UNIVERSITY OF PUERTO RICO-CENTRAL ADMINISTRATION
MOLECULAR SCIENCE RESEARCH CENTER (MSRC)
ENVIRONMENTAL QUALITY, OCCUPATIONAL SAFETY AND HEALTH OFFICE

EXPOSURE CONTROL PLAN
BLOODBORNE PATHOGENS

(Translated to English: November 2016)
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I. PURPOSE

A. Comply with the Bloodborne Pathogens (BBP) Standard (29 [1]CFR 1910.1030) of the Occupational Health and Safety Administration (OSHA).

1. Establish safety measures to protect workers from health risks associated with BBP exposure.

2. Decrease the risk of exposure to diseases transmitted by blood or other potentially infectious materials (OPIM).

II. RESPONSIBILITIES

A. Directors:

Ensure that MSRC administration and personnel comply with BBP Standard (29 CFR 1910.1030).

B. Faculty, Principal Investigators or Laboratory Supervisors/Technicians:

1. Develop and implement procedures for compliance with this Exposure Control Plan (ECP).

2. Ensure procedures are appropriate for work areas.

3. Ensure there is an ECP copy accessible to all employees.

4. Attend and ensure that ALL employees that are supervised by she/he attend trainings.

C. Employees:

1. Comply with what is established in the ECP.
2. Inform exposures to supervisors.
3. Attend trainings regarding BBP Standard.

D. Occupational Health Clinics and MSRC:

1. Currently, the MSRC does not have an Occupational Health Clinic.

2. The Occupational Health Clinic provides immunizations and follow-up to exposed personnel among other services.

3. Personnel affiliated (students, professors, and/or investigators) with UPR Medical Sciences Campus (MSC) can obtain immunization at MSC's Clinic (Tel. (787) 758-2525 Ext. 2910). Also, Clinical Bioreagent Center personnel working in the HIV Vaccine Project can obtain immunization at MSC's Clinic.

[1] Code of Federal Regulations (*CFR*).

4. Personnel affiliated (students, professors, and/or investigators) with UPR Río Piedras (RP) can obtain immunization at RP's Clinic (Tel. (787) 764-0000 Ext. 86569).

5. Personnel not affiliated with any of these two UPR campuses should talk to Ms. Omayra Rivera Troche, Environmental Quality, Occupational Safety and Health Officer, at (787) 523-5313.

E. Environmental Quality, Occupational Safety and Health Office:

1. Prepare a list of all the job positions (position title) in which **ALL** employees/students have exposure, a list of all job positions (position title) in which **SOME** employees/students have exposure, and a list of all duties and procedures or groups of associated duties and procedures in which exposure occurs and that are performed by employees/students in the previously mentioned job positions.

2. Advise Faculty, Principal Investigators or Laboratory Supervisors/Technicians regarding ECP implementation.

3. Coordinate and offer trainings required by BBP Standard.

4. Maintain all the documentation associated/required by the BBP Standard including: training records, immunization records, exposure incident reports, and post-vaccination test.

5. Evaluate the implementation effectiveness of:

   - Engineering Controls
   - Work Practices
   - Personnel Protective Equipment (PPE).

6. Evaluate ECP implementation in ALL WORK AREAS where the BBP Standard applies.

7. Revise the ECP.

III. PLAN AVAILABILITY

The ECP should be available and accessible to all employees at any time. The ECP will be available in the following locations:

- www.cicim.upr.edu
- Environmental Quality, Occupational Safety and Health Office.
- Research laboratories covered by the BBP Standard.

IV. EXPOSURE DETERMINATION

The occupational exposure risk will be determined in the following way:

A. Prepare a list of all the job positions (position title) in which **ALL** employees/students have exposure. **Form 1** will be used.

B. Prepare a list of all the job positions (position title) in which **SOME** employees/students have exposure. **Form 2** will be used.

C. Prepare a list of all duties and procedures or groups of associated duties and procedures in which exposure occurs and that are performed by employees/students in the previously mentioned job positions. **Form 3** will be used.

The exposure determination will not consider the use of PPE.

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FORM 1: JOB (POSITION TITLE) IN WHICH ALL EMPLOYEES/STUDENTS HAVE EXPOSURE

NOTE: This list will be prepared in compliance with the Bloodborne Pathogens Standard (29 CFR 1910.1030) of the Occupational Health and Safety Office of the United States Department of Labor and of *Administración de Seguridad y Salud Ocupacional de Puerto Rico (PR-OSHA) adscrita al Departamento del Trabajo y Recursos Humanos del Estado Libre Asociado de Puerto Rico.*

POSITION	FACULTY/ DEPARTMENT	COMMENTS

Prepared by: _____ Position: _____

Approved by: _____ Date: _____

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FORM 2: JOB (POSITION TITLE) IN WHICH SOME EMPLOYEES/STUDENTS HAVE EXPOSURE

NOTE: This list will be prepared in compliance with the Bloodborne Pathogens Standard (29 CFR 1910.1030) of the Occupational Health and Safety Office of the United States Department of Labor and of *Administración de Seguridad y Salud Ocupacional de Puerto Rico (PR-OSHA) adscrita al Departamento del Trabajo y Recursos Humanos del Estado Libre Asociado de Puerto Rico.*

POSITION	FACULTY/ DEPARTMENT	COMMENTS

Prepared by: _____ Position: _____

Approved by: _____ Date: _____

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FORM 3: ASSOCIATED DUTIES AND PROCEDURES IN WHICH EXPOSURE OCCURS AND ARE PERFORMED BY EMPLOYEES IDENTIFIED IN FORMS 1 AND 2

NOTE: This list will be prepared in compliance with the Bloodborne Pathogens Standard (29 CFR 1910.1030) of the Occupational Health and Safety Office of the United States Department of Labor and of *Administración de Seguridad y Salud Ocupacional de Puerto Rico (PR-OSHA) adscrita al Departamento del Trabajo y Recursos Humanos del Estado Libre Asociado de Puerto Rico.*

DUTIES/PROCEDURES WITH EXPOSURE	FACULTY/DEPARTMENT	COMMENTS

Prepared by: _____ Position: _____

Approved by: _____ Date: _____

V. COMPLIANCE METHODS

In compliance with the BBP Standard, the MSRC requires that all laboratories covered by the standard reduce the employee/students exposure establishing Universal Precautions, Engineering Controls, Work Practices, PPE, Cleanliness and Order, and Waste Disposal Practices.

A. Universal Precautions:

Universal Precautions will be practiced to prevent contact with blood or OPIM. Blood and body fluids will be treated as if they were infected with HIV, HBV, or other bloodborne pathogen including, but not limited to:

1. Tissues or human organs.

2. Cells or tissue cultures with HIV, organ cultures, and culture media or other solutions with HIV or HBV or other OPIM or that their infection status is unknown.

3. Blood, organs, or potentially infectious experimental animal tissues.

B. Engineering and Work Practice Controls:

1. Engineering and work practice controls will be utilized for eliminating or reducing employee exposure. If exposure potential still exists after establishment of engineering and work practice controls, PPE will be utilized.

2. Engineering and work practice controls will be evaluated and updated annually to ensure their effectiveness.

3. Hand washing facilities will be provided in the work area. If this is not possible, personnel will be provided with the appropriate antiseptic, paper towel or antiseptic towelettes.

4. Principal Investigators and/or supervisors will ensure that employees will wash their hands immediately or soon after removal of gloves or other PPE.

5. The employee will wash her/his hands or the exposed skin with soap and water or will rinse mucus membranes with water immediately after contacting blood or OPIM.

6. Bending, breaking, recapping or covering used or contaminated needles is prohibited. Needles should be disposed in an appropriate container.

7. Eating, drinking, applying cosmetics, and keeping/wearing contact lenses in work areas where there is a possibility of exposure is prohibited.

8. The use of refrigerators, freezers, cabinets, and shelves where there is blood or OPIM for food/beverage storage is prohibited

9. Equipment contaminated with blood or OPIM should be sterilized. Prior to utilizing the equipment verification of sterilization will be performed.

10. Containers made of plastic or perforation resistant materials will be utilized for disposing needles, blades, sharp objects, or glass. These materials will not be disposed in plastic bags.

11. Eye washing stations will be installed in the work area.

12. Blood specimens or OPIM will be placed in spill resistant containers that do not allow splashes during collection, handling, and transport. In addition, containers should be labelled with the biohazard symbol and the word "Biohazard".

13. Mouth pipetting is prohibited.

14. The Principal Investigator/Supervisors will be responsible for informing (in writing) affected employees, students, service representatives, and/or manufacturer, information regarding equipment part contamination status in order to take the necessary precautions prior to service or transport.

C. PPE

1. The appropriate PPE will be provided to the employee when a potential for occupational exposure exists. This PPE will be considered appropriate only if it does not allow blood or OPIM from coming in contact with clothes, skin, eyes, mouth or other mucous membranes under normal use conditions.

2. Principal investigators/supervisors will ensure that employees use PPE.

3. The PPE should be accessible in the work area and be of the appropriate size. In addition, PPE should be available at no cost to the employee.

4. Employees that have any sensitivity to any PPE such as latex gloves, will have the option of utilizing hypoallergenic equipment or another appropriate alternative that allows the same level of execution in her/his duties.

5. MSRC will have a washer/dryer available for sanitation of laboratory coats. Disposable PPE may be discarded in regular trash (if not contaminated) or in biohazard waste (if contaminated).

6. The employee should immediately remove the protective clothing if it becomes contaminated with blood or OPIM.

7. The employee will remove the PPE prior to leaving the work area and will place it in a designated area or in a container for storing, washing, decontaminating or disposing.

8. The employee will utilize gloves when it is expected to have contact with blood or OPIM or when touching or handling contaminated objects or surfaces.

9. Disposable gloves will be replaced when they become contaminated, broken, punctured, or their capacity to be used as barrier become compromised. Gloves will not be reused.

10. Facemasks in combination with eye protective equipment such as: safety glasses, safety glasses with lateral protection, or masks that cover the chin will be utilized to protect eyes, nose, and mouth from spills, splashes, mists, droplets, and aerosols that may be generated from blood or other OPIM.

11. Protective clothing will be used in occupational exposure situations. Protective clothing should create an effective barrier and encompasses (but is not limited to): laboratory coats, coveralls, and aprons.

12. Head and/or shoe covers should be used in situations with potential contamination such as autopsies and surgeries.

D. Cleanliness and Order:

1. The Principal Investigators/Supervisors will ensure that the workplace is kept clean and in sanitary conditions.

2. The equipment and working surfaces will be cleaned and decontaminated with the appropriate disinfectant:

   a. After completing procedures.

   b. Immediately, or as soon as possible, if the surface is contaminated or a spill/splash has occurred.

   c. After completing work if the surface became contaminated after the last time it was cleaned.

3. Protective covers such as plastic, aluminum foil, or absorbent paper that are used to protect equipment or surfaces will be removed or replaced as soon as possible when they become contaminated or at the end of the work session if they became contaminated.

4. All containers or materials that are reused should be inspected and decontaminated regularly. In addition, they should be cleaned and decontaminated immediately after visible contamination.

5. Contaminated broken glass should be picked up from the floor utilizing a scoop and brush, forceps, and/or tongs.

6. Regulated waste disposal will be performed according to federal, state, and local guidelines.

7. Contaminated clothes will be handled the least possible with minimum agitation. These items will be placed in properly labelled bags or containers in the area where they are used. Contaminated clothes **WILL NOT** be stored or cleaned in the area where they are used.

VI. EXPOSURE CONTROL FOR RESEARCH LABORATORIES WORKING WITH

BLOODBORNE PATHOGENS INCLUDING HIV AND/OR HBV

Laboratories investigating and/or producing HIV and/or HBV will comply with the requisites of BBP Standard [29 CFR 1910.1030 (e)], with this ECP, and with the standard microbiological practices described in the 5th. Edition of *Biosafety in Microbiological and Biomedical Laboratories-Section IV, Biosafety Level 2, Part A* from [2]CDC/NIH. These practices offer limited control of hazards associated with microbiological research.

MSRC staff has prepared and adopted a **Biosafety Manual** that will be revised and updated annually. Personnel will be informed of biological hazards and will be required to know the practices/procedures and apply them in their work area.

Personnel working in these laboratories will receive special training in addition to that required for employees that do not handle specifically known pathogens (Read Section X: Recordkeeping).

VII. HEPATITIS B IMMUNIZATION PROGRAM

The MSRC in compliance with the BBP Standard, requires that all laboratories covered by the standard reduce employee/students risk of contracting HBV through the establishment of an Immunization Program.

A. The immunization against HBV will be available to all employees with occupational exposure to blood or OPIM.

B. The vaccine against HBV will be provided to the employee:

   1. At no cost.
   2. At a reasonable location and times (preferably during working hours).
   3. By a certified health professional or someone under her/his supervision.
   4. Within 10 days of the initial work assignment, after receiving the training required by the BBP Standard.

C. Employees that have been previously vaccinated with the three dosages of the HBV vaccine will not be vaccinated if the anti-HB serodiagnosis reveals that she/he is immune or if the vaccine is contraindicated for medical reasons.

[2] Centers for Disease Control and Prevention (CDC).

D. Employee participation in the Hepatitis B Immunization Program is voluntary. **Form 4** will be used by the employee with occupational exposure that refuses to be vaccinated. If the employee later decides to receive the vaccine series, the immunization will be provided at no cost.

E. All laboratory tests associated with the HBV Immunization Program will be performed in an accredited laboratory.

FORM 4: DECLINING HEPATITIS B IMMUNIZATION

I understand that due to my exposure to blood and other potentially infectious materials (OPIM), I am at risk of contracting Hepatitis B Virus (HBV). The **Molecular Science Research Center** provided me with the opportunity to be immunized (vaccinated) against HBV at no cost. However, at this moment, I refuse to be vaccinated against HBV. I understand that my refusal to become vaccinated against HBV means that I continue to be at risk of contracting HBV. If I continue to have exposure to blood and OPIM in the future, and I decide to become vaccinated against HBV, I will be able to receive the vaccine against HBV at no cost.

Name of Employee/User	Name of Supervisor
Signature of Employee/User	Signature of Supervisor
Date	Date

VIII. POST-EXPOSURE AND FOLLOW-UP PROCEDURES

A. The exposure incident will be reported immediately. A free and confidential post-exposure and follow-up medical evaluation will be provided for the exposed employee.

B. The employee will report the exposure incident to her/his supervisor and the Occupational Health and Safety Officer within 1 hour after the incident.

C. The supervisor and the Occupational Health and Safety Officer will interview the exposed employee in order to complete the Exposure Incident Report (**Form 5)**. A Registry with all Exposure Incident Reports and Sharp/Penetrating Object Exposure Incidents will be kept (Read Section X: Recordkeeping).

D. The supervisor, Occupational Health and Safety Officer, and exposed employee will keep the exposure source for analysis if it is possible.

E. Exposed skin will be washed with soap and water. If necessary, first aid will be immediately administered for lacerations or other injuries by adequately trained personnel.

F. The Supervisor and the Occupational Health and Safety Officer will ensure that the necessary documents are completed for exposed employee referral to the *Corporación del Fondo del Seguro del Estado* (*CFSE*). In addition, they will ensure that the exposure incident is reported to the person responsible for completing the *Registro de Lesiones y Enfermedades Ocupacionales*, *Reglamento 2 OSH 1904 del Departamento del Trabajo y Recursos Humanos del Estado Libre Asociado de Puerto Rico* (http://www.trabajo.pr.gov/prosha/download/02osh1904.pdf).

G. The exposed employee will go to CFSE as soon as possible and submit the documents. The CFSE will determine the evaluation, post-exposure treatment, and follow-up that is needed.

H. Registered UPR students are covered by the UPR accident insurance. Non-UPR students/personnel are not covered by the UPR accident insurance and must bring evidence of accident insurance coverage prior to working at MSRC.

I. The physician that evaluates the exposed employee will provide the Molecular Science Research Center with a written opinion within 15 days after finishing the evaluation. A copy of this opinion will be provided to the employee.

FORM 5: EXPOSURE INCIDENT REPORT

Instructions: Complete all the information requested in this form. Complete **Part B.** only if the exposure incident resulted from contact with a sharp/penetrating object. Write using block letters.

A. Information Related to the Exposure Incident

Name of the Employee: Date:

Date of Birth: ID Card #:

Work Phone #: Residential Phone #:

Title of the Job Position:

Exposure Date: Exposure Time: a.m. p.m.

Vaccination Status: Vaccinated Not Vaccinated

Department or work area where incident occurred:

Duty (-ies) performed when incident occurred:

Describe the incident in detail:

If the incident resulted from contact with sharp/penetrating objects (needles, broken glass, dental wire, dissection equipment, and other sharp tools, etc) answer Part B.

Potentially infectious material to which you were exposed to and whether it penetrated skin or body part:

Identify the source of the potentially infectious material:

Exposed body part or location where sharp object penetrated:

Personal Protective Equipment (PPE) that you were using (if any) at the time of the exposure incident:

Whether the PPE failed (Explain):

Whether you received first aid (Explain):

Include any other information that you believe is relevant:

B. Lesions With Sharp/Penetrating Objects

Type of object: Brand of object:

Signature of Employee/User: Date:

Signature of Supervisor: Date:

Signature of Health and Safety Officer: Date:

IX. INFORMATION AND TRAINING FOR EXPOSED PERSONNEL

A. The Principal Investigators/Supervisors working at the MSRC will ensure that employees/students with exposure participate in training session(s). In addition, Principal Investigator/Supervisor **MUST** attend.

B. The training should be provided:

1. During working hours,

2. At no cost to the employee,

3. At the time of initiating duties in which occupational exposure may occur,

4. Annually or;

5. When changes occur including: Modification of duties or new procedures that can affect occupational exposure.

C. The training should be appropriate in content, use a vocabulary at the educational level of the employees, and in a language used by the employees.

D. The minimum content of the training is the following:

1. Accessible copy of the BBP Standard and explanation of its content.

2. General explanation of the epidemiology and symptoms of the diseases involving BBP.

3. Explanation of the BBP transmission routes.

4. Explanation of the ECP and how the employee can obtain a copy of it.

5. Explanation of the appropriate methods for identifying duties and other activities involving exposure to blood and/or OPIM.

6. Explanation of the use and limitations of methods to prevent or reduce exposure. Methods include appropriate engineering controls, work practices, and PPE.

7. Information about the types of PPE, appropriate use, location, removal, handling, decontamination, and disposal.

8. Explanation about the criteria for selecting PPE.

9. Hepatitis B Immunization Program information. This includes, but is not limited to, information about vaccine efficacy, safety, administration method, and benefits of vaccination.

10. Information about the actions to take and persons to contact in an emergency that involves exposure to blood or OPIM.

11. Explanation of the procedure to follow in case an exposure incident occurs. This explanation should include how to report the incident and available medical follow-up.

12. Information about the post-exposure evaluation and the follow-up that the employer should provide to the employee.

13. Explanation of the signs, labels and colors associated with biological hazards and required by the regulations.

14. Questions and answers with the person offering the training.

E. Employees in research laboratories or installations investigating and/or producing HIV and/or HBV will receive the following initial, and additional, training (in addition to the previously indicated training):

1. The supervisors will ensure that the employees demonstrate knowledge of the standard microbiological practices and techniques and in practices and operations that are specific to the installation prior to working with HIV and HBV.

2. The supervisors will ensure that the employees have previous experience in the handling of human pathogens or tissue culture prior to working with HIV or HBV.

3. The supervisors will provide a Training Program for the employees that do not have previous experience regarding the handling of human pathogens. The initial work activities will not include the handling of infectious agents. Progressive work activities will be assigned according to the learned techniques and demonstration of knowledge by the employee.

X. RECORDKEEPING

A. Medical Records:

1. Medical records will be kept confidential and will not be revealed to any person without the written consent of the employee.

2. Medical records will be kept during the length of time of employment plus 30 more years.

3. Medical records will be kept in the Occupational Health Clinic, where applicable, or in the Environmental Quality, Occupational Safety and Health Office.

4. The medical record will include the following information:

    a. Employee's name and ID Card Number.

    b. Copy of the HBV immunization status of the employee. It should include the dates of all vaccines and any medical record that is associated with the capacity of the employee to receive the vaccination.

    c. Copy of all the test results, medical exams, and post-exposure evaluation follow-up procedures.

    d. Copy of the written medical opinion regarding vaccination against HBV and the post-exposure evaluation and follow-up.

B. Training Records:

1. The training record will be kept for 3 years after the training in the Environmental Quality, Occupational Safety and Health Office and will include the following information:

    a. Training dates.

    b. Content or training summary.

    c. Names and qualifications of the persons offering the training.

    d. Name, job title, and signature of the persons that attended the training.

C. Exposure Incident Registry/Records:

The exposure incident reports will be kept confidential at the Environmental Quality, Occupational Safety and Health Office and will not be revealed to any person without the written consent of the employee. Each exposure incident report will be kept for 5 year from the year it was completed.

D. Record Availability:

The Molecular Science Research Center will ensure that all medical and training records will be available at the request of the Secretary of *Departamento del Trabajo y Recursos Humanos de Puerto Rico* and the Director of *PROSHA* (Puerto Rico *OSHA*) for examination and copy. In addition, these records will be available to employees and/or their authorized personal representatives.

XI. STUDENTS

Students are not specifically covered by the standard except those that are also employees. However, it is the responsibility of the MSRC to provide students adequate training so they can perform their studies, and eventually, their professions safely. Therefore, the center will identify those procedures/duties that involve exposure to blood or OPIM. Whenever possible, alternative methods should be adopted for using blood or OPIM. Alternatives include using non-infectious animal blood, synthetic blood, or computer models/simulations. If alternatives cannot be adopted for particular procedures/duties, the following practices should be followed:

A. ECP:

Laboratories that require students to work with blood or OPIM will follow what is established in the ECP.

B. Training:

Laboratories that require students to work with blood or OPIM will provide the same training level as what is established in the ECP.

C. PPE:

Laboratories that require students to work with blood or OPIM will provide the same level of PPE as what is established in the ECP. Students may be required to buy the PPE and should be previously informed of this requisite.

D. Post-Exposure Follow-up:

Laboratories that require students to work with blood or OPIM should be guided to notify their Health Insurance that their academic activities involve exposure to blood or OPIM.

E. Handling of Infectious Waste and Contaminated Clothes

Students that are not from the Molecular Science Research Center will not handle, treat, or dispose OPIM with the exception of placing OPIM in assigned disposal containers. In addition, students are prohibited from handling contaminated clothes. These regulated activities are restricted to designated personnel.

XII. REVISION

The plan will be revised and updated annually or as necessary to reflect:

1. New or modified duties and procedures that involve employee exposure to blood or OPIM.
2. New or revised job positions with occupational exposure.
3. Technology changes that eliminate or reduce exposure to blood or OPIM.
4. Utilization of commercially available materials and equipment designed to eliminate or reduce exposure.

EQOSHO

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