Bloodborne Pathogens

NIST S 7101.51
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1. PURPOSE

The purpose of the Bloodborne Pathogens (BBP) suborder is to eliminate or minimize occupational exposure to bloodborne pathogens and other potentially infectious materials (OPIMs) in accordance with the Occupational Health and Safety Administration (OSHA) Standard for Bloodborne Pathogens, 29 CFR 1910.1030.

This suborder, together with the associated deployment tools, the schedule and method of implementation, the applicable OU job hazard classification and analysis procedures, and the associated hazard reviews for specific experiments, shall serve as the Bloodborne Pathogens Exposure Control Plan (ECP) for all NIST facilities.

2. BACKGROUND

None.

3. APPLICABILITY

a. The provisions of this suborder apply to all NIST facilities and to all NIST employees who in carrying out their assigned duties could be exposed to bloodborne pathogens, with the following exceptions:

(1) Those noted in NIST O 710, Occupational Safety and Health; and

(2) Workers at the NIST Child Care Center.

b. NIST employees who work with biohazardous materials such as bacteria, fungi, viruses, parasites, rickettsia, biological toxins, recombinant DNA (deoxyribonucleic acid) materials, prions, and non-human mammalian blood, blood products, body fluids, cell lines, and tissues shall follow the requirements in the NIST Biosafety suborder.

4. REFERENCES

a. 29 CFR 1910.1030, Bloodborne Pathogens

b. Needle Stick Safety and Prevention Act, Amendment to 29 CFR 1910.1030

5. APPLICABLE NIST OCCUPATIONAL SAFETY AND HEALTH SUBORDERS

a. NIST 7101.50: Biosafety;

b. NIST 7101.20: Work and Worker Authorization Based on Hazard Reviews;

c. NIST 7101.22: Hazard Signage;

d. NIST 7101.24: Incident Reporting and Investigation; and

e. NIST 7101.21: Personal Protective Equipment.

6. REQUIREMENTS

a. Exposure Determinations

(1) Exposure determinations shall be conducted as part of the hazard review process to identify employees' potential risk of occupational exposure to human blood or OPIMs as defined by the OSHA Bloodborne Pathogens Standard. The exposure determination is made without regard to the use of personal protective equipment (PPE).

(2) Employees identified as having a potential occupational exposure to human blood and OPIMs must comply with the BBP Exposure Control Plan (ECP).

b. Compliance Methods

All of the following compliance methods shall be adhered to:

(1) Universal Precautions

According to OSHA, Universal Precautions are defined as the infection control practices in which all human blood and OPIMs are treated as if known to be infectious for HBV, HIV, and other bloodborne pathogens. The Universal Precaution approach is based on the premise that a medical history and examination cannot reliably identify all people infected with bloodborne pathogens. OSHA mandates that Universal Precautions shall be observed to prevent contact with blood or other potentially infectious materials. Under

circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials.

(2) Engineering Controls and Work Practice Controls

Engineering controls and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after instituting these controls, personal protective equipment shall also be used. Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.

i. Hand-washing

(i) Hand-washing facilities in the same room shall be readily accessible to employees.

(ii) When provision of hand-washing facilities in the same room is not feasible, the employer shall provide in the room an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible.

(iii) Hands and skin surfaces must be washed immediately following contact with human blood or OPIMs, at the conclusion of tasks that involve blood and OPIMs, and after gloves are removed.

ii. Sharps control

(i) Contaminated needles and other sharps shall not be bent, recapped, or removed. The exception to this is if it can be demonstrated that no alternative is feasible or the action is required by a specific medical procedure. If such action is required, then it must be accomplished through the use of a mechanical device or a one-handed technique. Shearing or breaking of contaminated needles is prohibited.

(ii) Contaminated sharps shall be discarded immediately, or as soon as feasible, in containers that are closable, puncture resistant, leak-proof on sides and bottom, and biohazard labeled or color-coded.

(iii) Containers for contaminated sharps shall be kept in the same room and be easily accessible to personnel and replaced before they become three-quarters full. Once sharps containers containing contaminated waste

have been closed, they should be placed in a medical waste box for disposal. In Gaithersburg and Boulder, OSHE will pick-up and dispose of medical waste boxes upon request.

(iv) When moved from the area of use, containers of sharps shall be closed immediately prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.

(v) Primary containers of contaminated sharps shall be placed in a secondary container if leakage of the primary container is possible. The secondary container shall be closable; constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and labeled or color-coded.

(vi) When the elimination of needle-bearing devices is not possible, needle devices with safety features should be utilized.

(vii) Reusable sharps and reusable sharps containers are not permitted at NIST.

iii. Containment Equipment

(i) Engineering controls such as biosafety cabinets, fume hoods, sealed centrifuge rotors, sealed centrifuge safety cups, or bench top splash shields shall be used for blood and OPIMs procedures that could potentially generate splashes and droplets. Such procedures include centrifuging, grinding, vortexing, blending, transferring liquids, homogenizing, withdrawing liquids under pressure, and opening containers of infectious materials having internal pressures different from ambient pressure.

iv. Standard Safe Work Practices

(i) Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work area.

(ii) Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, or on countertops or bench tops where blood or OPIMs are present.

(iii) All procedures involving blood or OPIMs shall be performed in a manner that minimizes splashing, spraying, splattering, and generating droplets of these substances.

(iv) Mouth pipetting/suctioning of blood or OPIMs is prohibited. Use mechanical pipetting devices.

(v) Equipment that may become contaminated with blood or OPIMs shall be examined prior to servicing or shipping and shall be decontaminated as necessary unless the decontamination of the equipment is not feasible. A readily observable biohazard label shall be attached to the equipment stating which portions remain contaminated. The information must be conveyed to all affected employees, the servicing representative, and/or the manufacturer, prior to handling, servicing, or shipping so that the appropriate precautions will be taken.

(vi) If eyes are exposed to potentially infectious materials, they should be immediately flushed with water for at least 15 minutes, after which a medical evaluation must be obtained. A medical evaluation must be obtained immediately when other percutaneous or mucous membrane exposures occur.

(vii) Specimens of blood or OPIMs shall be placed in containers that prevent leakage during collection, handling, processing, storage, transport, or shipping. The container for storage, transport, or shipping shall be biohazard labeled.

(viii) If outside contamination of a primary container occurs, the primary container shall be placed within a second container that prevents leakage during the handling, processing, storage, transport, or shipping. The outside of the secondary container shall be biohazard labeled.

(ix) If the specimens could puncture the primary container, the primary container shall be placed within a puncture-resistant secondary container.

(3) Personal Protective Equipment

(a) Appropriate PPE shall be provided at no cost to employees. Appropriate PPE includes, but is not limited to gloves, gowns, laboratory coats, face shields or masks

and eye protection, shoe-covers, mouthpieces, resuscitation bags, pocket masks, or other ventilation devices.

(b) PPE must be chosen according to the NIST Personal Protective Equipment Suborder, and each OU's Hazard Review procedure.

(c) PPE is chosen based on the anticipated exposure to blood or OPIMs. PPE is considered appropriate only if it does not permit blood or OPIMs to pass through or reach the employee's clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of the time the protective equipment is used.

(d) Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated.

(e) Appropriate PPE in the appropriate sizes must be readily accessible.

(f) All PPE shall be cleaned, laundered, or disposed of at no cost to the employee. Contaminated PPE shall never be taken home for laundering.

(g) PPE shall be repaired or replaced as needed to maintain its effectiveness at no cost to employees.

(h) The following PPE practices shall be adhered to:

i. If a garment(s) is penetrated by blood or OPIMs, the garment(s) shall be removed immediately or as soon as feasible.

ii. All PPE shall be removed prior to leaving the work area.

iii. When PPE is removed, it shall be placed in an appropriately designated area or container for storage, washing, decontamination, or disposal.

iv. Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, OPIMs, mucous membrane, and non-intact skin; when performing vascular access procedures; and when handling or touching contaminated items or surfaces.

v. Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives shall be readily accessible to those employees who are allergic to the gloves normally provided.

vi. Disposable gloves shall be replaced as soon as feasible when contaminated, torn, or punctured. Disposable gloves shall not be washed or decontaminated for re-use.

vii. Utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. However, they must be discarded if they are cracked, peeling, torn, or punctured.

viii. Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or stand-alone chin-length face shields shall be worn whenever splashes spray, splatter, or droplets of blood or OPIMs may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

(4) Housekeeping

(a) The worksite shall be maintained in a clean and sanitary condition by adhering to the following:

i. All work surfaces and equipment are to be decontaminated after completion of procedures, immediately or as soon as feasible when surfaces have been overtly contaminated or after any spill of blood or OPIMs, and at the end of the work shift if the surface has been contaminated since the last cleaning.

ii. Protective coverings, such as plastic wrap, aluminum foil, or imperviously-backed absorbent paper used to cover equipment and environmental surfaces are to be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the work shift if they may have become contaminated during the shift.

iii. All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for 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.

iv. Any broken glassware which may be contaminated is not to be picked up directly with the hands. It shall be cleaned up using mechanical means, such as a brush and dust pan, tongs, or forceps.

v. Appropriate disinfectants shall be used for routine decontamination of work surfaces and equipment and spill clean-ups. Freshly prepared 10% bleach solution is the disinfectant of choice for blood and OPIMs. Other EPA approved tuberculocidal disinfectants are the only acceptable disinfectants; a list of such disinfectants can be accessed at http://www.epa.gov/oppad001/list_b_tuberculocide.pdf . Disinfectants must be in contact with work surfaces, equipment (where appropriate, refer to equipment manual for decontamination instruction), or spills for at least 20 minutes before cleaning. Cleanups in the laboratories shall be conducted by Laboratory staff members that have been trained on biological spill cleanups. Contact OSHE for assistance if needed.

vi. For Boulder personnel, pools of blood or body fluids resulting from injuries shall be cleaned up by the Boulder Safety Office.

(5) Regulated Waste Disposal

(a) All contaminated sharps shall be discarded as described in 8.b(2)(b).

(b) All other regulated waste such as pipettes, centrifuge tubes, cell cultures, and human specimens should be placed in labeled or color-coded biohazard waste containers that are closable and constructed to contain all contents and to prevent leakage of fluids during handling, storage, transport, or shipping.

(c) Biohazard waste receptacles shall remain upright during use and be disposed of routinely when three-quarters full.

(d) If outside contamination of the waste container occurs, it shall be placed in a labeled or color-coded second container that is closable and constructed to contain all contents and to prevent leakage of fluids during handling, storage, transport or shipping.

(e) In Gaithersburg and Boulder, OSHE will pick-up and dispose of medical waste boxes upon request. Waste generators are expected to submit pickup requests, limit the loading of each medical waste box to less than 40 pounds, store sealed medical waste boxes in the work area in which they were generated or in the adjacent service galley, not in common hallways.

(6) Laundry

(a) Any garment penetrated by blood or OPIMs shall be removed immediately, or as soon as feasible and handled as little as possible, using gloves and any other appropriate universal precautions. Contaminated laundry shall be bagged or containerized at the location where it was used and placed in an appropriately labeled (biohazard symbol) container or leak proof bag prior to laundering.

(b) Soiled laundry shall be processed by an outside contractor that specifically cleans lab coats or contaminated laundry. Soiled laundry must be placed in a labeled laundry bag for transport.

(c) For NIST facilities that do not have contracted laundry services, disposable gowns shall be used. Worn disposable gowns shall be replaced monthly at a minimum or when contaminated. Contaminated gowns shall be discarded in biohazard waste receptacles.

For specific tasks and employee work practices, refer to Appendix B.

c. Hepatitis B Vaccination

(1) All employees except for Facility Users who have been identified as having potential occupational exposure to blood or OPIMs shall be offered the hepatitis B vaccine by their OUs at no cost. The vaccine is offered after bloodborne pathogen training and within 10 working days of their initial assignment to work unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons. Participation in a prescreening program shall not be a prerequisite for receiving hepatitis B vaccination. The vaccine shall be administered by the workplace health unit or, if the workplace does not have a health unit that administers vaccine, a licensed healthcare professional. If an employee chooses to decline vaccination, the employee must sign a declination form. Employees who decline may request and obtain the vaccination at a later date at no cost. Refer to Appendix C for a Hepatitis B vaccine declination form.

(2) For NIST workplaces that do not offer Hepatitis B vaccines onsite, employees may obtain the vaccination during normal work hours from any licensed healthcare facility or professional. The vaccination cost and travel cost shall be reimbursed by the division according to the OU's reimbursement procedures.

(3) If a routine booster dose of the vaccine is recommended by the U.S. Public Health Service (PHS) at a future date, the booster doses are to be made available at no cost to the employees. OSHE shall review the U.S. PHS's recommendations for vaccine boosters during the annual review of this suborder.

(4) All Hepatitis B vaccine records or declination forms shall be kept by the workplace health unit, or if the workplace does not have a health unit that maintains these records, by the employee's division administrative office.

d. Post-Exposure Evaluation and Follow-Up

(1) Employees shall immediately notify their supervisor of an exposure incident and an incident report must be completed and submitted through NIST's Incident Reporting and Investigation System (IRIS) in accordance with the requirements of the NIST Incident Reporting and Investigation Suborder.

(2) Following an exposure incident report, a no cost confidential medical evaluation and follow-up during normal work hours that includes at least the following elements shall be made available immediately to the exposed employee:

(a) Documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred;

(b) Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law;

(c) Testing of the source individual's blood as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity;

i. Results of the source individual's testing shall be made available to the exposed employee. When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.

(d) Collection of the exposed employee's blood as soon as feasible and testing after consent is obtained; and

i. The blood sample shall be preserved for up to 90 days to allow the employee to decide if their blood should be tested for HBV and HIV serological status.

(e) Post-exposure prophylaxis, counseling, and evaluation of reported illnesses.

(3) If the exposure results from a contaminated sharps injury, the incident shall be recorded on the sharps injury log (see Appendix F).

(4) The evaluating healthcare professional will be provided with the following information:

(a) A copy of the OSHA Bloodborne Pathogen regulations (29 CFR 1910.1030);

(b) A description of the route of exposure and circumstances under which exposure occurred;

(c) A description of the employee's duties as they relate to the exposure incident;

(d) Results of the source individual's blood testing, if available; and

(e) Any medical records which are relevant to the appropriate treatment of the employee, including vaccination status, and which are the employer's responsibility to maintain.

(5) A copy of the evaluating healthcare professional's written opinion shall be obtained by the OU and provided to the exposed employee within 15 days after evaluation. The healthcare professional's written opinion for Hepatitis B vaccination shall be limited to whether Hepatitis B vaccination is indicated for an employee, and if the employee has received such vaccination. The opinion shall state that the employee has been informed of the results of the evaluation and that the employee has been told about any medical conditions resulting from exposure to blood or OPIMs that require further evaluation or treatment. Refer to Appendix D for the Healthcare Professional's Opinion Form for Bloodborne Pathogens Post-Exposure Evaluation and Follow-up.

(6) All other unrelated findings or diagnoses shall remain confidential and shall not be in the written report.

e. Communication of Hazards to Employees

(1) Labels and Signs

(a) Labels

i. Biohazard warning labels shall be affixed to containers of regulated waste; refrigerators and freezers containing blood or OPIMs; and other containers used to store, transport, or ship blood or other OPIMs.

ii. Labels shall include the biohazard symbol and the word "Biohazard." These labels shall be fluorescent orange or orange-red, or predominantly so, with lettering and biohazard symbol in a contrasting color as in Figure 1. Red bags or red containers may be substituted for labels.

Figure 1. Biohazard label

iii. Labels shall either be an integral part of the container or shall be affixed as close as possible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

iv. Individual containers of blood or OPIMs that are placed in a labeled container during storage, transport, shipment or disposal are exempted from the labeling requirement.

v. Regulated waste that has been decontaminated need not be labeled or color coded.

(b) Signs

i. Biohazard signs shall be posted at the entrance to work areas where blood and OPIMs are handled. The signs shall be in compliance with the NIST Hazard Signage Suborder. See Figure 2 below. Employees can request biohazard signs in accordance to the NIST Hazard Signage Suborder.

Figure 2. Biohazard signage

(2) Training

(a) Training shall be provided in accordance with the requirements of the NIST Safety Education and Training Suborder.

(b) Bloodborne-pathogens training shall include the content described in Appendix E.

(c) Initial bloodborne-pathogens training provided by an OSHE instructor shall be completed by new employees, including newly reassigned employees, prior to their working with materials that could result in their exposure to bloodborne pathogens or OPIMs. Current employees who have completed the bloodborne-pathogens training module in the Commerce Learning Center are exempt from having to meet this requirement.

i. Completion of State- or County-provided bloodborne-pathogens training will meet this requirement.

(d) Refresher bloodborne-pathogens training specified by OSHE online shall be completed online by employees annually.

f. Documentation/Recordkeeping

(1) Training Records:

(a) All initial and refresher bloodborne-pathogen training shall be documented, recorded, and maintained for at least three years by OSHE in accordance with the requirements of the NIST Safety Education and Training Suborder. Documentation and records shall include the following:

i. The dates of the training sessions;

ii. The contents or a summary of the training sessions;

iii. The names and qualifications of persons conducting the training; and

iv. The names and job titles of all persons attending the training sessions.

(b) Employee training records shall be provided upon request for examination and copying to employees, and to employee representatives.

(2) Medical Records

(a) Accurate records for each employee with an occupational exposure shall be established and maintained in accordance with 29 CFR 1910.20 by the workplace health unit, or if the workplace does not have a health unit that establishes and maintains such records, by the covered employee's division administrative office. This record shall include:

i. The name and social security number of the employee;

ii. A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination;

iii. A copy of all results of examinations, medical testing, and follow-up procedures;

iv. A copy of the healthcare professional's written opinion; and

v. A copy of the information provided to the healthcare professional.

(b) The medical records shall be kept confidential and maintained for at least the duration of employment plus 30 years with the exceptions of health insurance claims records; first aid records of one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and the like which do not involve medical treatment; and medical records of employees who have worked for less than one year if the records are provided to the employee upon termination.

(c) The medical records shall not be disclosed or reported to any person within or outside the workplace without the covered employee's express written consent except as required by this section or as may be required by law.

(d) Employee medical records shall be provided upon request for examination and copying to employees and to employee representatives.

(3) Transfer of Training and Medical Records

(a) The requirements involving transfer of records set forth in 29 CFR 1910.1020(h) shall be met by the transferring party.

(4) Sharps Injury Log

(a) A sharps injury log shall be maintained by the division for the recording of percutaneous injuries from contaminated sharps. Refer to Appendix F for an example of a Sharps Injury Log. Alternative Sharps Injury Logs are acceptable.

(b) The information in the sharps injury log shall be recorded and maintained in a manner that protects the confidentiality of the injured employee.

(c) The log shall be completed by division personnel and maintained by the division for at least six years.

(d) The sharps injury log shall contain, at a minimum:

i. Type and brand of device involved in the incident;

ii. Work area where the exposure incident occurred; and

iii. Explanation of how the incident occurred.

(e) The Sharps Injury Log shall be reviewed at least once a year by division personnel. Sharps and procedures that are frequently documented in the log shall be replaced by safer alternatives.

7. DEFINITIONS

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

b. Bloodborne Pathogens - Pathogenic microorganisms that are present in human blood, and can cause disease in humans. These pathogens include, but are not limited to, Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), and Hepatitis C Virus (HCV). Refer to Appendix A for detailed descriptions.

c. Clinical Laboratory – A workplace where diagnostic or other screening procedures are performed on blood or OPIMs.

d. Contaminated – The presence or the reasonably anticipated presence of blood or OPIMs on an item or surface.

e. Contaminated Laundry – Laundry soiled with blood or OPIMs, or that may contain sharps.

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

g. Continuous/established human cell lines – Immortalized cells that have been transformed by spontaneous mutation or natural or laboratory infection with an immortalization agent, and then propagated or passed many times.

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

i. Engineering Controls – Controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections, and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

j. Exposure Incident – A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or OPIMs that result from the performance of a covered employee's duties.

k. Facility User – Any individual who is permitted to use designated NIST facilities under a NIST Facility Use Agreement. Designated NIST facilities include the NIST Center for Neutron Research and the Center for Nanoscale Science and Technology.

l. Hand Washing Facilities – A facility providing an adequate supply of running potable water, soap, and single use towels or air drying machines.

m. Hepatitis B Virus (HBV) – A virus that may be contracted through exposure to blood and/or body fluids and can result in acute and chronic liver diseases.

n. Hepatitis C Virus (HCV) – A virus that may be contracted through exposure to blood and/or body fluids and can result in chronic liver diseases.

o. Human Immunodeficiency Virus (HIV) – A virus that may be contracted through blood and/or body fluids and can result in Acquired Immune Deficiency Syndrome (AIDS), a condition in which the body is unable to fight infections.

p. Licensed Healthcare Professional – A person whose legally permitted scope of practice allows him or her to independently evaluate an individual and determine appropriate interventions, such as hepatitis B vaccination and post-exposure evaluation and follow-up.

q. Medical or Infectious Waste – Infectious human or animal waste generated or produced as a result of research, a medical diagnosis, treatment, or immunization.

r. Needleless System – A medical device that does not use needles for:

(1) The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;

(2) The administration of medication or fluids; or

(3) Any other procedure with potential percutaneous exposure to a contaminated sharp.

s. Occupational Exposure – Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of a covered employee's duties.

t. Other Potentially Infectious Materials (OPIMs) include:

(1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

(2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead);

(3) HIV, HBV, or HCV containing human cells or tissue cultures, organ cultures, and culture media or other solutions;

(4) Primary and continuous/established human cell lines; and

(5) Blood, organs, or other tissues from experimental animals infected with HIV or HBV.

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

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

w. Primary human cell lines – Propagated in vitro from primary explants of human tissue or body fluids that have a finite lifetime in tissue culture for 20 passages to 70 passages.

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

y. Sharps – Any object that can reasonably be anticipated to penetrate the skin or any other body part, which includes, but is not limited to, needle devices; scalpels; lancets; a piece of broken glass; a broken capillary tube; an exposed end of a wire; or a knife, drill, or bur.

z. Sharps with Engineered Sharps Injury Protection – A non-needle sharp or sharp device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other

fluids, with built-in safety features or mechanisms that effectively reduce the risk of an exposure incident.

aa. Source Individual – Any individual, living or dead, whose blood or OPIMs may be a source of occupational exposure to covered employees.

bb. Sterilize – The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores.

cc. Universal Precautions – An approach to infection control, wherein all human blood and OPIMs are treated as if known to be infectious for HIV, HBV, HCV, and other bloodborne pathogens.

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

8. ACRONYMS

a. BBP – Bloodborne Pathogens

b. BSC – Biological Safety Cabinet

c. CDC – Centers for Disease Control and Prevention

d. CFR – Code of Federal Regulations

e. CLC – Commerce Learning Center

f. CPR – Cardiopulmonary Resuscitation

g. ECP – Exposure Control Plan

h. HBV – Hepatitis B Virus

i. HCV – Hepatitis C Virus

j. HIV – Human Immunodeficiency Virus

k. NIH – National Institutes of Health

l. NIST – National Institute of Standards and Technology

m. OPIMs – Other Potentially Infectious Materials

n. OSHA – Occupational Safety and Health Administration

o. PPE – Personal Protective Equipment

9. RESPONSIBILITIES

a. Employees are responsible for:

(1) Ensuring the safety of sponsored visitors unfamiliar with the requirements of the Bloodborne Pathogens suborder.

b. OSHE Bloodborne Pathogens Program Manager is responsible for:

(1) Providing OUs a list of all job classifications in which all employees in those job classifications have occupational exposure; a list of job classifications in which some employees have occupational exposure; and a list of all tasks and procedures or groups of closely related task and procedures in which occupational exposure occurs and that are performed by employees in job classifications listed.

10. AUTHORITIES

There are no authorities specific to this suborder alone.

11. DIRECTIVE OWNER

Chief Safety Officer

12. APPENDICES

a. Appendix A. Overview of Major Bloodborne Pathogens

b. Appendix B. Work Practices for Specific Employees or Tasks

c. Appendix C. Hepatitis B Vaccine Declination Form

d. Appendix D. Healthcare Professional's Written Opinion Form for Bloodborne Pathogens Post Exposure Evaluation and Follow-up

e. Appendix E. Bloodborne Pathogens Training Contents

f. Appendix F. Sharps Injury Log

g. Appendix G. Revision History

Appendix A: Overview of Major Bloodborne Pathogens

(1) Hepatitis B Virus (HBV)

The Hepatitis B virus can cause inflammation of the liver, lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. The incubation period can be as long as 160 days, with an average of 120 days. Symptoms and signs include anorexia, malaise, nausea, vomiting, abdominal pain, and jaundice. Carriers are capable of passing the disease to others through blood and body fluids. HBV is commonly transmitted through the use of contaminated needles. Workers exposed to infected blood are the most at risk. Vaccines are available.

(2) Hepatitis C Virus (HCV)

Like HBV, HCV also causes inflammation of the liver and chronic liver disease. HCV is primarily spread through contact with infected blood. The potential for HCV transmission associated with percutaneous injury is low, varying between 3 and 10%. Although the HCV can be detected in blood between one to three weeks after the initial exposure, 80 percent of people with hepatitis C have no symptoms, and thus go undiagnosed. Most patients begin to develop liver cell injury within approximately 50 days, although they will be asymptomatic (symptom-free for the first 6 to 7 weeks after exposure). In about 15 percent of people exposed to the virus, their bodies naturally clear it out of their system within six months. The remaining 85 percent of people with hepatitis C will develop some level of chronic hepatitis C. Over time, this can cause serious liver damage, although the rate of progression can vary significantly from individual to individual. Symptoms may include fatigue, loss of appetite, jaundice, dark colored urine, abdominal pains, aches and pains, joint pain, nausea, and vomiting. Serious complications include liver failure caused by chronic infection. Treatment includes interferon and oral ribavirin, or a combination of the two medications. No vaccines are currently available for HCV.

(3) Human Immunodeficiency Virus (HIV)

HIV is transmitted through sexual contact or exposure to infected blood. Although the virus has been found in many body fluids, it is most commonly transmitted by contact with contaminated blood, semen, and vaginal secretions. Symptoms of infection include lack of energy, fatigue, weight loss, frequent fevers, sweating, nausea, abdominal cramps, and vomiting. More severe symptoms occur with advanced states of infection. There is no vaccine currently available for HIV.

Appendix B: Work Practices for Specific Employees or Tasks

(1) Laboratory researchers

All laboratory researchers shall follow OSHA's universal precautions and use the appropriate PPE for all tasks that involve potential eye, mucous membrane, or skin contact with human blood or OPIMs. Face shields must be worn if splashing/splattering is anticipated.

(2) Infectious Waste Management Personnel

All personnel who package and handle infectious waste containers shall wear safety glasses and gloves during tasks where potential eye and skin contact with infectious materials may occur.

(3) Custodial Services

(a) This suborder does not apply to those custodial services personnel at NIST who are contractors. However, it is required that contractor custodial services personnel observe the signs and instructions posted on the laboratory/office entrance in order to minimize their exposure to human blood or OPIMs. If cleanup of human blood or OPIMs are to be performed by contractor custodial personnel, only those who have been trained on blood and OPIMs cleanups shall perform these duties.

(b) Routine cleanup and disinfection of bathrooms are not considered activities that fall under the requirements of 1910.1030. Custodial personnel who are responsible for housekeeping in bathrooms shall carefully handle razors that may be discarded in the common trash by wearing gloves and handling the razor with tongs or tweezers. If feminine hygiene products have been placed into the bathroom's common waste receptacle, and the receptacle is lined with a plastic bag, the bag may be removed and disposed as normal trash.

(4) Plumbing Activities

Most of the body fluids directed into the sanitary system are not regulated by 1910.1030. However, because several diseases are associated with exposure to sewage, all employees who are involved in plumbing activities shall be provided with the necessary equipment to prevent contact with sanitary effluent. Employees who clear sanitary drain blockages, including use of plungers and snaking, are not considered occupationally-exposed to human blood or OPIMs unless visible blood or other regulated body fluid is present in the work area. Appropriate PPE (e.g., gloves, eye protection, boots, etc.) shall be available to any worker clearing a blockage in sanitary drain systems or during sewage clean-up operations.

(5) Health Unit Personnel

All Health Unit personnel shall follow universal precautions during all tasks that involve potential eye, mucous membrane, or skin contact with human blood, bodily fluids, or OPIMs. Sharps precautions must also be followed.

(6) Police Services Group Personnel

All Police Services Group Personnel shall follow the infection control procedures developed and published at the Division/Group level.

(7) Fire Protection Group Personnel

All Fire Protection Group Personnel shall follow the infectious control procedures developed and published at the Division/Group level.

(8) NIST Vehicles

(a) Any blood or body fluids spilled in NIST vans and shuttle buses shall be cleaned up using an appropriate disinfectant and proper procedures. Minimum personal protective equipment shall include gloves and eye protection.

(b) Although the cleanup of vomit is not considered an activity that falls under the requirements of 1910.1030 unless it contains visible blood, it is recommended that precautions be taken to prevent contact with the materials. This includes the use of personal protective equipment such as gloves and eye protection and a general cleaner to wipe surfaces after the vomit has been removed.

Appendix C: Hepatitis B Vaccine Declination Form

HEPATITIS B VACCINE DECLINATION

SIGNATURE MANDATORY FOR THOSE DECLINING TO BE VACCINATED

I understand that due to my occupational exposure to bloodborne pathogens or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection.
I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____ _____

Declining Individual's Name (Print clearly) Date

_____ _____

Declining Individual's Signature Social Security Number

Appendix D: Healthcare Professional's Written Opinion Form for Bloodborne Pathogens Post Exposure Evaluation and Follow-up

To:

Date:

Healthcare Professional's Written Opinion for Bloodborne Pathogens Post-Exposure Evaluation and Follow-up

Employee Name: _____

Job Title: _____ Division: _____

The above named employee has been informed of the results of the post-exposure evaluation on _____, 20____. Employee has also been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

Signature: _____ Date: _____

Healthcare Professional Name: _____

Cc: Employee

Appendix E: Bloodborne Pathogens Training Contents

The Bloodborne Pathogen training module shall include the following topics:

(1) An accessible copy of the regulatory text of the OSHA Bloodborne Pathogens Standard and an explanation of its contents;

(2) Epidemiology and symptoms of HIV, HBV, HCV and other bloodborne pathogens;

(3) Modes of transmission of HIV, HBV, HCV and other bloodborne pathogens;

(4) A review of the NIST Bloodborne Pathogens Exposure Control Plan;

(5) Appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;

(6) An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;

(7) Sharps injury protection;

(8) Use and limitations of universal precautions, engineering controls, and work practices;

(9) Types, selection, proper use, location, removal, handling, decontamination and/or disposal of PPE;

(10) Information on the Hepatitis B vaccine, including its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered to covered employees free of charge;

(11) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

(12) An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;

(13) Discussion of post-exposure evaluation and follow-up;

(14) Signs and labeling;

(15) An opportunity for interactive questions and answers with the person conducting the training session; and

(16) The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training suborder as it relates to the workplace that the training will address.

Appendix F: Sharps Injury Log

The OSHA Bloodborne Pathogen standard requires that a Sharps Injury Log be maintained to record all contaminated sharps injuries in a facility. The purpose of this log is to help users to evaluate and identify problem devices or procedures that require attention.

Date	Type of Device	Brand Name of Device	Work Area Where Injury Occurred	Brief Description of How the Incident Occurred

Appendix G. Revision History

Revision No.	Approval Date	Responsible Person	Brief Description of Change; Rationale
1	1/5/21	April Camenisch	Updated suborder links. Added Revision History appendix.