

STUDENT EXPOSURE CONTROL PLAN FOR BLOODBORNE AND AIRBORNE PATHOGENS

Updated Spring 2024

Approved policy for Quinnipiac University students who incur an accidental exposure to human blood (or other potentially infectious materials), or who may be exposed to airborne pathogens (e.g., the tuberculosis bacterium) while participating in a course/university-related activity (e.g., a laboratory, clinical training, athletics, etc.). Note that saliva, vomitus, urine, feces, sweat, tears and respiratory secretions do not transmit HIV (unless visibly bloody). The risks of Hepatitis B and Hepatitis C transmission from non-bloody saliva are considered to be negligible but can consider follow-up testing. In the event of COVID exposure/infection, students in clinical settings should follow the policies of the clinical sites to which they are assigned.

Please reference the Student Incident Policy (accident and injury) (<http://catalog.qu.edu/university-policies/student-incident-report/>)

Please reference the Student Incident Report Form (to be completed by student) (<http://forms.quinnipiac.edu/IncidentReportForm/form.html>)

Background Information

The university recognizes that some students, in their coursework, clinical practicums or other university-related activities, may accidentally be exposed to another person's blood/body fluids (including airborne droplets) through various activities such as an athletic injury, a needle puncture wound, a surgical accident, or caring for a patient who has tuberculosis. Exposure to human blood and certain body fluids (semen, vaginal secretions, cerebrospinal fluid, any body fluid containing visible blood and unfixed tissues) may put these students at risk of contracting a bloodborne pathogen. The major bloodborne pathogens are: hepatitis B virus (HBV), hepatitis C virus (HCV) and the human immunodeficiency virus (HIV). Exposure to airborne droplets from a patient with tuberculosis (coughing, sneezing) puts the students at risk of contracting tuberculosis. Students who have exposure to the droplets of patients with pertussis and meningococcal meningitis are also at risk for disease transmission. Students who are at greatest risk of these types of exposures (primarily, but not exclusively, health science students) must be educated about how to minimize or eliminate the likelihood of exposure to these potentially infectious fluids before they participate in these activities. Additionally, they must be informed as to how to proceed if they incur an exposure, either on or off campus, while participating in a course/university-related activity.

Currently, students who have a risk of exposure either on or off campus at clinical training sites are trained according to the Occupational Safety and Health Administrations (OSHA) Bloodborne Pathogen Standard (https://www.medicalcompliancecertification.com/covid19/?gclid=EAlaIqobChMlurm5lpf16QIVDTiGCh2KWgM8EAAYASAAEgJEOfD_BWEn) which was developed in an attempt to minimize or eliminate employee risk of exposure to human blood/body fluids during the course of their work. This training includes discussion of the Centers for Disease Control

(CDC) Universal Precautions (<https://www.cdc.gov/mmwr/preview/mmwrhtml/00000039.htm>) document regarding infection control and information on the hepatitis B vaccine. This training is done either on campus by a faculty member, or at the student's clinical facility as part of an orientation presentation.

Bloodborne Pathogens

This section outlines a protocol to be followed by students regardless of location, if they incur an accidental exposure to human blood/body fluids while engaged in coursework or some other university-related activity. Exposure in this case means that another person's blood/body fluid has come into direct contact with some part of the student's body. This other person is referred to as the source individual. All bloodborne pathogen exposure incidents should be evaluated **immediately** since risk of post-exposure infection is dependent upon many factors and that treatment, if indicated, must be started as soon as possible in order to be maximally effective.

Bloodborne pathogens include but are not limited to Hepatitis B; Hepatitis C; Non-A, Non-B Hepatitis; Human Immunodeficiency Virus; Syphilis; and Malaria. These pathogens may be transmitted in blood or other potentially infectious materials, including cerebrospinal fluid, synovial fluid, pleural fluid, amniotic fluid, pericardial fluid, peritoneal fluid, semen, vaginal secretions, any body fluid contaminated with blood (saliva in dental procedures), and, in emergency situations, body fluids that cannot be recognized. Unfixed tissue or body organs other than intact skin and blood, organs and tissue from experimental animals infected with HIV or HBV are also considered potentially infectious materials.

Facts about HIV Exposure

- The average risk for HIV infection from all types of reported percutaneous exposures to HIV-infected blood is 0.3%. Risk is increased for exposures involving:
 - A deep injury to the healthcare worker
 - Visible blood on the device causing injury
 - A device previously placed in the source patient's vein or artery (e.g., needle used for phlebotomy)
 - Proven or presumed high viral load as demonstrated through testing of the source patient or in case of source patient death from AIDS complications within 60 days post exposure
- Identification of these risk factors in the case-controlled study suggests that the risk for HIV infection exceeds 0.3% for percutaneous exposures involving a large blood volume and/or higher HIV titer in blood. The risks after mucous membrane exposure on average is approximately 0.1% and on skin exposure less than 0.1% probably also dependent on the volume of blood and titer of HIV.
- Although information about the potency and toxicity of antiretroviral drugs is available from studies of HIV-infected patients, it is uncertain to what extent this information can be applied to uninfected persons receiving post-exposure prophylaxis (PEP).

Facts about Hepatitis B Exposure

For a needlestick exposure involving hepatitis B, the risk is considerably higher (i.e., 1 in 3 or ~33%) than for HIV. The risk is likely much lower in superficial or trivial needlestick injuries, and in skin/mucous membrane exposures, depending on specific circumstances. It is negligible in individuals who have completed a course of hepatitis B vaccine with confirmatory titers.

Facts about Hepatitis C Exposure

The average incidence of anti-HCV seroconversion after accidental needlestick injury from an HCV-positive source is about 2%.

Protocol to follow if exposed to human blood or other potentially infectious body fluids

AN EXPOSURE INCIDENT REQUIRES IMMEDIATE ACTION!

1. **Exposure Incidents** – The following events are considered an exposure:
 - a. percutaneous injury involving a potentially contaminated needle or other sharp instrument
 - b. splash of blood or other potentially infectious materials to the eyes, mouth or mucous membranes
 - c. blood or other potentially infectious materials contacting broken skin
 - d. human bites that cause a break in the skin
2. **Steps to take in the event of an exposure or needlestick:**
 - a. **Do not panic!** It is not helpful. Clear thinking and immediate action are the best course of action.
 - b. Wash the exposure area immediately for at least two minutes if possible. If it's a skin wound, wash well with water and disinfectant soap. Irrigate eyes with saline if available, otherwise use water. If it's a mouth exposure, wash mouth out well with water.
 - c. Students should immediately report the incident to whomever is precepting or supervising them (including but not limited to their Quinnipiac University clinical coordinator).
 - d. Before starting rotations, students should ask their preceptor for a copy of their site's exposure control plan if they are at a distant location such as out of state.
3. **Attempt to obtain the HIV/HBV/HCV status of the source individual.** If the exposure is judged to be "high risk," prophylactic anti-viral therapy may be started immediately in order to be maximally effective.
4. **Post-exposure risk evaluation and potential treatment:** The CDC now recommends that an individual with a significant exposure to blood or other potentially infectious body fluids of another individual should be seen and evaluated *within three hours* (or otherwise as soon as possible) of the exposure. *An exposure incident is to be treated as a medical emergency.*

Assessing Risk after an Exposure Incident

Assessing post-exposure risk is often very difficult to clearly evaluate. The student should try to provide, to the best of their ability, the following information about circumstances surrounding the exposure incident:

1. The specific procedure involved (phlebotomy, surgery, etc.)
2. Specific equipment involved (needle type/gauge, scalpel, pipet, etc.)
3. Body surface exposed (skin, eyes, nose, mouth, percutaneous wound depth)
4. Type of fluid exposed to (whole blood, serum/plasma, viral culture, semen, unfixed specimen, etc.)
5. Personal protective equipment employed (gloves, gown, mask, etc.)
6. Document the identity of the source patient.
 - a. Evaluation of the student's risk of infection may include drawing the student's blood for baseline testing for HIV, HBV, HCV, complete blood count, and blood chemistry screening, including liver function tests. Treatment, if indicated, may include initiation

of prophylactic anti-viral therapy. The cost of this medication should be borne by the student.

- b. In general, a **"high risk"** exposure incident is one based on both transfer of a relatively large volume of infected patient blood (e.g., a deep needlestick injury with a large bore needle) and blood containing a high concentration of viral particles (e.g., early acute retroviral illness or end-stage AIDS). **"Increased risk"** means exposure to either one of the above. **"Low risk"** generally means exposure with minimal penetration (e.g., superficial skin injury of unfixed specimen, solid suture needle injury), low viral concentration fluids (e.g., saliva, urine), or exposure on fully intact skin.

Where to go if you have been exposed

Exposures at a site WITH on-site capability for initial care:

Students who are exposed at a clinical site with on-site capability for providing appropriate care for bloodborne exposure, such as an emergency department, will follow the clinical site protocol and seek immediate initial evaluation and treatment at the clinical site.

Exposures at a site WITHOUT on-site capability for initial care:

If the clinical site is without on-site capability for providing appropriate care for bloodborne or airborne exposure, then the student should be seen at:

Occupational Health Plainville

440 New Britain Ave, Plainville, CT 06062

Tel: 860.827.6910

Fax: 860.747.8597

<https://thocc.org/services/occupational-health>

- If Occupational Health Plainville is not open, then the student should be seen at a nearby hospital-affiliated urgent care center or hospital emergency department.
- If the student is out of state, they should be seen at a nearby hospital-affiliated urgent care center or hospital emergency department.

The student is responsible for using their own health insurance or the university-purchased accident only policy through Gallagher Insurance Company to pay for any medical visits associated with their occupational exposure.

Payment of Services for an Exposure Incident

Students are responsible for using their own health insurance to pay for any medical visits associated with their occupational exposure. Students are also covered by an "accident only" student insurance program that has been coordinated through the university with the Gallagher Insurance company and information can be obtained via the Gallagher website (<https://www.gallagherstudent.com/students/student-home.php?idField=1113>) under My Student Health. See appendix 2 of the Student Incident Policy (<http://catalog.qu.edu/university-policies/student-incident-report/#Appendix2>).

Documentation of an Exposure Incident

All student exposure incidents, on or off campus, must be fully documented by filing a detailed **Student Incident Report Form** with the student's program director/department chairperson **within FIVE (5) days**

of the incident. Students who need assistance with completing the form should ask a faculty member in their program/department.

The student will also likely be required to fill out an incident report form at the clinical affiliate site for their records. It is very important that the forms are filled out thoroughly and completely in order to aid in post-exposure evaluation and follow-up, and to protect the student's legal rights in the future if necessary. The student should obtain copies of any and all post-incident evaluation/testing/treatment documents as follow-up will most likely occur at:

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440 New Britain Ave, Plainville, CT 06062

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Fax: 860.747.8597

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Types of Exposure

Tuberculosis (TB) Exposure

The tuberculosis bacterium is spread from person to person through inhalation of small droplets produced during the coughing and sneezing of an infected individual. Close contact with a person with untreated or undiagnosed pulmonary TB places healthy people at risk of acquiring the infection. Tuberculosis is treated with antibiotics.

If a student is exposed to TB during course-related activities, they should inform their instructor/clinical coordinator/supervisor as soon as possible. The student should fill out a **Student Incident Report Form**. The form will be electronically forwarded to the appropriate faculty and staff.

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440 New Britain Ave, Plainville, CT 06062

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If the student is engaged in coursework out of state, the student should check with their preceptor/faculty, and follow the protocols that are established at the facility. In the case where students are not under set protocols or policy, or there is any concern, the student should be evaluated at a nearby hospital-affiliated occupational medicine, urgent care center or primary care center. Post-exposure evaluation/treatment of an exposure incident may include the following:

1. Evaluation of student's risk given the exposure situation
2. Tuberculin test at time of exposure and 12 weeks post-exposure
 - a. Either the Tuberculin Skin Testing (TST; aka PPD) or the IGRA test are acceptable, but the same type of test must be used for both the baseline and the 12-week follow up.
 - b. For students who have had a reaction to the TST/PPD or had the bacille Calmette-Guerin (BCG) vaccine, the Interferon Gamma Release Assay (IGRA) test is a safe method to determine baseline and 12-week follow up.
3. After the initial and 12-week post exposure evaluation, the decision for specific treatment and follow-up will be made on a case-by-case

basis by a qualified healthcare provider with the students' consent. Further testing and treatment may include:

- a. A chest X-ray (as indicated)
- b. Prophylactic therapy (as indicated)

Pertussis

Pertussis is a bacterium that is spread from person to person through the inhalation of contaminated droplets from an infected person. Pertussis is a vaccine preventable disease for children who are current on their vaccinations. However, pertussis immunity is not carried through to adulthood, and a booster is required for immunity. The CDC currently recommends any adult who has not had a tetanus diphtheria and pertussis (Tdap) vaccination as an adult to receive at least one dose.^{i, ii} Note most adults who have had a tetanus diphtheria booster have NOT received the one with pertussis.

If a student has been exposed to a laboratory-confirmed, documented case of pertussis during course-related activities, they should inform the instructor/clinical coordinator/supervisor as soon as possible. The student will then be directed to have a medical evaluation. The student should fill out a Student Incident Report Form (<http://forms.quinnipiac.edu/IncidentReportForm/form.html>) (available online), which will be electronically routed to the department chairperson/program director. The student is directed to contact:

Occupational Health Plainville

440 New Britain Ave, Plainville, CT 06062

Tel: 860.827.6910

Fax: 860.747.8597

<https://thocc.org/services/occupational-health>

If on rotation out of state, the student should check with their preceptor, and follow their protocols. In the case where students are not under the policy, or there is any concern, the student should be evaluated at a nearby hospital-affiliated occupational medicine, urgent care center or primary care center.

Restrictions from clinical duties may occur; the CDC guidelines^{i, ii} recommend exclusion from duty for 5 days after initiating prophylaxis/treatment on any symptomatic healthcare worker after exposure. No restrictions for asymptomatic persons. Treatment may include prophylaxis with, erythromycin, azithromycin, or bactrim (Trimethoprim (TMP)/Sulfamethoxazole (SMX)) for 14 days. This will be addressed at the time of the evaluation; humans are not contagious immediately after an exposure.

Meningococcal Disease

Students in rotations may come in contact with patients infected with *neisseria meningitidis*, a common causative agent of one of the deadliest forms of meningitis. Although transmission from a patient to a healthcare worker is rare, unprotected contact with respiratory secretions can lead to infection. Because of the significant morbidity and mortality associated with the disease, students and healthcare workers with a known exposure are treated with prophylaxis. If a student has been exposed to a laboratory-confirmed, documented case of meningococcal meningitis during course-related activities, they should inform the instructor/clinical coordinator/supervisor as soon as possible.

If a student is exposed, they should inform their instructor/clinical coordinator/supervisor as soon as possible. The student should fill out

a **Student Incident Report Form**. The form will be electronically forwarded to the appropriate faculty and staff.

If on rotation out of state, the student should check with their preceptor, and follow their protocols. In the case where students are not under the policy, or there is any concern, the student should be evaluated at a nearby hospital-affiliated occupational medicine, urgent care center or primary care center.

The student should be directed to have a medical evaluation at:

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If out of state or at a distant location, the student should check with their preceptor and go to the local emergency room/urgent care center for initial evaluation and determination if prophylactic antibiotics are required.

The student should fill out a **Student Incident Report Form**, which will be electronically routed to the department chairperson/program director.

Restrictions from clinical duties may occur; students should follow the CDC guidelines (<https://www.cdc.gov/infectioncontrol/guidelines/healthcare-personnel/selected-infections/meningococcal-disease.html>) for Meningococcal Disease.

Prevention

It is our aim to prevent as many exposure incidents as possible by educating students properly and by reminding them to always remain aware of the risks as they perform their duties.

The following are guidelines for preventing student exposure incidents:

1. **Attend and listen** carefully at all OSHA training sessions.
2. **Obtain the full series** (3 injections over 6 months) of hepatitis B vaccine and check immunity (hepatitis B antibody in blood) one month after the last injection.
3. **Pay careful attention** to instructors and learn/practice good technique for phlebotomy, handling and disposal of needles and sharp instruments, surgical procedures, etc.
4. **Adhere to the principle of Universal Precautions**, which states that anyone's blood/Other Potentially Infectious Materials (OPIMs) may be potentially infectious and therefore everyone's blood and body fluids must be treated accordingly.
5. **Use personal protective equipment** (e.g., gloves, gowns, face mask) as required to protect yourself.
6. **Wash hands frequently** with antimicrobial soap under running water.
7. **Keep hands/fingers** away from face and eyes.
8. **Think about what you are doing. Most exposure incidents are due to carelessness!**

Appendices

- i Centers for Disease Control and Prevention, Guidelines for infection control in health care personnel, 1998. *AJIC American Journal of Infection Control*, 1998; 26: 289-354.
 - ii Centers for Disease Control and Prevention, Immunization of health care personnel, Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2011; 60 (no. 7).
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