

**GUIDELINES FOR THE MANAGEMENT OF BLOOD OR BODY  
FLUID EXPOSURE DURING INTERNATIONAL  
ACADEMIC EXPERIENCES BY UNIVERSITY OF ALBERTA  
HEALTH SCIENCES STUDENTS AND FACULTY**

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Prepared by the:

International Standing Committee's Working Group: **Guidelines for the Management of Blood or Body Fluid Exposure During International Academic Experiences by University of Alberta Health Sciences Students and Faculty**

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**Guidelines for the Management of Blood or Body Fluid Exposure During**

## **International Academic Experiences by University of Alberta Health Sciences Students and Faculty**

The Health Sciences Council (HSC) at the University of Alberta recognizes the many benefits that Health Sciences students and faculty derive from studying and working abroad. The HSC is also aware of potential risks associated with residing outside of Canada, including reduced access to health care. It is therefore recommended that students and faculty be required to sign a waiver acknowledging and accepting the risks associated with an international exchange experience. Health Sciences students and faculty who choose to study or work abroad may be at increased risk of exposure to blood borne pathogens (eg. Hepatitis B Virus, Hepatitis C Virus, and Human Immunodeficiency Virus) and have reduced access to drug therapy (in the form of post exposure prophylaxis [PEP] and counselling). The purpose of these guidelines is to partially bridge the gap between the standard of PEP in Canada and the standard in other countries based on authoritative recommendations (Centers for Disease Control [CDC], 1998; Health Canada, 1997; Médecins Sans Frontières, 2000).

### **1. Exposure to Blood or Body Fluids**

Blood or body fluids (BBF) that may contain blood-borne pathogens are considered to be serum, plasma, any fluid containing visible blood, vaginal fluid, semen, and amniotic, pleural, peritoneal, synovial or cerebrospinal fluids. Tears, saliva, urine, and faeces are NOT considered to transmit blood borne pathogens, with the exception of Hepatitis B virus (HBV), which may be transmitted via saliva.

Exposure to BBF may increase the risk of transmission of blood-borne pathogens, principally Hepatitis B virus (HBV), Hepatitis C virus (HCV), and Human Immunodeficiency virus (HIV). Estimated infection risks of blood/body fluid exposure are listed in Appendix A.

- The transmission of HBV is almost entirely preventable by immunization (Health Canada, 1997). As a result, health sciences students are routinely advised to be vaccinated at the start of their clinical programs. Without immunization, the risk of seroconversion to HBV post-exposure is 6-30% (Collins & Kennedy, 1997).
- The Hepatitis C virus can be transmitted by blood or body fluid exposures (Collins & Kennedy, 1997), and currently there is no pre- or post- exposure prophylaxis available to prevent its transmission.
- The risk of HIV transmission following BBF exposure is on average 0.3%, but can be higher (CDC, 1998). In countries with the highest prevalence of HIV, up to 25% of the adult population may be infected. The known prevalence of HIV in different countries is available from the World Health Organization ([www.who.com](http://www.who.com)). In such countries, a source individual should be assumed positive unless confirmed to be HIV negative. As seroprevalence of HIV is highly variable in populations around the world, students and faculty must familiarize themselves with HIV prevalence in the countries in which they choose to study or work.

## A. Levels of risk

Level of Risk	Nature of Injury	Determinants of Level of Risk	Immediate Actions and Post-Exposure Prophylaxis (PEP)
Higher Risk	<ul style="list-style-type: none"> <li>Breaks the Skin</li> <li>Involves fresh, still liquid blood.</li> <li>Involves a hollow bore needle.</li> </ul>	<ul style="list-style-type: none"> <li>Depth of needlestick or sharps injury, eg. deep injury such as an intramuscular injury</li> <li>Volume of blood injected, eg. visible blood on the source needle or needle derived from the blood vessel of the source individual.</li> <li>Stage of HIV in source individual, eg. advanced HIV disease in the source individual</li> <li>Needle involved an IV or arterial line.</li> </ul>	<p><b>PEP RECOMMENDED</b></p> <ol style="list-style-type: none"> <li>Allow wound to bleed freely</li> <li>Wash area with soap and water for 10 minutes, rinsing frequently.</li> <li>Disinfect wound with Betadine x 5 min. or 70% alcohol x 3min.</li> </ol>
Lower – but not zero risk	<ul style="list-style-type: none"> <li>Blood or blood contaminated body fluids spashed onto mucous membranes (eg. eye, mouth) OR freshly cut, weeping or open skin</li> <li>Solid needle injury through a glove (eg. suture needle)</li> </ul>	<ul style="list-style-type: none"> <li>Volume of blood splashed</li> <li>Depth of injury</li> </ul>	<p><b>PEP SUPPORTED BUT NOT ACTIVELY RECOMMENDED</b></p> <ul style="list-style-type: none"> <li>Rinse exposed area for 10 min. with isotonic saline solution or clean water.</li> <li>As above – (in higher risk section)</li> </ul>
Negligible Risk	<ul style="list-style-type: none"> <li>Source individual has tested HIV seronegative</li> <li>Blood or body fluid comes in contact with intact skin.</li> <li>Tears, urine, saliva or faeces come in contact with skin or mucous membranes</li> </ul>	<ul style="list-style-type: none"> <li>Testing was done using an internationally accepted enzyme immuno assay (EIA) or similar kit</li> <li>This may be a potential risk for other infections (see <a href="http://www.infectnet.com">www.infectnet.com</a>).</li> </ul>	<p><b>PEP NOT RECOMMENDED OR SUPPORTED</b></p> <ol style="list-style-type: none"> <li>Verify that area affected is unbroken skin.</li> <li>Wash area with soap and water for 10 minutes, rinsing frequently</li> </ol>

## 2. Post-Exposure Prophylaxis to Prevent Transmission of HIV

Although data are limited, animal and human studies suggest that Post-Exposure

Prophylaxis (PEP) may be effective in reducing the risk of transmission of HIV following exposure. Research studies investigating PEP in HIV infected persons are listed in Appendix B.

To be effective PEP must be initiated as soon as possible and no later than 96 hours following exposure (Alberta Health, 1998). Although there are no data to support the use of other antiretroviral drugs in addition to AZT, studies from HIV-infected individuals have shown that the use of combination therapy is more effective than monotherapy in reducing viral load. Based on the theoretical additive effect, at least two, and in some cases three, antiretroviral agents are recommended for use as PEP (CDC, 1998). The addition of a third antiretroviral drug (i.e. a protease inhibitor [PI]) is recommended only for high-risk exposures, as PI use not only increases the cost considerably, but also the risk of adverse effects of PEP. The use of PIs by students or faculty during an international exchange is not routinely advocated.

Combivir® (a fixed combination of zidovudine 300 mg and lamivudine 150 mg) is the recommended first-line of defence for PEP. The duration of treatment is USUALLY four weeks. The dose and side effects of Combivir® are shown in Appendix C.

### **3. What to do Before Students/Faculty Travel**

The HSC recommends that all Health Sciences students and faculty who choose to study or work abroad:

1. Complete the following well before anticipated travel:
  - a. Undergo comprehensive medical and dental evaluations.
  - b. Contact the International Centre for outgoing orientation. Complete the Outgoing Exchange Student Critical Information Reference Card.
  - c. Contact the Capital Health Authority Travel Clinic at (780) 413-5745 for immunizations required and other relevant travel information.
2. Search for further information regarding international travel:
  - [www.cdc.gov](http://www.cdc.gov)
  - [www.langara.bc.ca/africa/safety.html](http://www.langara.bc.ca/africa/safety.html)
  - [www.hc-sc.ca/hbp/lcdc](http://www.hc-sc.ca/hbp/lcdc)
  - [www.worldtravelcenter.com](http://www.worldtravelcenter.com)
  - [www.cdc.gov/hiv/dhap.htm](http://www.cdc.gov/hiv/dhap.htm)
  - [www.infectnet.com](http://www.infectnet.com)
  - [www.cdc.gov/ncidod/hip/faq.htm](http://www.cdc.gov/ncidod/hip/faq.htm)
  - [www.unaids.org/](http://www.unaids.org/)
  - [www.nafsa.org/safetyabroad.com/handbook/](http://www.nafsa.org/safetyabroad.com/handbook/)
  - [www.cpha.ca/english/links/hivaids.htm](http://www.cpha.ca/english/links/hivaids.htm)
  - <http://itsa.ucsf.edu/warmline/free/pepline.html>

(PEPLine telephone 1-888-HIV-4911)  
<http://voyage.dfait-maeci.gc.ca>  
[www.who.ch](http://www.who.ch)

3. Obtain a prescription for a starter kit for PEP (one week course of AZT and 3TC as Combivir®, a fixed combination of zidovudine 300 mg and lamivudine 150 mg) from University Health Services. The prescription can only be filled at the University of Alberta Hospital or Royal Alexandra Hospital outpatient pharmacies. Keep the prescription in your carry-on luggage. Determine expiry date of PEP.
4. Prepare a sterile travel kit as a preventative measure. <sup>1</sup>
5. Obtain instructions for initiation of PEP (see flow chart diagram in Appendix D).
6. Request a contact telephone number from the Faculty to call in the event that PEP has been initiated. Appropriate contact persons and contact phone numbers are: the Faculty Information Exchange Liaison Officer (IELO) and the Capital Health Link phone number (24 hrs./day, 7 days/week) (780) 408-5465.
7. Request faculty contact person to contact Risk Management regarding insurance coverage and WCB coverage for out of country travel.
8. Carry a Worker's Compensation Board (WCB) form in case reimbursement of injury-related costs is required. Web site access: [www.wcb.ab.ca/html/c060form.html](http://www.wcb.ab.ca/html/c060form.html)

#### **4. Procedure following BBF Exposure**

1. Determine status of source individual, if possible (eg. review medical records/charts, query other health personnel). Ensure this is done with respect and sensitivity to the source individual. Look for documentation of: fever, sore throat, enlarged lymph nodes, skin rash, headache, nausea, decreased appetite, muscle or joint pain, chronic diarrhea, weight loss, cough greater than one month, oral or esophageal thrush (candidiasis), or retinitis.

Look for history of commercial sex work, non-prescription intravenous drug use, or high risk sexual activity.

2. If feasible, seek testing for yourself.

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<sup>1</sup> Prepare a sterile travel kit that includes: 5 ml. syringes, 21 G needles, 25 G needles, skin closures, IV drip needles, curved cutting needle, injection swabs and disposable gloves.

3. Start PEP as soon as possible and before 96 hours have passed (Alberta Health, 1998).
4. Inform designated Faculty person or Faculty IELO. In an event when neither can be reached, contact the Capital Health Link (780-408-5465). The Faculty contact person or IELO should assist with facilitating further management, counselling, and possibly evacuation.
5. The IELO will follow the faculty-determined protocol and can contact the Occupational Health Nurse, or an expert physician for further assistance. It is recommended that the University of Alberta Occupational Health Nurse be informed that a blood or body fluid exposure has occurred.
6. Continue PEP every 12 hours until decision is made in consultation with a physician. If necessary, contact the Canadian consulate/embassy.
7. Retain all health care documents and receipts.
8. Request, through the IELO, that a WCB claim be filed immediately by the respective Faculty (Online form: [www.wcb.ab.ca/html/c060form.html](http://www.wcb.ab.ca/html/c060form.html)).
9. Complete the WCB Workers' Report of Accident form and submit as directed by the IELO.

## **5. Follow-Up**

If a decision is made to complete a course of treatment, the student or faculty member must ensure that the remaining steps are taken:

1. follow-up and counselling obtained from a physician (eg. family physician, University Health Centre physician, or infectious disease physician).
2. a complete blood count is conducted at two weeks after initiation of treatment
3. HbsAg, anti-HbsAg, HIVAb, and HCVAb testing is carried out
4. HCVAb and HIVAb testing is conducted up to six months post injury/exposure
5. safer sexual practices are followed

## REFERENCES

Centers for Disease Control. (1998). Public health service guidelines for the management of health-care worker exposures to HIV and recommendations for postexposure prophylaxis (MMRW Publication No. 47 [RR-7]). Washington, DC: US Government Printing Office.

Collins, C.H., & Kennedy, D.A. (1997). Occupational blood-borne infections. CAB International, Oxford, UK.

Alberta Health. (1998). Alberta Health standards for post-exposure follow-up and prophylaxis of bloodborne pathogens. Unpublished document.

Health Canada. (1997). An integrated protocol to manage health care workers exposed to bloodborne pathogens (Canada Communicable Disease Rep. Vol. 23S2).

Médecins Sans Frontières. (2000). Post exposure prophylaxis (PEP): A guideline in case of accidental exposure to blood. Unpublished manuscript.

## APPENDIX A

### Estimated Infection Risks of Blood/Body Fluid Exposure

<b>Agent</b>	<b>Percutaneous Exposure</b>	<b>Mucous Membrane/Non Intact Skin Exposure</b>
<b>HIV</b>	<b>0.3%</b>	<b>0.1%</b>
<b>HCV</b>	<b>1-10%</b>	<b>&gt;0%***</b>
<b>HBV**</b>	<b>6 – 30%</b>	<b>&gt;0%***</b>

(Average percentages. Adapted from Collins & Kennedy, 1997)

\*\* Unimmunized

\*\*\* Less than percutaneous but not well quantified; case reports exist



## APPENDIX B

1. A retrospective case control study in health care workers showed that zidovudine as PEP reduced the risk of HIV transmission by approximately 80%.

Cardo, D.M., Culver, D.H., Ciesielski, C.A., Srivastava P.U., Marcus R., Abiteboul D., Heptonstall J., Ippolito G., Lot F., McKibben P.S., Bell D.M. (1997). A case-control study of HIV seroconversion in health care workers after percutaneous exposure. New England Journal of Medicine, 337, 1485-1490.

2. Data from the ACTG 076 trial suggested that administration of AZT to HIV-infected mothers and their newborns, reduced the risk of perinatal transmission of HIV by 67%.

Connor, E.M., Sperling, R.S., Gelber, R., Kiselev P., Scott G., O'Sullivan M.J., VanDyke R., Bey M., Shearer W., Jacobson R.L., Jimenez E., O'Neill E., Bazin B., Delfraissy J.F., Culnone M., Coombs R., Elkins M., Moya J., Stratton P., Balsley J. (1994). Reduction of maternal-infant transmission of human immunodeficiency virus type 1 with zidovudine treatment. New England Journal of Medicine, 331, 1173-1180.

## APPENDIX C

### **Combivir® (zidovudine 300 mg and lamivudine 150 mg)**

#### **Dosage**

One tablet twice daily taken with or without food. Treatment should be initiated as soon as possible after exposure and continued for four weeks.

#### **Side effects:**

The primary side effects of Combivir® are due to zidovudine (AZT) and include headache and nausea. Nausea may be decreased by taking Combivir® with food. Agents such as acetaminophen, acetylsalicylic acid (ASA), or ibuprofen may be taken for headaches. These side effects usually go away after 2-3 weeks as the body adjusts to the medication. Other side effects of AZT include reversible bone marrow suppression (i.e. anemia and low WBC), however these side effects typically develop > 4 – 6 weeks after starting therapy. The 3TC is generally well tolerated, however potential side effects include abdominal pain, diarrhea, and headache.

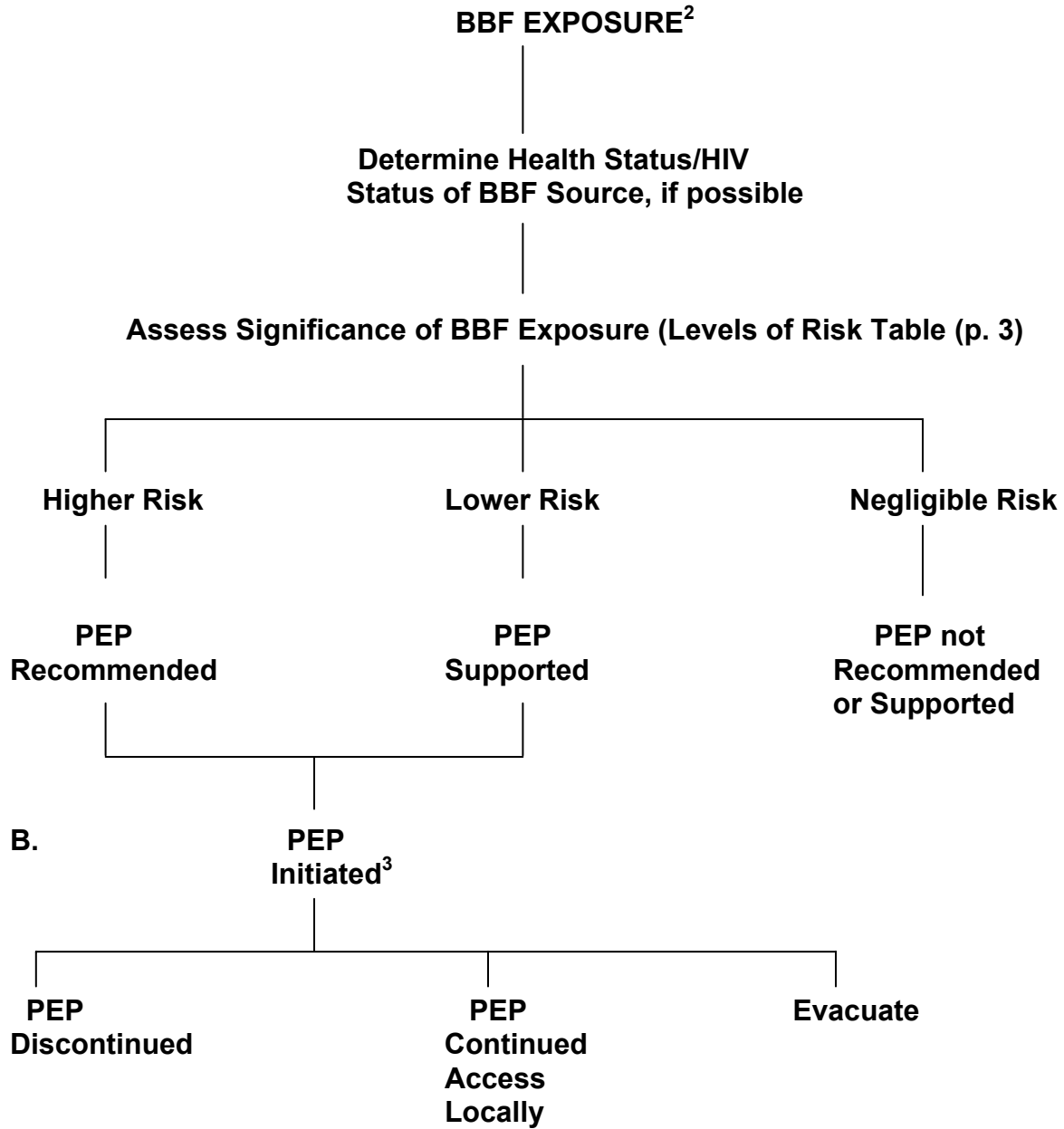
Limited data are available regarding the safety of antiretroviral drugs in pregnancy, especially during the first trimester. Antiretroviral drugs should be used for PEP in women who are known or are suspected to be pregnant if the potential benefits outweigh the risks.

#### **Storage of Medication**

Combivir® should be stored in a cool (15 – 30°C) dry place protected from light. Do not store in a bathroom or kitchen as heat and moisture may cause medication to lose potency.

**APPENDIX D**

**PROTOCOL FOR MANAGEMENT OF BLOOD OR BODY FLUID (BBF) EXPOSURE**



<sup>2</sup> Wash/Disinfect wound/site (Levels of Risk Table p. 3)

<sup>3</sup> Contact local supervisor, University of Alberta faculty, or IELO to determine on-going need for PEP.  
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