A Guide to the Management of Blood-Borne Exposures
February 2013

I. Assessment:

A. Exposed person (victim):

- Is the person vaccinated against hepatitis B – when, how many doses? Have they had a titre drawn – when and what was the result? *(Anti-HBs of greater than or equal to 10 IU/L is considered immune)*
- Does the person have any immunocompromising medical conditions? (*Some conditions can result in loss of vaccine-induced immunity to hepatitis B)*
- Is the person known to have a blood borne infection?
- For hand-related needlestick injuries, was the person wearing gloves? *(There is a decreased risk of infection if poked through gloves)*
- When was his or her last tetanus shot? *(Consider if tetanus prophylaxis is needed)*

B. Exposure:

Needlestick:

- In what setting did the exposure occur? Is the setting frequented by those at high risk for blood-borne infections?
- When did the exposure occur?
- Where on the body was the exposure?
- Was it a hollow bore or solid needle?
- How deeply did the needle penetrate?
- When was the needle last used?
- For what purpose was the needle last used? Was it in an artery or vein?
- Was there visible blood on the needle that was present from before the exposure?

Mucous membrane and non-intact skin:

- Was the exposure in the eye, mouth or nose?
- Was the exposure on non-intact skin? Was there a large or small break in the skin?
- How much blood was involved in the exposure?

Bite:

- Did the bite break the skin?
- Was there blood in the biting person's mouth?
- Did blood from the bitten person get into the biting person's mouth? (If so, the bitten and biting people are both exposed and source people)

Note: Sexual assaults can also be followed-up using this protocol.

C. Source person:

- Is the source person known?
- Does the source person have any known blood-borne infections – HIV, hepatitis B, hepatitis C?
- Does the source person have any known risk factors for blood-borne infections e.g. illicit drug use, multiple sexual partners, man who has sex with men, blood transfusions particularly prior to 1992, tattoos, piercing, dialysis patient, from a country with high rates of infection
- Name, address, phone number etc. of source patient

II. Initial blood testing for the exposed person and the source person:

Blood work should be ordered on both the source and exposed people as follows:

- HBsAg — Hepatitis B surface antigen
- anti-HBs — Antibody to hepatitis B surface antigen
- anti-HBc — Antibody to hepatitis B core antigen
- HIV — Human immunodeficiency virus
- anti-HCV — Antibody to hepatitis C
- ALT — Alanine aminotransferase

All blood work should be ordered STAT on the source patient. The hepatitis B blood tests (HBsAg, Anti-HBs, Anti-HBc) should be ordered STAT on the exposed patient.

III. Treatment decisions for the exposed person:

A. Care of exposure site and tetanus prophylaxis:

Thoroughly wash the wound with soap and water. Flush mucous members with water. Give appropriate tetanus prophylaxis (see the Canadian Immunization Guide (CIG) Evergreen Edition online at http://www.phac-aspc.gc.ca/publicat/cig-gci/index.html)

B. HIV:

Follow Centers for Disease Control and Prevention (CDC). Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis. MMWR. 2005;54(RR-9):1-17. http://www.cdc.gov/mmwr/PDF/rr/rr5409.pdf .This document provides excellent information on the management of HIV post-exposure prophylaxis including information on the drugs to use, adverse effects, and monitoring.

Table 1 and 2 (page 3) of this document provide the protocol for how to manage a potential HIV exposure. Post exposure prophylaxis should begin as soon as possible if indicated and should be taken for four weeks.

C. Hepatitis B:

Follow Public Health Agency of Canada. Canadian Immunization Guide Evergreen Edition online at http://www.phac-aspc.gc.ca/publicat/cig-gci/index.html . The Hepatitis B chapter of the Canadian Immunization Guide provides excellent information on the use of the hepatitis B vaccine. The use of Hepatitis B Immune Globulin is also described.
HBIg should be given as soon as possible if indicated– optimally within 48 hours of the exposure. Its efficacy is unknown if given more than 7 days after a blood-borne exposure.
For post-exposure management of sexual contacts, if should be given within 14 days.

D. Hepatitis C:

No postexposure management is available.

Note: Advise exposed person to ensure that all appropriate incident reports, worker compensation forms and other relevant forms are completed.

IV. Precautions for Reducing Transmission of Blood-borne Infections:

The exposed person should be advised of the appropriate precautions to prevent transmission of blood-borne infections in case they have become infected. These include safer sex precautions and not sharing needles, syringes, other drug related equipment, toothbrushes, razors, scissors etc**. These precautions should be followed until the patient completes their testing as outlined below and is found to be uninfected.** The precautions are summarized in a handout for the patient titled Precautions for Reducing Transmission of Blood Borne Infections.

V. Follow-up testing for the exposed person:

A. HIV:

Follow-up HIV testing should be done at 3 weeks and 3 months after the exposure.

B. Hepatitis B:

The following tests should be done for hepatitis B unless the patient is already known to be immune or a carrier:

- HBsAg Hepatitis B surface antigen
- Anti-HBs Antibody to hepatitis B surface antigen
- Anti-HBc Antibody to hepatitis B core antigen

If the patient is undergoing hepatitis B vaccination, check their blood 1 month after the completion of the vaccine series.

If the patient is not immune or a carrier and was not vaccinated, check their blood at 6 months after the exposure.

C. Hepatitis C:

Check their blood for anti-HCV and ALT at 6 weeks, 3 months and 6 months after the exposure. If the exposure was high risk and an earlier confirmation of infection is warranted, HCV RNA by PCR testing can be done 8 - 10 weeks post exposure. The HCV RNA Requisition form can be printed from the Public Health Ontario website

Precautions to prevent transmission should be followed until all tests come back negative.

VI. Extra tips:

A. Where do we obtain the Hepatitis B Immune Globulin, hepatitis B vaccine and antiretroviral drugs?

- **Hepatitis B Immune Globulin:** Available from the hospital emergency departments; Free to the patient.
- **Hepatitis B vaccine** - Provided to health care providers from the Middlesex-London Health Unit (519-663-5317 ext. 2236) or available at the Health Unit Immunization Clinic. Free to the patient.
- **Antiretroviral drugs** - Small supply available in hospital emergency departments that is intended to begin therapy. Script to be issued to the patient. Patient or employer must pay. Private insurance drug plans may cover these costs. Note that these drugs may be very costly.

B. How do I monitor a patient on antiretroviral drugs?

Patients on antiretroviral drugs should be advised of the adverse effects associated with their drugs and to report to their physician if these symptoms develop. The patient should have a minimum of a complete blood count (CBC), liver functions and renal functions done initially and two weeks into the course of treatment. Additional tests should be ordered depending on the type of drug the patient is on. See CDC document, page 10, http://www.cdc.gov/mmwr/PDF/rr/rr5409.pdf . The patient should be assessed clinically at two weeks into therapy. It is prudent to prescribe only two weeks of drug at a time. This will ensure that the patient comes back for a reassessment two weeks into the course and will avoid wasting money if the patient cannot tolerate the drugs.

C. Is there mandatory testing of the source person in Ontario?

In Ontario, there is legislation that states that the source person can be ordered to be tested if the exposed person was exposed as a result of being a victim of a crime or was involved in providing emergency health care services or emergency first aid. For information on mandatory blood testing, visit the health unit website on mandatory blood testing section

D. How are bites managed?

If a bite breaks the skin then it is considered a potential blood-borne exposure which can be managed as follows: **Note:** more than one of the following may occur in a biting incident.

- If there is **no blood** involved, follow the above protocol **only for hepatitis B** with the bitten person as the exposed person (victim) and the biting person as the source. Saliva without blood can only transmit hepatitis B and this only occurs very infrequently. There is no risk of HIV or hepatitis C.
- If there is **blood in the biting person's mouth before the bite**, following the above protocol for all blood-borne diseases with the bitten person as the exposed person (victim) and the biting person as the source.
- If **blood from the bitten person got into the biting person's mouth**, follow the above protocol for all blood-borne diseases with the biting person as the exposed person and the bitten person as the source.

Consider the need for prophylactic antibiotics to prevent local infections. See the 2012 American Academy of Pediatrics, Red Book, 29th Edition. Pages 203-206.

E. What assistance can the Middlesex-London Health Unit provide?

- The Health Unit is available to assist with follow-up of the source patient. The Health Unit will work with the source patient to obtain risk factor information and consent for HIV, hepatitis B and hepatitis C testing. With this information, often post exposure prophylaxis can be avoided or discontinued.
- The Health Unit can also provide you with the hepatitis B vaccine or the patient can receive the remaining doses in the series at the Health Unit's walk-in Immunization Clinics. The Immunization Clinic is open Mon, Wed, Fri 9am-4pm, and the first and third Wednesday of the month 9am-7pm. No appointments or health cards are needed.

The Health Unit is also available for consultation regarding blood-borne exposures. **We can be reached at 519-663-5317 ext. 2330, after hours 519-675-7523.**

Resources for HIV

Centers for Disease Control and Prevention (CDC). Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis. MMWR. 2005;54(RR-9):1-17.
http://www.cdc.gov/mmwr/PDF/rr/rr5409.pdf

Public Health Agency of Canada (PHAC). Human Immunodeficiency Virus. HIV Screening and Testing Guide. 2012