



Stanford University Bloodborne Pathogens Exposure Control Plan 2005

PI/Supervisor _____ Department _____
Room _____ Phone _____ email _____
Lab Safety Contact _____ Phone _____

I. Introduction: The Stanford University Exposure Control Plan describes how to eliminate or minimize exposure of all Stanford University personnel to human/primate blood or human/primate blood products that might contain bloodborne pathogens. This plan is in compliance with the California OSHA Bloodborne Pathogens Standard (8 CCR • 5193) and provides tier III level training for personnel. **Each principle investigator (PI/supervisor) will complete an Exposure plan based on the nature of the work being carried out in their facilities. Once completed, the plan will remain on file in a central location within the laboratory/work place along with the Stanford University Biosafety Manual for all personnel to access.**

II. Universal Precautions [•5193(d)(1) and (b)]: Universal Precautions is an approach to infection control whereby all human/primate blood and other human/primate body fluids, tissues and cells are treated as if known to be infectious for HIV, HBV, HCV, and other Bloodborne pathogens (BBP's).

III. Exposure Determination [•5193(C)(2)]: **The PI/supervisor will indicate procedures and materials in the laboratory that have the possibility of exposing personnel to BBP's.** Note that this evaluation will not take into consideration the use of personal protective equipment (PPE). Many of the potential materials are listed here. **Indicate all that may apply below.**

A. Materials

- ▶ All moist body substances, including semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, and other body fluid that is visibly contaminated with blood such as saliva or vomitus, and all body fluids in situations, such as emergency response, where it is difficult or impossible to differentiate between body fluids.
- ▶ Any unfixed human or primate tissue or organ (other than intact skin) from a human (living or dead).
- ▶ Any HIV, HBV, HCV-containing cell or tissue culture, organ cultures, and medium or other solutions, and blood, organs, or other tissues from experimental animals containing HIV, HBV, or HCV.

List all procedures and materials that may apply

Fill out sections B, C, and D below for each worker who has the potential to be exposed to BBP's. Extra copies of these sections can be found at the end of the Exposure Plan (Appendix A) File all sheets with the Exposure Plan in a central location for documentation.

B. Job categories in which personnel may reasonably have contact with BBP's. Identify by name the worker for which this section is relevant.

Principle Investigator _____

Research/Sr. Research Scientist _____

LSRA/Technician _____

Post-Doctoral Fellow _____

Graduate Student _____

Undergraduate Student _____

Laboratory Worker _____

Other _____

C. Tasks and Procedures: Identify which procedures used in the work place that may create a risk of BBP exposure (check off all that might apply).

- Phlebotomy or venipuncture of humans or primates
- Injections into humans or animals using primate or human specimens
- Other use of needles with human or primate specimens
- Handling human or primate tissue, including preparation, dissection, cutting, or other
- Pipetting, mixing, or vortexing human or primate blood, fluid, or tissue
- Centrifuging human or primate blood, fluid, or tissue
- Handling tubes or other container or human or primate blood, fluid, or tissue
- Handling contaminated sharps or other contaminated waste
- Cleaning spills of human or primate blood or other body fluids
- Preparing or handling primary human or primate cell cultures
- Others _____

D. Training Provided: List the specific training provided by the P.I./Supervisor to the individual listed above.

Employees Signature

P.I./Supervisors Signature

Date

IV. Methods of Compliance [5193(d) (i)]:

A. Information and Training [5193(g)(2)]: General tier I level training concerning general laboratory safety is provided by the Stanford University School of Medicine (SOM) and Stanford EH&S. Tier II level training concerning BBP is provided by the SOM on a web based format, with mandatory annual updates. **Specific tier III training will be provided by the PI/supervisor and will include specific safety training for each person's duties, including specific equipment usage and procedures. Training shall be documented and the records maintained by the PI/supervisor (or department) for at least three years.**

B. Written Exposure Control Plan [5193(c)(1)]: Upon completion of this laboratory specific plan, the PI/supervisor will file it in a central location within the laboratory along with the Stanford University Biosafety Manual for all personnel to access. The plan will be reviewed and revised annually or whenever changes in procedure or personnel occur. Additional copies of the uncompleted plan are available at the Biosafety Office or on the web at the Stanford University Biosafety web site.

C. Engineering and Work Practice Controls [5993 (d)(2)]: Engineering and work practice controls must be used to eliminate or minimize exposure to individuals. The following engineering and work practice controls will be utilized:

1. Personal Protective Equipment [5193(d)(3)]:

Personal protective equipment (PPE) will be provided without cost to all individuals who are at risk of occupational exposure to bloodborne pathogens. All PPE must be inspected, cleaned, or replaced as needed at no cost to personnel. PPE will be chosen based on the anticipated exposure to blood or other potentially infectious materials. The protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach the individual's clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

All PPEs must be selected with the goal of providing protection from a hazard. Selection of alternate choices of PPE should be considered if the user is at risk of physiological discomfort (such as contact dermatitis from latex gloves or asthma from wearing certain face masks). Proper training on the wearing and function of personal protective equipment is required PRIOR to using PPE. Consultation or advice on PPE is provided by Stanford University EH&S.

A) Eye protection

Protective eye wear must be worn in the laboratory when it is reasonably anticipated that blood or other potentially infected material may make contact with the mucous membranes of the eye. Face shields may be required if there is a potential for splashes, sprays, or aerosols.

B) Lab coats and uniforms

Laboratory coats, gowns, smocks, aprons, or uniforms must be worn while in the laboratory; long sleeves are required. Before leaving the laboratory for non-laboratory areas (e.g., cafeteria, library, administrative offices), this protective clothing must be removed and left in the laboratory. Sandals and open-toed shoes are not permitted.

C) Gloves

All personnel engaged in activities that may involve skin contact with potentially infectious fluids or tissues must wear gloves. Gloves are also required for laboratory workers with dermatitis or other lesions on the hands who may have direct or indirect contact with potentially infectious materials. Hand washing with soap and water must be a routine practice immediately after direct contact with potentially infectious materials and on completion of work, even when gloves are worn. Gloves should be removed before touching common equipment (phone, computer, appropriate laboratory equipment) to prevent contamination. Personnel must wear gloves, lab coat, and safety glasses whenever handling human or primate blood, fluids, or tissue. Gloves must be replaced frequently and immediately if they become contaminated or damaged in any way. In addition to above items, personnel must wear any additional PPE (apron, booties, face shield, etc.) that is needed to prevent blood or other potentially infectious material from contaminating their street cloths, skin, eyes, mouth, or other mucous membranes under normal conditions.

All PPEs shall be removed prior to leaving the work areas and placed in designated areas for disinfection or disposal. At no time will personnel be permitted to take home any PPE, including lab coats, for laundering or cleaning.

2) Hand washing

Personnel must wash their hands immediately upon removal of gloves and upon any contact with potential BBP materials.

3) Mouth pipetting

Mouth pipetting is prohibited.

4) No eating, drinking

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are not permitted in work areas. Food and drink are not to be placed or stored in areas (refrigerators, microwaves, etc.) where potential BBP are kept or may be present.

5) Needles, sharps, and broken glass

Used needles and other sharps are not to be sheared, bent, broken, recapped, or resheathed by hand. Used needles are not to be removed from disposable syringes. Disposable sharps must not be reused. **All sharps, contaminated or not, shall be disposed of in a puncture-resistant hard sided, labeled sharps container.**

The CAL-OSHA BBP Standard requires any laboratory using human or primate blood, blood products, cell lines, tissues or other potentially infectious materials to use **Needleless Systems/and or engineered sharps**. Needleless systems means a device that does not use needles (1) for the withdrawal of body fluids after initial venous or arterial access is established; (2) administration of medication or fluids; and (3) performance of any other procedure involving the potential for an exposure incident. Engineered sharps means either (1) a physical attribute built into a needle device such as barrier creation, blunting, encapsulation, withdrawal or (2) a physical mechanism which effectively reduces the risk of an exposure incident. **If the PI/supervisor decides that a non-compliant sharps is necessary for a certain procedure, the reason must be documented.**

Any broken glassware must not be directly handled with a gloved or bare hand. Use a mechanical tool (tongs, dustpan and broom) to collect the pieces into a hard-sided container labeled 'broken glass'. Contaminated broken glass must be placed in a puncture-resistant hard sided container and disposed of as biohazardous waste.

6) Minimization of aerosols

All procedures must be performed carefully to minimize the creation of aerosols. Biological safety cabinets (Class I or II) or other physical containment devices must be used whenever possible while performing operations capable of creating aerosols, including but not limited to:

- centrifugation
- blending
- homogenization
- opening pressurized containers.

If a biological safety cabinet cannot be used, the most effective means of minimizing exposure to aerosols is to contain them by using closed containers (centrifuge tubes, sealed centrifuge rotors, capped test tubes, etc.).

7) Disinfection of work area and spill cleanups

Blood and blood products shall be handled in an area that can be readily decontaminated. The work area must be disinfected before and after handling microorganisms. Non-laboratory personnel should not handle equipment that has been used with potential BBP's until it has been decontaminated. All spills must be cleaned up immediately and disinfected with a germicide by appropriate decontamination procedures determined by the laboratory supervisor. The laboratory supervisor or other laboratory personnel must immediately report laboratory accidents (major spills, injuries, illnesses) to EH&S.

8) Labeling

A biohazard warning sign incorporating the universal biohazard symbol shall be posted on the access door to the laboratory work area. All human tissue, body fluid, or other potentially infectious materials must be stored in a container labeled with a biohazard symbol. Refrigerators, freezers, incubators, or other pieces of equipment where potentially infectious materials are stored or handled must also be labeled with the biohazard symbol. All signs are available from EH&S.

9) Limited access

Access to a laboratory is limited or restricted by the laboratory supervisor when work is in progress. When work with blood or blood products is being performed, non-laboratory personnel (maintenance, administrative personnel) and non-Stanford personnel should be discouraged from entering. If they must enter a facility, the hazards of the work being performed must be fully explained. Maintenance and building services personnel may be unfamiliar with the potential hazards present in a laboratory and must be fully instructed and carefully supervised by the laboratory supervisor when working in areas where human blood and blood products are handled.

10) Transportation on Campus

Specimens of blood or other potentially infectious materials shall be placed in a primary container that prevents leakage (capped test tube, centrifuge tube, etc.) during collection, handling, and storage. If the specimens are transported through hallways, the primary containers must be placed in a secondary container (bucket, beaker, cooler, etc.) which would contain the contents if the primary container if it were to leak or break.

11) Shipping of samples

Specimens of blood or other potentially infectious materials that will be shipped to or from Stanford University must be clearly identified as human blood or blood products. The material shall be placed in a closed primary container and a leak proof secondary container prior to shipment. Personnel involved with shipping of biohazardous agents or potential BBPs **must have** documented training prior to shipping. Contact EH&S for more detailed guidelines and training on shipping samples or specimens.

12) Blood Collection

All human blood collection within Stanford University shall be performed in accordance with established phlebotomy procedures.

13) Biological Waste Disposal

Disposal of potentially hazardous biological materials shall be performed with appropriate consideration for the personnel involved in the handling of laboratory waste, as well as federal, state and local laws concerning the disposal of such materials. In accordance with the California Medical Waste Management Act, Health and Safety Code, Chapter 6.1, medical waste includes but is not limited to:

- Human or animal specimens or infectious cultures
- Sharps, including needles and syringes (clean or dirty)
- Cultures and stocks of infectious agents
- Wastes from the production of bacteria, viruses, or the use of spores, discarded live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate, and mix cultures
- Animal parts, tissues, fluids, or carcasses suspected by the attending veterinarian of being contaminated with infectious agents contagious to humans
- Waste which contains recognizable blood, fluid blood products, containers or equipment containing blood, or blood from animals known to be infected with diseases which are communicable to humans

Specific procedures for the disposal of biological materials are available from EH&S and can also be found in the Biosafety Manual.

V. Reporting and Documenting Sharps Injuries: All sharps related injuries shall be reported immediately by completing a Stanford University Environmental Health and Safety Report (SU-17) and a Sharps Injury Log (within 14 days of the injury) (both forms are available on the Biosafety web site). The Sharps Injury Log is maintained for five years by EH&S. The log will be reviewed by the Biosafety Manager to identify trends and take corrective action.

VI. Medical Surveillance Program [5193(f)]: Stanford University Environmental Health and Safety (EH&S) will make provisions for all appropriate required medical services.

1. **Hepatitis B Vaccination:** A safe and effective vaccine is available for protection from Hepatitis B. The vaccine is well tolerated and has not been associated with serious side effects. While Stanford University strongly encourages employees to be vaccinated, accepting vaccination is not a condition of employment. Immunization requires three injections of vaccine over a six-month period. This vaccine is available at no cost to the employee. Post-vaccination serological testing to ensure that protective antibodies to hepatitis B have developed is also provided at no cost following completion of the vaccination series.

The PI/supervisor will ensure that all personnel with potential for occupational exposure to BBP are offered the Hepatitis B (HBV) vaccination in a timely manner (within ten working days of contact with human or primate specimens). The HBV vaccination will be

offered to personnel as a prophylactic treatment or made available post-exposure. Hepatitis B immune globulin is also offered as a prophylactic within 24 hours of an occupational exposure.

To schedule a vaccination or a medical consult concerning exposure risk: Stanford University students will be treated at Vaden Student Health Services (498-2336) and employees at the Occupational Health Center at EH&S. A healthcare professional can discuss the risks and benefits of the vaccination. If you decide to receive the vaccine there will be no charge to you. EH&S will notify your PI/supervisor that you have received appropriate medical services in a manner that does not breach medical confidentiality. If you decide not to be vaccinated but later change your mind you may still receive the vaccination at no cost. Each employee who declines the HBV vaccination series is required to sign a declination form to that effect (see Appendix B)

2. Post-Exposure Evaluation and Follow-up [5193(f)(3)(A)]: Any exposure (e.g. spill, needlestick, ingestion) resulting in direct, unprotected contact with human or primate blood, fluids, or tissue gives you the right to prompt medical evaluation and treatment with a qualified physician familiar with evaluations and treatment protocols as recommended by the Centers for Disease Control and Prevention. These services will be provided to you at no cost.

What to do post-exposure:

After any direct exposure to BBP, **immediately wash the affected area with soap and water.**

In the event that a Stanford University employee or student is accidentally exposed to human blood or blood products, **students** should report to the **Vaden Student Health** (open M – Th, 8:30am – 8 pm, F 9 am – 9 pm, Sat, Sun 10 am – 5:30 pm) or to **Stanford Hospital Emergency Room if it is an emergency or after hours** and **employees** to the **Stanford University Occupational Health Center** (Open Monday – Friday 8am - 5pm) (**Stanford Hospital Emergency Room for an emergency, after hours or on weekends**) where an established medical protocol will be followed. This protocol is designed to provide the individual with the most appropriate medical procedures, consultation and supportive therapy. The exposed employee or student will be provided with a written opinion that will include:

- HBV vaccination status and recommendation
- results of the post-exposure evaluation and follow-up
- discussion of any medical conditions resulting from exposure to blood or other potentially infectious materials which requires further evaluation or treatment
- all other findings or diagnoses shall remain confidential and will not be included in the written report.

In some circumstances it may be appropriate (if possible) to acquire serology from both the exposed individual and the source sample. Consent must be obtained from the exposed individual and from the person(s) who contributed the source. Specific procedures to ensure individual confidentiality have been built into these procedures.

An important component of hepatitis vaccination is post-vaccination serological testing. This is provided at no cost to employees at the appropriate time point following completion of the three-dose hepatitis vaccination series. This is done to ensure that protective antibodies to the hepatitis B surface antigen have developed. If there is an inadequate response, employees are encouraged to complete a second three-dose vaccine series followed by serological retesting. Employees who still do not have

adequate antibody responses at this time are informed that they may be susceptible to HBV infection and are counseled on the precautions needed to prevent HBV infection and the need for prophylactic administration of hepatitis B immune globulin within 24 hours of an occupational exposure.

Exposure to animal bites and scratches: it is important to report all bite wounds and scratches. Wounds must be cleansed immediately in your work area. Instructions for the proper cleaning of wounds will be given to you by your supervisor. **After you have cleansed the wound, go immediately to the Stanford Emergency Room where animal wound protocols are on file.**

Every individual handling material with potential BBP has the responsibility to report any exposure to the supervisor and the PI/supervisor. Documentation of the route of exposure and the circumstances under which the exposure occurred must be done. Any personnel who have experienced a potential BBP exposure due to injury with a sharps object (i.e. scalpel, broken glass, animal bite) must fill out an SU-17 and a Sharps Log Report. Medical information will not be discussed or revealed to supervisors, personnel representatives, or other health care professionals who do not need the information.

3. Recordkeeping [5193(h)]: The PI/supervisor must maintain all training record as discussed above for at least three years and provide recordkeeping for compliance with HepB vaccination. The medical provider maintains all medical records for thirty years.

Stanford University Hepatitis B Vaccination Declaration



A safe and effective vaccine is available for protection from Hepatitis B. While Stanford University strongly encourages employees to be vaccinated, accepting vaccination is not a condition of employment. This vaccine is available at no cost to the employee. Immunization requires three injections over a six-month period. Post-vaccination serological testing to ensure that protective antibodies to hepatitis B have developed is also provided at no cost following completion of the vaccination series. Hepatitis B vaccination is made available after the employee has received required training (Bloodborne Pathogens) and within 10 working days of initial assignment to employees who have occupational exposure [per 8CCR5193 (f) (2) (A)].

Please check the appropriate box:

I have already received the Hepatitis B vaccine.

Approximate date of vaccine _____

I received the vaccine at _____

I wish to receive the Hepatitis B vaccine.

I do not wish to receive the Hepatitis B vaccine at this time.

If you wish to **decline** the Hepatitis B vaccine at this time, please read and sign the statement below.

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given this opportunity to be vaccinated with hepatitis B vaccine at no charge to myself. However, I decline the 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.

Name: _____ (print) _____ (signature)

Date: _____ Department: _____

Submit the completed form to your supervisor, who will either file the form (if vaccination is declined) or make arrangements with the medical provider for vaccination (if accepted). If you are part of the School of Medicine, contact David Silberman at 3.6336 for vaccination arrangements. If you are from another School, contact EH&S at 3.0448.

If you have any questions, please contact the Biosafety Manager at 725.1473.

Appendix A: use separate copy for each individual Deleted: ¶

A. Job categories in which personnel may reasonably have contact with BBP's. Identify by name the worker and the category for which this page is relevant (use a separate page for each person). Make extra copies of this page as needed.

Principle Investigator _____

Research/Sr. Research Scientist _____

LSRA _____

Post-Doctoral Fellow _____

Graduate Student _____

Undergraduate Student _____

Other _____

B. Tasks and Procedures : Identify which procedures used in the work place that may create a risk of BBP exposure (check off all that might apply).

- Phlebotomy or venipuncture of humans or primates
- Injections into humans or animals using primate or human specimens
- Other use of needles with human or primate specimens
- Handling human or primate tissue, including preparation, dissection, cutting, or other
- Pipetting, mixing, or vortexing human or primate blood, fluid, or tissue
- Centrifuging human or primate blood, fluid, or tissue
- Handling tubes or other container or human or primate blood, fluid, or tissue
- Handling contaminated sharps or other contaminated waste
- Cleaning spills of human or primate blood or other body fluids
- Preparing or handling primary human or primate cell cultures
- Others _____
