MIDDLESEX-LONDON HEALTH UNIT
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A Guide to the Management of Blood-Borne Exposures
May 2019

I. Assessment:

A. Exposed person:

- 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 bloodborne 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?
- Does the source person have any known risk factors for blood-borne infections e.g.?
  - Illicit drug use, multiple sexual partners, men who have sex with men, from a country with high rates of infection, history of incarceration, blood transfusions particularly prior to 1992, tattoos, piercing, dialysis patient
- Name, address, phone number etc. of source person

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

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, refer to the Canadian Immunization Guide for Post-exposure prophylaxis (PEP) recommendation.

B. HIV:

The Canadian guidelines for PEP provides excellent information on the management of HIV PEP including information on the timing and duration of PEP, choice and number of antiretroviral drugs used for PEP.
PEP should begin as soon as possible and no longer than 72 hours if indicated and should be taken for four weeks (28days).

C. Hepatitis B:

The Public Health Agency of Canada- Canadian Immunization Guide Hepatitis B vaccine chapter for post exposure immunization. If indicated, HBIg should be administered within 48 hours after exposure. The efficacy decreases significantly after 48 hours, but may be given up to 7 days after exposure (Canadian Immunization Guide, 2018).
For post- exposure management of sexual contacts, it may be given up to 14 days following the exposure (Canadian Immunization Guide, 2018).

D. Hepatitis C:

There is currently no PEP 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 exposed person completes their testing as outlined below and is found to be uninfected.**

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 unless the exposed person 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 exposed person is undergoing hepatitis B vaccination, check their blood 1 month after the completion of the vaccine series.

If the exposed person 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. 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 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 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.

B. 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 exposed person.
- **Hepatitis B vaccine** – See your health care provider. Vaccine is available for free to high risk individuals. See Table 3: High Risk Vaccine Programs of the publicly funded immunization schedules for Ontario.
- **Antiretroviral drugs** - Small supply available in hospital emergency departments that is intended to begin therapy. Script to be issued to the exposed person. Exposed person or employer must pay. Private insurance drug plans may cover these costs. Note that these drugs may be very costly.

C. How do I monitor exposed person on antiretroviral drugs?

Exposed person 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 person is on. Exposed person should be assessed clinically at two weeks into therapy. Exposed person on antiretroviral drugs should be advised of the adverse effects - appetite loss, diarrhea, fatigue, nausea and vomiting, lipodystophy, mood changes, depression and anxiety - associated with their drugs and to report to their physician if these symptoms develop.

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

In Ontario, there is the Mandatory Blood Testing Act 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 see https://www.ontario.ca/page/mandatory-blood-testing

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

- The Middlesex-London Health Unit provides this resources to assist health care providers in their decision-making when patients present with body fluid exposure.
- The only follow-up of body fluid exposures by the Middlesex-London Health Unit occurs when an applicant is eligible under the Mandatory Blood Testing Act.

Resources for HIV
Canadian guideline on HIV pre-exposure prophylaxis and nonoccupational post exposure prophylaxis

HIV Post-Exposure Prophylaxis (PEP) Guidelines – British Columbia Centre for Excellence in HIV/AIDS