



## **Post-Exposure Prophylaxis for Needlestick and Puncture Wounds**

Using routine practices when handling/working with human blood, body fluids and blood borne pathogens is the primary way to prevent possible occupational transmission of hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV), commonly known as blood borne pathogens. Hepatitis B vaccination prevents HBV infection.

An accidental exposure might put an employee/student at risk for a blood borne pathogens through a percutaneous injury, mucous membrane, or nonintact skin.

The risk of developing clinical HBV infection if the blood is both hepatitis B surface antigen (HBsAg) and HBeAg positive is 22%-31% but increases to 37%-62% for serologic infection. (MMWR 2001, Vol.50, No RR-11). HBV can survive in dry blood, at room temperature for at least 1 week. Risk of developing HCV is much lower. The average incidence of seroconversion is 1.8%. The average risk of developing HIV after an exposure is <0.3% from a needlestick injury and 0.09% from mucous membrane exposure.

All accidental exposures to blood or body fluids at risk (or potentially at risk) for blood borne diseases should be reported to Workplace Health Services immediately after first aid measures have been completed. If the Workplace Health Services is closed the employee or student should be sent immediately to the London Health Sciences Center (LHSC) emergency department. The exposed employee/student should be seen as soon as possible after the incident. The "risk" of the exposure will be assessed at the time of the initial assessment and a recommendation regarding post-exposure prophylaxis (PEP) will be given.

There are several different factors that determine the risk of exposure. They include: type of exposure (percutaneous, intact skin or mucous membrane), the extent of the injury (superficial or deep), type of device (hollow bore or solid needle), whether there was visible blood on the device, whether the source is known to be positive for HBV, HCV or HIV, and whether or not immediate wound care/follow-up has been done.

## **OBJECTIVES:**

- To provide an immediate and efficient response to individuals who have sustained accidental blood borne pathogen exposure.
- To provide education with current information on the risks and management of needlestick and puncture wound injuries.
- To provide prompt clinical assessment of the individual and where applicable to institute immediate post-exposure prophylaxis.
- To consult and advise the individual regarding the selection of post-exposure prophylaxis regime.
- To provide clinical follow-up to the individual by monitoring for possible complications or sero conversion.

## **PROCEDURE:**

- IMMEDIATE WOUND CARE: Wash the wound/exposure site immediately with soap and running water for at least 5 minutes. Flush mucous membranes/eyes with water only.
- IMMEDIATE COMMUNICATION WITH HEALTH SERVICES: Employee/student should contact Workplace Health Services immediately after wound care is complete. This will ensure efficient and rapid response the wound/exposure. If it is after hours report to LHSC UH emergency department.
- Receptionist will document employee/student upon arrival and they will refer individual immediately to the Occupational Health Nurse (OHN) in Workplace Health (WPH) or Nurse Manager in SHS if OHN unavailable.
- The nurse will take a detailed history of the incident (source known or unknown, type of exposure, extent of injury and whether or not there was visible blood on device), immunization history (in particular hepatitis B vaccination and tetanus) and any significant medical history and first aid measure taken.
- The nurse will provide counseling to injured individual to cope with normal anxieties associated with the injury.
- The nurse will contact UWO consulting physician and in collaboration with the injured individual, determine the best course of medical management.

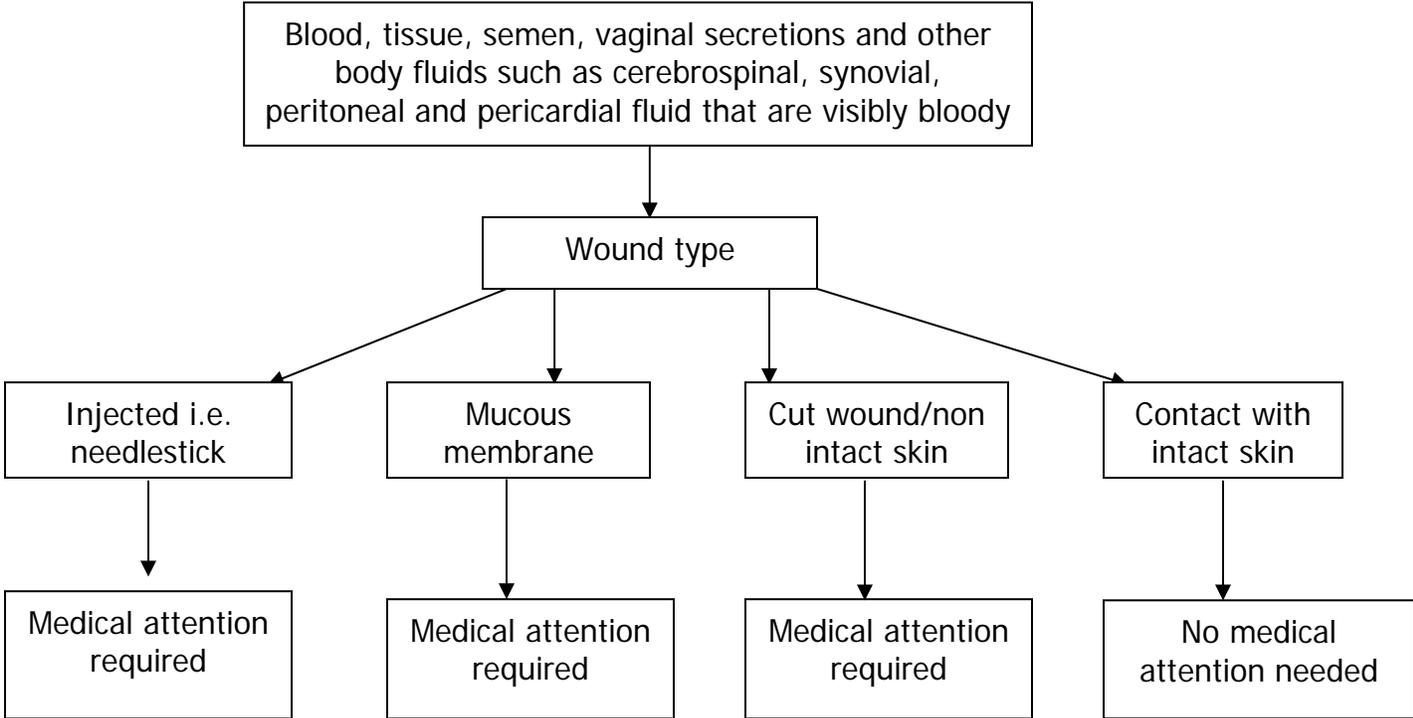
## **MEDICAL MANAGEMENT:**

- Source: If possible, screen the source for any history of HBV, HCV and HIV. Obtain consent and drawn blood on the source for HBV, HCV and HIV. DO NOT test discarded needles.
- Injured individual: Baseline blood for HIV, HCV, HBV and reference serum.
- **Possible HBV exposure:**
  - Blood test for anti-HBs for individuals who have been vaccinated
  - See appendix A
- **Possible HCV exposure:**
  - Baseline blood work anti-HCV and ALT
  - See appendix B
- **Possible HIV exposure:**
  - Baseline blood test for HIV (verbal consent) and at 6 weeks, 12 weeks.
  - See appendix C for post exposure prophylaxis (PEP) guidelines.
  - If recommended, PEP should be initiated as soon as possible (preferably within hours) (MMWR, 2005, vol.54, p.8) and should be administered for a 4 week period of time.
  - If PEP is given, baseline blood for CBC, platelet count, LFT, renal function tests, amylase and serum glucose is needed and repeated again 2 weeks after starting PEP.
  - Individual should follow-up in 72 hours after initiating PEP (new information about source may come available, stop PEP if source is HIV negative)
  - Provide education and counseling re: PEP and precautions to prevent secondary transmission (safe sex, avoid pregnancy).

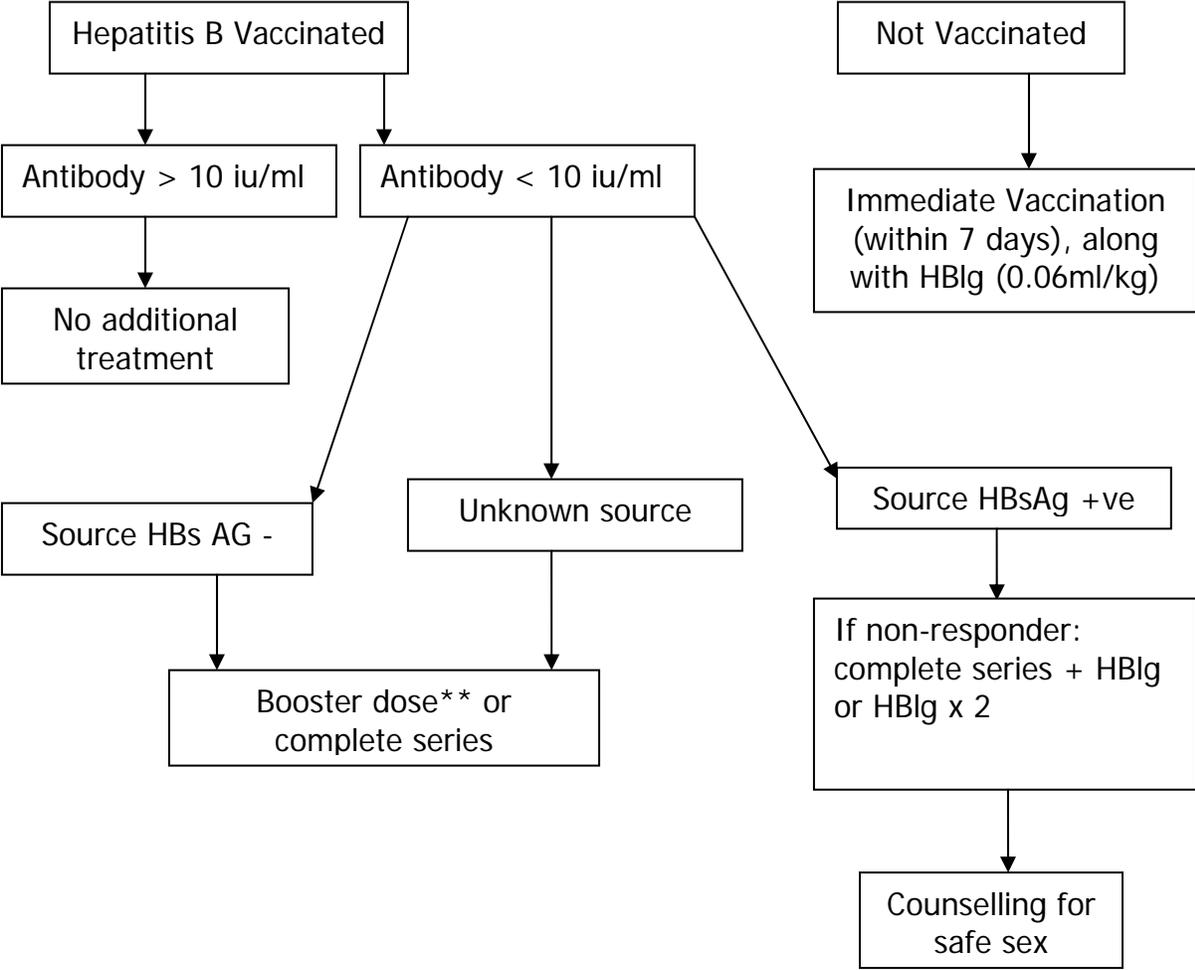
## **AFTER HOURS SERVICE:**

- The hours of services at the Workplace Health are from 8:30am-4:00pm, Monday to Friday with either the occupational health nurse or occupational health physician coverage. In case of an occupational exposure occurs outside of these hours or if the occupational health professional are not available, the worker should go to the nearest Emergency Department of the London Health Sciences Centre for assessment and treatment (if indicated) and report to Workplace Health on the next business day.

**Blood Borne Pathogen Triage**



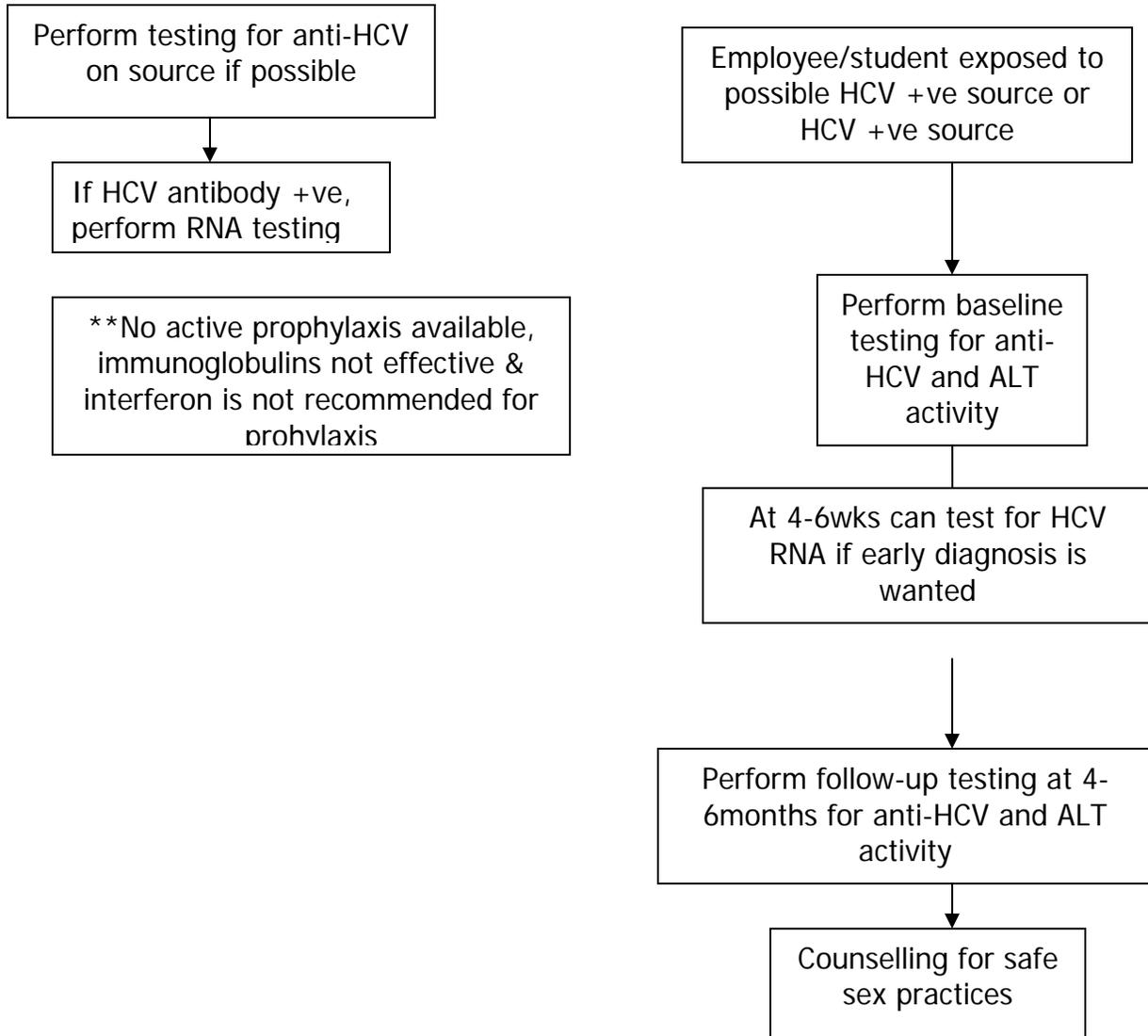
Management of Hepatitis B Exposure



\*\*Booster dose not required if individual has been demonstrated to have a titre of > 10IU/ml at any time

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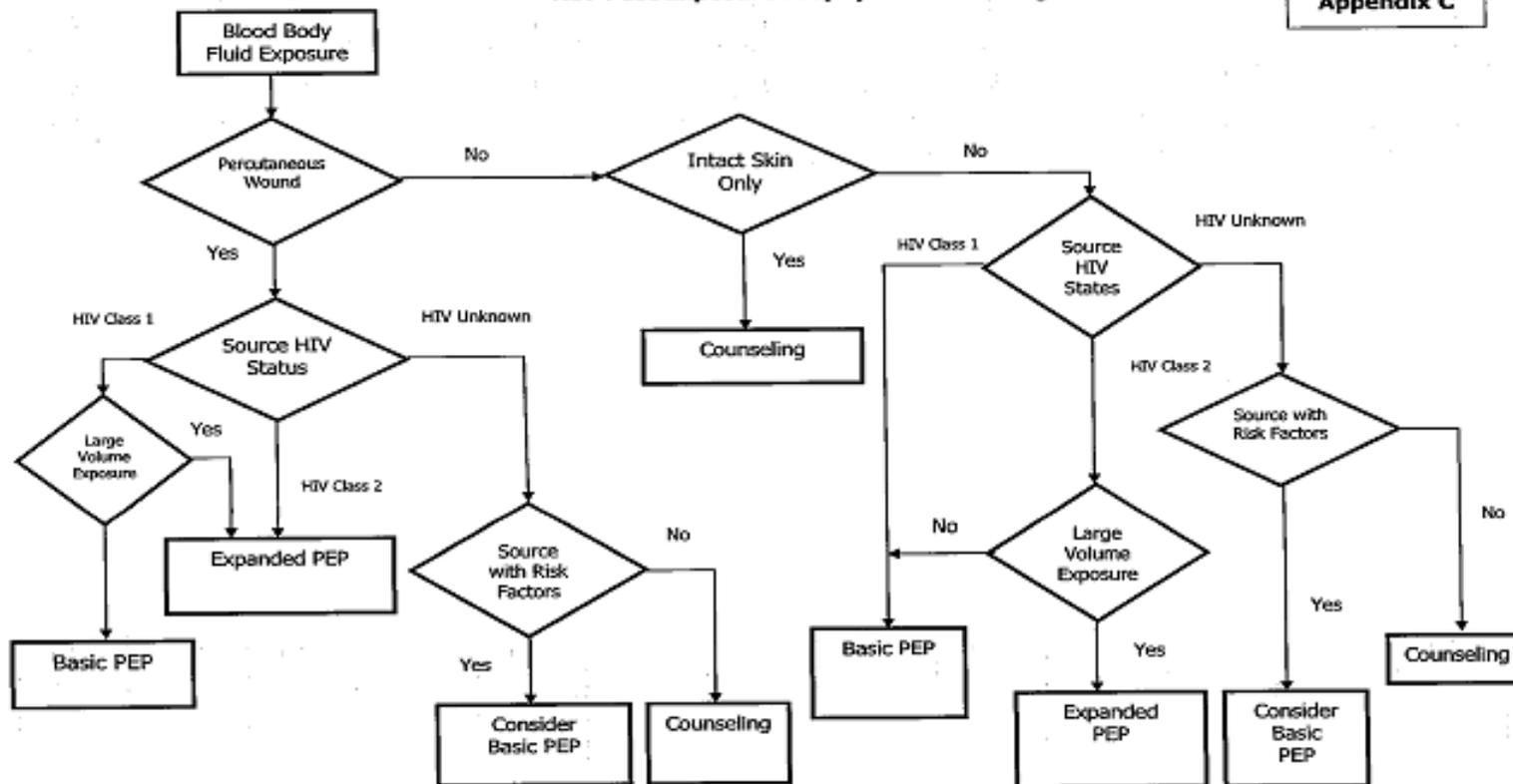
## Management of Hepatitis C Exposure



\*\*\*Employee/student should be referred to a specialist if an HCV infection is identified

### HIV Post Exposure Prophylaxis Flow Diagram

Appendix C



**Class 1. Asymptomatic or known low viral load.**  
**Class 2. Symptomatic, AIDS or known high viral load.**  
**Large Volume Exposure means more than a few drops of body fluid.**

### **Situations where expert consultation is advised:**

- Delayed reporting of incident
- Unknown source
- Known/suspected pregnancy/breastfeeding
- Toxicity to PEP

**HIV Basic PEP Regimens:** medication (Combivir: Zidovudine 300mg and Lamivudine 150mg) for a five day course is currently available at Workplace Health Services

### **HIV Expanded PEP Regimen:**

- Basic regimen + Kaletra (Lopinavir 200mg and Ritonavir 50mg) BID

\*PEP regimen can be modified after starting, if needed.

Approved By: Dr. S. SIU  
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### **Resources:**

Center for Disease Control and Prevention, MMWR, September 30, 2005/Vol. 54/No. RR-9

Center for Disease Control and Prevention, MMWR, June, 29, 2001/Vol. 50/No. RR-11

## Needlestick Post Exposure Prophylaxis Contact List

### Hospital Pharmacies:

St. Joseph's Health Care Centre

- In-Patient Pharmacy (Heather) ext 66194
- Out-Patient Pharmacy ext. 66194

### Infectious Disease Consultants

Dr. Ted Ralph

- LHSC – University Hospital

-Office

519-663-3452

-Fax

519-663-3062

Dr. Ole Hammerberg

- 520 Sarnia Road

-Office

519-432-5508

-Fax

519-433-3394

Dr. Bill Thompson

-LHSC-University Hospital

-Office

519-685-8500 ext 33849



**The University of Western Ontario**  
**Health Services**  
Workplace Health  
Student Health Services

**Medical Directive for Physicians or Delegates for Post Exposure Prophylaxis**

- Review with the employee/student the nature of the exposure (type of exposure, source material and source patient) and determine that a potentially significant exposure has occurred.
- Review with the employee/student the indications for post exposure prophylaxis. PEP should be initiated as soon as possible after the exposure.
- Discuss the medications recommended and review the side effect profile and dosing schedules with the employee/student (provide fact sheets).
- If the employee/student decides to proceed with prophylaxis, select the appropriate regimen, given the risk. Establish that there are no relative contraindications to the use of these drugs (pregnancy, liver, renal or hematological disease, or concurrent medications). If a relative contraindication exists, or if source patient has been extensively pretreated with AZT/3TC consider consultation with Infectious Diseases or HIV consultant.
- Obtain verbal consent for HIV test and draw blood for baseline HIV antibody, CBC, tests for liver and renal function, and amylase.
- Initiate counselling regarding precautions to prevent secondary transmission; further counselling to be undertaken by Health Services (e.g. safe sex practices).
- Provide standard Hepatitis B and C post-exposure counselling and tetanus, as per routine.
- Arrange follow-up appointment with Health Services within 48-72 hours.
- Dispense PEP medication "kit" (includes 5 days of medications and prescriptions. Prescriptions should include 4 weeks of medication - with 23 days to be dispensed to employee/student and 4 days to be dispensed to Health Services Pharmacy to replace the supply being provided to the HCW.
- Document in chart the nature of the exposure, the information the employee was given, the investigations performed, the employee's decision to begin therapy, and the therapy dispensed.
- Ensure arrangements for appropriate follow up are arranged.

Physician Signature \_\_\_\_\_ Date: \_\_\_\_\_

Patient Signature \_\_\_\_\_ Date \_\_\_\_\_



**University of Western Ontario**  
**Health Services**  
Workplace Health  
Student Health Services

**Occupational Exposure to Human Immunodeficiency Virus (HIV)**

**Consent to Post Exposure Prophylaxis (PEP)**

I, \_\_\_\_\_, may have been exposed to human immunodeficiency virus (HIV), the virus which causes AIDS. The risk of infection from my exposure is not known. However, should HIV infection occur, the outcome is likely to be ultimately fatal. Health Services has offered me treatment of \_\_\_\_\_

\_\_\_\_\_ which might reduce my risk of infection. The use of these drugs in this situation is called post exposure prophylaxis (PEP).

There is no proof that drug treatment after HIV exposure will prevent infection. A recent case-control study by the Centre for Disease Control and Prevention (CDC) showed that the infection risk among health care workers who took PEP after exposure was about 80% lower than the risk among those who did not get treated.

**Procedures**

My blood will be taken from a vein and tested for:

- complete blood count
- platelet count
- liver function tests
- kidney function tests
- amylase (pancreatic enzyme)
- antibodies to HIV

My name and personal identifiers will not be used on the blood tubes - coded labels will be used. Only the Occupational Health / Health Services physician and nurses will know the label code and my identity.

I will be asked to use contraception during the four weeks of treatment and for the duration of surveillance (both men and women) 6 months. I have been informed that safe sex with latex condom can be used if accompanied by spermicidal jelly, not to donate blood, body fluids, or organs and not to share toothbrushes or razors. I will have my urine tested for pregnancy, and will not be given PEP if I am pregnant (women only). I will be asked to contact my clinician immediately if I learn I am pregnant while taking PEP.

I will receive a supply of PEP \_\_\_\_\_ and instructions for taking these medications for 4 weeks.

I will return to Health Services at 2, 4 and 6 weeks, and at 3 and 6 months after my exposure. Blood tests will be repeated at each visit or more often if I develop side effects.

If I develop side effects from the treatment or abnormal laboratory tests, the dosages of PEP treatment may be lowered or the drugs may be discontinued by the Health Services physician.

I will be offered pre- and post-test counselling about the meaning of HIV and other tests results, and will be given advice about medical referral if indicated.

## Risks and Discomfort

There is a risk of serious side effects associated with the PEP drugs being offered. Potential side effects from the medications are:

Common - headache, muscle pain, tiredness, loss of appetite, trouble sleeping, nausea, vomiting, diarrhea and abdominal pain

Uncommon - fever, vomiting, dizziness, diarrhea, anemia, low white blood count, low platelet count, hepatitis (liver inflammation), muscle inflammation

The risks of drawing blood include temporary discomfort from the needle stick, bruising and rarely, infection.

Knowledge of my HIV infection status may cause psychosocial risks to me. Being tested for HIV may cause anxiety regardless of the test results. Receiving positive test results may cause severe anxiety and may make me consider changes in my plans for the future. If I test positive and other people learn about the result, I may have trouble obtaining insurance or employment.

This exposure is directly related to my duties while working at \_\_\_\_\_  
\_\_\_\_\_. A submission to WSIB or The Ministry of Education and Training  
will be completed on my behalf for payment of the above treatment(s).

## Alternatives

I choose not to receive post exposure prophylaxis with one or more of the available drugs, I will sign a statement indicating my refusal. Whether I agree to take PEP or not, I will be followed by Health Services in the same manner with counselling and HIV testing at baseline, 6 weeks, 3 months and 6 months.

This protocol was explained to me by \_\_\_\_\_, (Physician / Nurse)  
and my questions have been answered.

I agree / do not agree to receive post-exposure prophylaxis with \_\_\_\_\_  
\_\_\_\_\_.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Subject's Name

\_\_\_\_\_  
Subject's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Person Obtaining Consent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Interpreter (if used)