Face Protection Devices. Devices constructed of protective clothing materials, designed and configured to cover part or all of the wearer's face or head. Face protection devices might include splash-resistant eyewear, hooded visors, or respirators.

Fire Department. An organization providing rescue, fire suppression, and related activities, including emergency medical operations. The term "fire department" shall include any public, private, or military organization engaging in this type of activity.

Fire Department Facility. Any building or area owned, operated, occupied, or used by a fire department on a routine basis. This does not include 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.

Fire Department Member. See Member.

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

Foodborne. Pathogenic microorganisms that are present in food or food products and can cause diseases in humans. These pathogens include, but are not limited to, hepatitis A virus and salmonella bacteria.

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.

Gloves.*

Cleaning Gloves. Multipurpose, multiuse 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.

Emergency Medical Gloves. Single-use, patient examination gloves that are designed to provide a barrier against body fluids meeting the requirements of NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations.*

Structural Fire Fighting Gloves. Gloves meeting the requirements of NFPA 1973, *Standard on Gloves for Structural Fire Fighting.*

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

HBV. Hepatitis B virus.

HCV. Hepatitis C virus.

HIV. Human immunodeficiency virus.

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.

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

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. The industrial fire department generally is trained and equipped for specialized operations based on site-specific hazards present at the facilities.

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.

Infection Control Program. The fire department's formal policy and implementation of procedures 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.

Kitchen. An area designated for storage, preparation, cooking, and serving of food for members. Cleaning and washing of food service equipment and utensils also is conducted in this area.

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

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

Medical Gloves. See Gloves.

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.

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, shall be permitted to occupy any position or rank within the fire department, and might or might not engage in emergency operations.

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

Needle. A slender, usually sharp, pointed instrument used for puncturing tissues, suturing, drawing blood, or passing a ligature around an artery.

Occupational Exposure. Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood, body fluids, or other potentially infectious materials that might result from the performance of a member's duties.

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.

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

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

Personal Protective Equipment. Specialized clothing or equipment worn by a member for protection against an infectious or communicable disease hazard. Personal protective equipment for cleaning and disinfecting shall include splash-resistant eyewear, cleaning gloves, and fluid-resistant clothing.

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.

Regulated Waste. Liquid or semiliquid 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 semiliquid 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.

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.

Risk. A measure of the probability and severity of adverse effects. These adverse effects result from an exposure to a hazard.

Shall. Indicates a mandatory requirement.

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.

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

Source Individual. Any individual, living or dead, whose blood, body fluids, or other potentially infectious materials could be a source of occupational exposure to a member.

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.*)

Sterilization. The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores. This procedure typically is not performed at fire department facilities or by members.

Structural Fire Fighting Gloves. See Gloves.

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.

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. Under circumstances in which differentiation between body fluids is difficult or impossible, all body fluids shall be considered potentially infectious materials. (*See Body Substance Isolation.*)

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 personal protective equipment, structural fire fighting protective equipment, station/work uniforms, other clothing, and 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 physician to determine those functions the member can 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 In accordance with NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, Section 2-2, the fire department shall adopt a written risk management plan that addresses infection control.

2-2.2 The written risk management plan shall include risk assessment and control measures for department facilities, emergency medical operations, cleaning and disinfecting of personal protective equipment, and any other situation that poses an occupational risk to personnel due to infection.

2-3 Training and Education.

2-3.1* The fire department shall conduct annual training and education programs for all members.

2-3.2 The training program shall include proper use of personal protective equipment, standard operating procedures for safe work practices in infection control, proper methods of disposal of contaminated articles and medical waste, cleaning and decontamination, exposure management, and medical follow-up.

2-3.3* The education program shall provide information on epidemiology, modes of transmission, and prevention of diseases including, but not limited to, meningitis, childhood communicable diseases, herpes viruses, hepatitis A, hepatitis B, non-A/non-B or hepatitis C, human immunodeficiency virus, tuberculosis, lice, and scabies.

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 designate one or more members or other qualified persons as the infection control officer.

2-4.2* The infection control officer shall be responsible for maintaining communication among the fire department, the fire department physician, the health care facility, appropriate city, county, or state health officials, and other health care professionals.

2-4.3 When notified of an exposure incident, the infection control officer shall ensure the notification, verification, treatment, and 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 Chapter 3 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 make available or ensure that members have access to an appropriate immunization program, including 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, to tetanus, diphtheria, rubella, measles, polio, mumps, and influenza.

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.

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 by NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, and in accordance with 29 CFR, Part 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 thoroughly washed immediately using water on mucosal surfaces, and soap and running water on skin surfaces. If soap and running water are not available, waterless soap, antiseptic wipe, alcohol, or other skin cleaning agents that do not need running water shall be used until soap and running water can be obtained.

2-6.2 The fire department shall have an established procedure for members to report an exposure incident immediately and for the infection control liaison to be notified within 3 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, treatment 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. Included in the record shall be a description of the tasks being performed when the exposure incident occurred, the means of transmission, the portal of entry, the personal protective equipment utilized, and the 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 NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, Section 8-4.

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 NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, Section 8-4.

2-6.8 Due to the hazardous nature of some communicable diseases, members 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. Verbal notification shall be followed up with a note or letter from the member's physician describing the disease to which the member has been exposed, treatment required, and fitness for regular fire department duties relative to communicability hazard to fellow workers and civilians at emergency incidents.

Chapter 3 Fire Department Facilities

3-1 General.

3-1.1* 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 have kitchen appliances, including a range, an oven, at least one refrigerator, and a dishwasher.

3-2.5 Perishable food requiring cold storage shall be kept at a temperature of 38°F (3°C) or less. Perishable food requiring freezer storage shall be kept at a temperature of 0°F (–18°C) or less. 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 140°F (64°C) water for washing.

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 the cleaning of protective clothing and station/work uniforms. 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 such cleaning is conducted in fire stations, the fire department shall provide at least one washing machine for this purpose in the designated cleaning area as specified in Section 3-7.

3-5.3 Laundry areas shall be kept neat and orderly.

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 from damage and contamination. The storage area shall be secured properly and labeled appropriately.

3-6.2 Open and reusable emergency medical supplies and equipment shall not be stored in kitchen, living, sleeping, recreation, or personal hygiene areas, unless physically separated in a locker or room, nor shall they be stored in personal clothing lockers.

3-6.3 Potentially contaminated personal protective equipment shall be stored in a dedicated, well-ventilated area or room and shall not be stored in kitchen, living, sleeping, recreation, or personal hygiene areas, nor shall they be stored in personal clothing lockers.

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, portable equipment, and other clothing. This 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 food preparation, cleaning of food and cooking utensils, personal hygiene, sleeping, and living areas.

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 this section 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 be lighted properly, vented to outside environment, fitted with floor drains connected to a sanitary sewer system or septic system, and 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 food preparation, cleaning of food and cooking utensils, personal hygiene, sleeping, and living areas.

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 properly secured and appropriately 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 Emergency Medical Operations Protection

4-1 Personnel.

4-1.1 Prior to any contacts with patients, members shall cover all areas of abraded, lacerated, chapped, irritated, or otherwise damaged skin with adhesive dressings, provided the member is not restricted by the requirements of 2-1.5.

4-1.2* 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 wipe, alcohol, or other skin cleaning agents that do not need running water shall be used until soap and running water can be obtained.

4-1.3 After removal of any personal protective equipment, including gloves, all members shall wash their hands immediately or as soon as feasible.

4-2 Personal Protective Equipment.

4-2.1 Members engaging in any emergency patient 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.

4-2.2 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 5-5.2. Hands shall be washed as specified in 5-5.5 following removal of emergency medical gloves.

4-2.3 All personal protective equipment used in emergency medical care shall meet the requirements of NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*.

4-2.4 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.

4-2.5 Prior to any patient situations during which large splashes of body fluids can occur, such as those involving spurting blood, trauma, or childbirth, masks, splash-resistant eyewear, emergency medical gloves, and fluid-resistant clothing shall be donned by those members who will be providing treatment.

4-2.6 Resuscitation equipment, including pocket masks, shall be available on all fire department vehicles that provide emergency medical operations. This equipment shall be used by members performing airway management.

4-2.7 Structural fire fighting gloves shall meet the requirements of NFPA 1973, *Standard on Gloves for Structural Fire Fighting*.

4-2.8 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.

4-2.9* Medical gloves shall not be worn under structural fire fighting gloves due to complications that exposure to heat might cause, such as burns, dripping, melting, or a combination thereof, to the skin.

4-2.10 Cleaning gloves shall be reusable, heavy-duty, mid-forearm length, and designed to provide limited protection from abrasions, cuts, snags, and punctures, and they shall provide a barrier against body fluids, cleaning fluids, and disinfectants.

4-2.11 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.

4-2.12 Members shall not eat, drink, smoke, apply cosmetics or lip balm, or handle contact lenses while wearing cleaning gloves.

4-3 Handling of Sharp Objects.

4-3.1 All members shall take precautions during procedures to prevent injuries caused by needles, scalpel blades, and other sharp instruments or devices.

4-3.2 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.

4-3.3 Needles shall not be manually recapped, bent, or broken. Following use, all sharp objects shall be placed immediately in sharps containers. These sharps containers shall be located in all patient transport vehicles and readily available in such areas as drug boxes, trauma kits, and IV kits.

Chapter 5 Cleaning, Disinfecting, and Disposal

5-1 Skin Washing.

5-1.1 Hands shall be washed after each emergency medical incident, immediately or as soon as possible after removal of gloves or other personal protective equipment, after cleaning and disinfecting emergency medical equipment, after cleaning personal protective equipment, after any cleaning function, after using the bathroom, and before and after handling food or cooking and food utensils.

5-1.2 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.

5-1.3 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.

5-2 Disinfectants.

5-2.1 All disinfectants shall be approved by and registered with the U.S. Environmental Protection Agency and also shall be registered as tuberculocidal.

5-2.2 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.

5-2.3 Disinfecting shall take place in the designated disinfecting facility as specified in Section 3-8.

5-3 Emergency Medical Equipment.

5-3.1 Where emergency medical equipment cleaning is performed by members, it shall take place in the designated disinfecting facility as specified in Section 3-8, and appropriate personal protective equipment including splash-resistant eyewear, cleaning gloves, and fluid-resistant clothing shall be available.

5-3.2 Dirty or contaminated emergency medical equipment shall not be cleaned or disinfected in fire station kitchen, living, sleeping, or personal hygiene areas.

5-3.3 Personal protective equipment shall be used wherever there is a potential for exposure to body fluids or potentially infectious material during cleaning or disinfecting.

5-3.4 Dirty or contaminated emergency medical equipment, prior to cleaning and disinfecting, shall be stored separately from cleaned and disinfected emergency medical equipment.

5-3.5 Disinfectants meeting the requirements specified in 5-2.1 shall be used. The disinfectant manufacturer's instructions for use shall be followed.

5-3.6 Dirty or contaminated runoff from emergency medical equipment and cleaning and disinfecting solutions shall be drained into a sanitary sewer system or septic system.

5-3.7 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 5-2.1 shall be used. The disinfectant manufacturer's instructions for use shall be followed.

5-3.8* 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.

5-3.9* 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 5-2.1 shall be used. The disinfectant manufacturer's instructions for use shall be followed.

5-4 Clothing and Personal Protective Equipment.

5-4.1* 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.

5-4.2 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.

5-4.3 All personal protective equipment shall be removed prior to leaving the work area.

5-4.4 Clothing that is contaminated with large amounts of body fluids shall be placed in leakproof bags, sealed, and transported for proper cleaning or disposal.

5-4.5 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.

5-4.6* 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.

5-4.7 When a garment is contaminated, it shall be cleaned as soon as possible.

5-4.8 When personal protective equipment is removed, it shall be placed in an appropriately designated area or container for storage until cleaning or disposal.

5-5* Disposal of Materials.

5-5.1 Sharps containers shall be disposed of in accordance with applicable federal, state, and local regulations.

5-5.2 Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are closable; puncture resistant; leakproof on sides and bottom; and labeled or color-coded in accordance with Section 5-8.

5-5.3 During use, containers for contaminated sharps shall be easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found (e.g., laundries); maintained upright throughout use; and replaced routinely and not be allowed to overfill.

5-5.4 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 and shall be placed in a secondary container if leakage is possible.

5-5.5 Contaminated disposable medical supplies and equipment, contaminated disposable personal protective equipment, and contaminated wastes shall be placed in leakproof bags, sealed, and disposed of as medical waste.

5-5.6 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 areas.

5-5.7 Where it has been determined by the infection control officer that normally nondisposable items cannot be disinfected, they shall be placed in leakproof bags, sealed, and disposed of as medical waste.

5-6 Linen.

5-6.1 Contaminated laundry shall be handled as little as possible with a minimum of agitation. Contaminated laundry shall be bagged or put into containers at the location where it was used and shall not be sorted or rinsed at the location of use.

5-6.2 Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with Section 5-8.

5-6.3 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.

5-6.4 The employer shall ensure that employees who have contact with contaminated laundry wear appropriate personal protective equipment.

5-6.5 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 in accordance with 5-8.2.

5-7 Housekeeping.

5-7.1 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 upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.

5-7.2 All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

5-7.3 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. Such surfaces include floors, woodwork, ambulance seats, and counter tops.

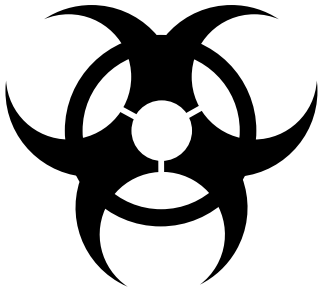
5-7.4 Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after completion of emergency medical operations; immediately or as soon as feasible where surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials; and at the end of the workshift if the surface could have become contaminated since the last cleaning.

5-7.5 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.

5-8 Labeling.

5-8.1 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 (e.g., sharps containers).

5-8.2 Labels required by this section shall include the following legend:



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

5-8.3 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.

5-8.4 Red bags or red containers shall be permitted to be substituted for labels.

5-8.5 Labels required for contaminated equipment shall be in accordance with this paragraph and also shall specify which portions of the equipment remain contaminated.

5-8.6 Regulated waste that has been decontaminated shall not be required to be labeled or color-coded.

Chapter 6 Referenced Publications

6-1 The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference shall be the current edition as of the date of the NFPA issuance of this document.

6-1.1 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*, 1992 edition.

NFPA 1582, *Standard on Medical Requirements for Fire Fighters*, 1992 edition.

NFPA 1973, *Standard on Gloves for Structural Fire Fighting*, 1993 edition.

NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*, 1992 edition.

6-1.2 Other Publications.

6-1.2.1 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."

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 from the Occupational Safety and Health Administration" refers specifically to 29 CFR Part 1910.1030, "Bloodborne Pathogens," Final Rule.

"Guidelines from 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, *Guide to Developing and Managing an Emergency Service Infection Control Program.*

A-1-3 Gloves. The requirement for FDA registration 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, must be registered as Class 1 medical devices with the FDA. While FDA registration is not a certification of the product, it is a process by which the manufacturer must provide substantiation for any and all claims made regarding the performance of the product (e.g., 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 the fire service and emergency medical service personnel are provided with accurate information about the products they purchase.

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.*

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.

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 may be permitted to satisfy the requirements of this standard; if so, it may be permitted to be adopted in whole or in part, in order to comply with this standard. An example of such an existing policy or program might be a corporate infection control program or an employee immunization program.

A policy statement makes the members aware 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.

Sample Infection Control Program Policy Statement

Purpose: To provide a comprehensive infection control system which 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. While 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 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 CISD (Critical Incident Stress Debriefing) programs.
- To prohibit discrimination of any member for health reasons, including infection and/or seroconversion with HIV or HBV 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.

A-2-2 The risk to personnel of exposure to infection poses a real hazard and should be properly addressed through a written infection control program which includes but is not limited to:

- training and education,
- personal protective equipment,
- health maintenance and vaccinations,
- appropriate supervision,
- incident operations,
- facility safety,
- and medical follow-up for 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 by the services that a department provides. These risks should be evaluated based upon the probability 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 the risk control techniques.

This is an ongoing process that should be continually evaluated and revised based upon 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, consult *Infection Control for Emergency Response Personnel: The Supervisor's Role (Student Manual)*, U.S. Fire Administration, National Fire Academy; or *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.

A-2-3.3 A list of applicable government regulations relating to infection control are listed in Appendix B.

A-2-4.2 The infection control officer does not necessarily need to be of an officer rank. The member or members in this position are intended to fulfill the requirements of a "designated officer" as required in Public Law 101-381, *The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act of 1990*.

A-2-5.1 Members that choose to decline immunizations offered by the department shall sign a written declination. The declination shall become part of the member's confidential health data base as specified in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, Section 8-4.

A-2-6.3 For appropriate post-exposure guidelines, consult 29 CFR 1910.1030, Occupational Exposure to "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, consult "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 done in accordance with the requirements of 29 CFR, Part 1910.1030, Occupational Exposure to "Bloodborne Pathogens," Final Rule.

Figure A-2-6.4 is an example of a report form.

A-3-1.1 State and local laws and regulations are usually very specific about infection control standards for public use facilities. Public health agencies can provide standards for food storage, preparation, and handling, as well as for disposal of general and medical or other regulated waste. Hotel bureaus might be able to provide standards for sleeping areas and bathrooms.

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

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), or blood contact with open wound.	NO	Fever, night sweats, weight loss, cough.
Chickenpox	Respiratory secretions and contact with moist vesicles.	NO	Fever, rash cutaneous vesicles (blisters).
Diarrhea: Campylobactor Cryptosporidium Giardia Salmonella Shigella Viral Yersinia	Fecal/oral.	NO	Loose, watery stools.
German Measles (Rubella)	Respiratory droplets and contact with respiratory secretions.	YES	Fever, rash.
Hepatitis A (infectious hepatitis)	Fecal/oral.	NO	Fever, loss of appetite; jaundice, fatigue.
Hepatitis B (HBV) (serum hepatitis)	Needle stick, blood splash into mucous membranes (e.g., eye or mouth), or 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 and can increase the severity of HBV infection.
Other non-A/non-B hepatitis	Several viruses with different modes of transmission. (These are called "non-A/non-B" because there are no specific tests to identify them.)	NO	Fever, headache, fatigue, jaundice.
Herpes simplex (cold sores)	Contact of mucous membrane with moist lesions. Fingers are at particular risk for becoming infected.	NO	Skin lesions located around the mouth area.
Herpes zoster (shingles) localized disseminated (*see chickenpox*)	Contact with moist lesions.	NO	Skin lesions.
Influenza	Airborne.	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.
Measles	Respiratory droplets and contact with nasal or throat secretions. Highly communicable.	YES	Fever, rash, bronchitis.
Meningitis: Meningococcal	Contact with respiratory secretions.	NO	Fever, severe headache, stiff neck, sore throat.
Haemophilus influenza (usually seen in very young children)	Contact with respiratory secretions.	NO	(Same)
Viral meningitis	Fecal/oral.	NO	(Same)
Mononucleosis	Contact with respiratory secretions or saliva, such as with mouth-to-mouth resuscitation.	NO	Fever, sore throat, fatigue.
Mumps (infectious parotitis)	Respiratory droplets and contact with saliva.	YES	Fever, swelling of salivary glands (parotid).
Salmonellosis	Foodborne.	NO	Sudden onset of fever, abdominal pain, diarrhea, nausea, and frequent vomiting.
Scabies	Close body contact.	NO	Itching, tiny linear burrows or "tracks," vesticles — particularly around fingers, wrists, elbows, and skin folds.
Syphilis	Primarily sexual contact; rarely through blood transfusion.	NO	Genital and cutaneous lesions, nerve degeneration (late).
Tuberculosis, pulmonary	Airborne.	NO	Fever, night sweats, weight loss, cough.
Whooping cough (pertussis)	Airborne, direct contact with oral secretions.	YES	Violent cough at night, whooping sound when cough subsides.

Fire Department
Infectious Exposure Form

Exposed Member's Name _____ Rank: _____
Soc. Sec. #: _____
Field Inc. #: _____ 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: _____

Figure A-2-6.4 Sample exposure report form.

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 will be using a refrigerator or the amount of use the refrigerator will receive. A large number of people using a small refrigerator can result in the door being opened often; thus, the refrigerator might not be able to maintain a proper temperature. This could lead to spoilage of food or the harboring 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 can be 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. This assists in eliminating a place for infectious agents to accumulate and breed. It should not be necessary for the user to grasp sink faucets in order to turn them off or on. If grasping is necessary, the user should use a paper towel to turn faucets off after drying.

Hand-drying materials should be disposable, or an air-drying machine should be available. This decreases 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 to operate.

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

A-3-6.1 The intent of this requirement is to ensure that emergency medical supplies are located in an area, separate from other functional areas, to minimize contamination. Room

temperature should be maintained at 68°F to 90°F (20°C to 32°C).

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-4-1.2 If germicidal agents are readily available they can be used in lieu of soap when washing skin surfaces.

A-4-2.9 The intent is to ensure that members are not unnecessarily injured by melting, dripping, or burning due to medical gloves being worn under structural fire fighting gloves. Gloves worn by members could be subjected to high heat and show no external signs of damage, but the medical gloves could degrade inside the fire fighting glove, causing injury to the fire fighter.

A-5-3.8 Disinfection and Sterilization Methods for Equipment Used in Emergency Medical Operations.

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

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

Use. For those instruments or devices that penetrate skin or contact normally sterile areas of the body (e.g., scalpels, needles). Disposable invasive equipment eliminates the need to sterilize these types of 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.

Methods. Hot water pasteurization [176°F to 212°F (80°C to 100°C) for 30 min] or exposure to an EPA-regulated sterilant, as specified in A-5-3.8(a), except for a short exposure time (e.g., 10 min to 45 min) or according to manufacturer's instructions.

Use. For reusable instruments or devices that come into contact with mucous membranes (e.g., laryngoscope blades, endotracheal tubes).

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

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 $^1/_2$ cup of chlorine bleach per gallon of tap water).

Use. For those surfaces that come into contact only with intact skin (e.g., stethoscopes, blood pressure cuffs, splints) and 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.

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

Use. These agents are excellent cleaners and can be used for routine housekeeping or removal of soiling in the absence of visible body fluid contaminates.

(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 upon the location within the facility, type of surface to be cleaned, type of contamination, and the tasks or procedures performed. For example:

(i) Personal protective equipment and other clothing should be cleaned and/or laundered.

(ii) Emergency medical equipment should be cleaned and disinfected.

(iii) Invasive medical instruments should be cleaned and sterilized.

(iv) Contaminated surfaces should be cleaned and disinfected with a disinfectant appropriate for the surface.

(v) Contaminated work surfaces should be decontaminated immediately or as soon as feasible after completion of the emergency medical operation; and at the end of the work shift if the surface could have been contaminated since the last decontamination was performed.

IMPORTANT: To ensure the effectiveness of any sterilization or disinfection process, equipment and instruments first should be thoroughly cleaned of all visible soil.

A-5-3.9 A 1:100 dilution of household chlorine bleach (5.25 percent sodium hypochlorite) to water may be permitted to be used as a general surface disinfectant; however, it is corrosive to metal and could interfere with the function of electronic equipment. (*See also A-5-3.8.*)

A-5-4.1 Clean protective clothing reduces health and safety risks. It is recommended that clothing be cleaned frequently to reduce the level of, and bodily contact with, contaminants. User agencies should establish guidelines for frequency and situations for garment cleaning. For gross contamination with products of combustion, fire debris, or body fluids, removal of contaminants by flushing with water as soon as practical is necessary, followed by appropriate cleaning.

Decontamination might not be possible where personal protective clothing is contaminated with chemical, radiological, or biological agents. Where decontamination is not possible, garments should be discarded in accordance with local, state, and federal regulations.

A-5-4.6 Some components of these garments are inherently flame resistant but lose their physical integrity on exposure to chlorine bleach. Other components will actually lose their flame-resistant properties and thermal insulation on exposure to chlorine bleach. In either case, the protection provided by the garment will be compromised.

There are industrial cleaning products and facilities available for protective clothing that the user might wish to investigate. The manufacturer of protective clothing should be contacted for additional information. Where not explicitly outlined by the manufacturer, the following procedures are recommended for cleaning and disinfecting these garments.