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HLTH 2339 “Management of Percutaneous or Permucosal Exposure to Blood and Body Fluid/Laboratory Requisition”

HLTH 2340 “Management of Percutaneous or Permucosal Exposure to Blood and Body Fluid Letter for Follow-Up Physician”



1.0 INTRODUCTION

This policy will outline the risk assessment and management for potential percutaneous, permucosal, or non-intact skin exposures to human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV) from blood or body fluids.

The level of risk posed by accidental exposure may vary from the healthcare occupational setting to the community setting. The actual risk of exposures outside the healthcare setting is probably significantly less than in the healthcare setting. However, with the exception of community exposures to HIV, the recommended response is the same in both settings.

Those who may carry out the following procedures include emergency department staff, health unit staff, community physicians, Infection Control Practitioners, and Occupational Health Nurses/Physicians.

2.0 POLICY

All persons exposed to blood or body fluids should be assessed for potential risk of infection from HIV, HBV, and HCV, and be provided with appropriate counselling and treatment.

Post-exposure treatment is required when **all** of the following conditions are present:

- percutaneous, permucosal, non-intact skin exposure, or large, prolonged exposure of blood or body fluid on skin has occurred;
 - the exposure is to blood, potentially infectious body fluid, or tissue;
 - the source is considered potentially infectious (positive test, or in a higher risk group, or exposure occurred in a higher risk setting);
- and**
- the exposed person is considered susceptible (no history of a positive test to either HIV, HCV, **OR** HBV, and no history of successful Hepatitis B immunization).



3.0 GOAL

The goal of these guidelines is to minimize the risk of transmission of bloodborne pathogens in persons exposed to blood or body fluids. This will be accomplished through:

- Dissemination of these guidelines to health care workers and others who encounter persons accidentally exposed to blood or body fluids.
- Assessment of the risk of pathogen transmission to exposed persons.
- Counselling exposed persons to reduce anxiety, ensure adequate management and follow-up, and to reduce the risk of pathogen transmission to others.
- Laboratory testing of exposed persons and sources (if possible).
- Use of antiretroviral therapy and post-exposure prophylaxis in exposed persons where indicated.

4.0 DEFINITIONS

Blood or body fluid (BBF) exposure:

An event where blood or other potentially infectious body fluid (see Table 1) comes into contact with skin, mucous membranes, or subcutaneous tissue (via percutaneous injury).

Permucosal exposure:

Blood or body fluid from one person is introduced into the bloodstream of another person through permucosal contact (i.e. contact with the mucous membranes lining body cavities such as the eyes, nose, mouth, vagina, rectum and urethra).

Percutaneous exposure:

Blood or body fluid from one person is potentially introduced into the bloodstream of another person through the skin via needlestick, tattooing, body piercing, electrolysis, acupuncture, or other sharps injury.



Skin exposure:

- (i) **Non-intact skin exposure:** Blood or body fluid comes into contact with a wound < 3 days old, or with skin having compromised integrity (e.g. dermatitis, abrasions, scratches, burns).
- (ii) **Skin exposure:** A **large** amount of blood or body fluid comes in contact with skin for a **prolonged** period of time.

Bloodborne pathogen:

Any pathogen that can be transmitted from one person to another via blood. Such pathogens may also be transmissible by other body fluids, and this varies depending on the pathogen and the type of body fluid.

5.0 PROCEDURE FOLLOWING EXPOSURE TO BLOOD OR BODY FLUIDS

5.1 Cleanse

- Mucous membrane or eye: Rinse well with water and/or normal saline.
- Skin: Wash well with soap and water.
- DO NOT promote bleeding of percutaneous injuries by cutting, scratching, squeezing, or puncturing the skin.
- Do not apply bleach to the wound or soak the wound in bleach.

5.2 Triage

If percutaneous, permucosal, or non-intact skin exposure has occurred, the exposed person should **go to the local hospital Emergency Department as soon as possible** or to an alternate site that has been supplied with antiretroviral starter kits by the BC Centre for Excellence in HIV/AIDS. In some communities, this alternate site may be the local health unit. Children should preferentially go to a hospital that deals with paediatric patients.

In the case of bites resulting in blood exposure to either person involved (i.e. blood in the mouth of the biter or in the wound of the person bitten), both persons should go to the local hospital Emergency Department as soon as possible (or to an alternate site which has been supplied with antiretroviral starter kits).

If antiretroviral therapy is indicated for possible HIV exposure, it should be administered **as soon as possible after exposure, preferably within 2 hours.**



There is no absolute cut-off time for the initiation of antiretroviral therapy for "significant risk" exposures (see Table 4 for description of these types of exposures). While later use of antiretrovirals may not prevent HIV transmission, it may favourably alter the subsequent disease in the exposed person, with later onset of advanced disease.

Hepatitis B vaccine and hepatitis B immune globulin (HBIG) are known to be effective in reducing the risk of transmission of hepatitis B if given as soon as possible after exposure, preferably within 48 hours. See Table 5.

Detailed risk assessment and management of potential exposure to **ALL** pathogens (HIV, HBV, and HCV) can take place in the Emergency Department or other health facility supplied with antiretroviral starter kits by the BC Centre for Excellence in HIV/AIDS.

5.3 Assess the risk

Complete a risk assessment of the exposure using form HLTH 2339 "Management of Percutaneous or Permucosal Exposure to Blood and Body Fluid/Laboratory Requisition." The HLTH 2339 is designed as a case management tool to facilitate the collection of exposure information, recording of post-exposure treatment, and ordering of blood work. This form can be ordered from Warehousing Services in Victoria: (250) 952-4439.

A process must be established by which identification of the source is kept confidential.

5.3.1 Assess the risk of transmission from the exposure

The following body substances have **not** been implicated in the transmission of HIV, HBV, or HCV unless they contain visible blood: faeces, nasal secretions, sputum, sweat, tears, urine, and vomitus. The risk for transmission of HBV, HCV, and HIV infection from these substances is extremely low.

Determine if there was a percutaneous, permucosal, or non-intact skin exposure to a potentially infectious body fluid posing a risk for HIV, HBV, or HCV transmission. Refer to Table 1.

**Table 1: Fluids capable of transmitting bloodborne pathogens**

FLUID	HIV	HBV	HCV
Blood and fluids visibly contaminated with blood	Yes	Yes	Yes
Semen	Yes	Yes	Yes
Vaginal secretions	Yes	Yes	Yes
Pleural, amniotic, pericardial, peritoneal, synovial and cerebrospinal fluids	Yes	Yes	Yes
Saliva	No, unless contaminated with blood	Yes	No, unless contaminated with blood
Transplanted organs	Yes	Yes	Yes
Breast milk	Yes	Biologically plausible, particularly if nipples are cracked or bleeding or if the mother is HBeAg positive	Biologically plausible, particularly if nipples are cracked or bleeding

5.3.2 Assess the risk of transmission from the source

Determine if the source of the blood or body fluid is known. If the source person is known, obtain their consent for testing for anti-HIV, anti-HCV, HBsAg, anti-HBs, and anti-HBc. The appropriate pre- and post-test counselling should be done for each test. Obtaining informed consent from the source is an integral part of all post-exposure testing procedures, as is maintaining confidentiality of all information.



Discuss the following with the source person:

- Why/how their test results are needed for the post-exposure management of the exposed person, as well as for possible follow-up of their own test results should any be positive
- That their consent is also needed for:
 - disclosure of their test results to their own follow-up physician (so that they can be contacted if any of their test results are positive)
 - disclosure of their test results to the exposed person's follow-up physician
 - disclosure of their test results to the exposed person's worksite occupational health and to the Worker's Compensation Board (in the instance of an occupational exposure)
- That the exposed person and the WCB will be informed of their (the source) test results, but not their identity. The exposed person may already know who they are.
- How they can be contacted if any of their test results are positive. The name of their follow-up physician is required if they have chosen anti-HIV testing non-nominally.

Inform the source that:

- Anti-HIV testing may be done nominally (using their real name) or non-nominally. A non-nominal identifier can be their first name and initials, with their birth date, or it may be a chosen pseudonym and their birth date. Clients can choose to be tested using initials only, but have follow-up using their real name or the reverse.
- If the non-nominal option is chosen, positive HIV results will be reported to the Medical Health Officer using only their initials or the pseudonym they chose.
- For all HIV positive results, whether they chose nominal or non-nominal testing, a case report will be sent to public health, where a public health nurse with specialized training will be responsible for the required follow-up. This public health nurse will call their follow-up physician to offer support for the newly positive client, assistance with partner counseling or other needs identified by the client and physician. This follow-up will occur whether the test is ordered by name or by a non-nominal option.
- Testing for HBV and HCV can only be done nominally.
- Positive HBV and HCV test results will be forwarded to public health and that public health or their physician will contact them to follow-up the positive test result(s).



When the source is unknown, each individual exposure should be carefully evaluated for the risk of each specific pathogen in the source in that community and in that particular setting. High-risk settings include needle-exchange program sites, acute care, drug and alcohol treatment clinics, and communities known to have a higher incidence of HIV, HBV, and HCV. Except for exposures in a high-risk setting, HIV prophylaxis will not be given for an unknown source.

If recent testing of the source person has occurred, ask them for the date and result of each test and confirm results wherever possible. If any test result was **positive**, manage the exposed person accordingly. If all tests on the source were negative, and if the source is not in a high-risk group within the window period, no follow-up testing of the exposed person is indicated.

If the source refuses testing, carefully consider the reasons for refusal. If there is no reason to suspect the source is in a high-risk group for HIV, HBV, HCV and that the refusal is based on other factors than fear of disclosure, then consider this a low risk source. It is not appropriate to consider persons who refuse testing as being positive.

Do not wait for test results before commencing treatment.

If the test result(s) is negative, the source person may be uninfected **or** may be in the window period for laboratory detection (i.e. the period of time after exposure and infection in which blood tests are negative). The window period for HIV infection is most often 12 weeks. HIV seroconversion after 12 weeks is uncommon and is unlikely after 24 weeks. The window period for HBV infection ranges from 4 weeks to 6 months. For HCV infection, the window period ranges from 2 weeks to 6 months. **For the purposes of post-exposure management, use 6 months as the window period for all three: HIV, HCV and HBV.**

If the source discloses that they have recently tested negative for HIV, HCV, or HBV, but are in a high-risk group, go back one window period in time from the date of the most recent blood test result. From that date, if they have continued to participate in high-risk behaviour for HIV, HCV or HBV infection (see Table 2), **they should be considered potentially infectious despite their negative test result and the exposed person should be managed accordingly.**

The risk of current infection of the source person with HIV, HCV, or HBV can be assessed even while the source test results are unknown or if the source refuses testing. Table 2 specifies the indicators for increased risk of transmission from the source to the exposed person. This information can be used to determine the source person's risk of current infection, and the subsequent requirement for post-exposure treatment of the exposed person.



Table 2: Indicators for increased risk of transmission from the source to the exposed person

HIV	HBV	HCV
The source is a person who has ever had:	The source is a person who has ever had:	The source is a person who has ever had:
<ul style="list-style-type: none"> high-risk sexual behaviour (i.e. multiple sex partners, anal sex) 	<ul style="list-style-type: none"> high-risk sexual behaviour (i.e. multiple sex partners, anal sex) 	<ul style="list-style-type: none"> high-risk sexual behaviour (i.e. multiple sex partners, anal sex)
<ul style="list-style-type: none"> a sexual partner who is an injection drug user (IDU), or who is HIV+, or who has a history of multiple transfusions of blood or blood products prior to Nov. 1985 ♦ 	<ul style="list-style-type: none"> a sexual partner who is an IDU, or who has acute or chronic HBV, or who has a history of multiple transfusions of blood or blood products prior to Jan. 1972 ♦ 	<ul style="list-style-type: none"> a sexual partner who is an IDU, or who is HCV+, or who has a history of multiple transfusions of blood or blood products prior to May 1992 ♦
<ul style="list-style-type: none"> injection drug use 	<ul style="list-style-type: none"> injection drug use 	<ul style="list-style-type: none"> injection drug use
<ul style="list-style-type: none"> a diagnosis of other sexually transmitted disease(s) 	<ul style="list-style-type: none"> a diagnosis of other sexually transmitted disease(s) 	
<ul style="list-style-type: none"> a history of multiple transfusions of blood or blood products prior to Nov. 1985 ♦ 	<ul style="list-style-type: none"> a history of multiple transfusions of blood or blood products prior to Jan. 1972 ♦ 	<ul style="list-style-type: none"> a history of multiple transfusions of blood or blood products prior to May 1992 ♦
<ul style="list-style-type: none"> blood contact with a known case of HIV infection 	<ul style="list-style-type: none"> blood contact with a known case of HBV infection for which there was no provision of post-exposure prophylaxis 	<ul style="list-style-type: none"> blood contact with a known case of HCV infection
	<ul style="list-style-type: none"> tattoo, body piercing, electrolysis, acupuncture 	<ul style="list-style-type: none"> tattoo, body piercing, electrolysis, acupuncture
	<ul style="list-style-type: none"> emigration from a country where HBV is endemic 	<ul style="list-style-type: none"> emigration from a country where HCV is endemic
<ul style="list-style-type: none"> a history of dialysis 	<ul style="list-style-type: none"> a history of dialysis 	<ul style="list-style-type: none"> a history of dialysis
<ul style="list-style-type: none"> a history of receipt of blood-derived coagulation products before July 1988 ♣ 		<ul style="list-style-type: none"> a history of receipt of blood-derived coagulation products before July 1988 or a history of receipt of IV immunoglobulin products prior to 1997 ♣

♦ In Canada, testing of donated blood for anti-HIV began in November 1985; for HBsAg in January 1972; and for anti-HCV first generation in June 1990 and anti-HCV second generation in May 1992.

♣ All factor concentrates distributed in Canada were wet heat treated after July 1988. IV immunoglobulin products were either PCR tested for HCV or had solvent detergent virucidal treatment after 1997.



5.4 Determine the HIV, HBV and HCV status of the exposed person

Determine the status of the exposed person with respect to prior infection with HIV, HCV or HBV and previous immunization against HBV. This base line testing is very important for occupational exposures and possible compensation by the WCB.

Unless the exposed person has just recently been tested, obtain informed consent and draw blood for testing. Obtain consent from the exposed person for disclosure of their lab results to their:

- Worksite occupational health and the WCB
- Follow-up physician

Inform the exposed person that:

- Anti-HIV testing may be done nominally (using their real name) or non-nominally. A non-nominal identifier can be their first name and initials, with their birth date, or it may be a chosen pseudonym and their birth date. Clients can choose to be tested using initials only, but have follow-up using their real name or the reverse.
- If the non-nominal option is chosen, positive HIV results will be reported to the Medical Health Officer using only their initials or the pseudonym they chose.
- For all HIV positive results, whether they chose nominal or non-nominal testing, a case report will be sent to public health, where a public health nurse with specialized training will be responsible for the required follow-up. This public health nurse will call their follow-up physician to offer support for the newly positive client, assistance with partner counseling or other needs identified by the client and physician. This follow-up will occur whether the test is ordered by name or by a non-nominal option.
- Testing for HBV and HCV can only be done nominally.
- Positive HBV and HCV test results will be forwarded to public health and that public health or their physician will contact them to follow-up the positive test result(s).

Do not wait for test results before commencing post-exposure treatment.

If the exposed person is known to be HIV, HBV, or HCV positive prior to the exposure, they do not require post-exposure management for that particular pathogen.



5.5 Determine the requirement for post-exposure management

Post-exposure treatment is required when **all** of the following conditions are present:

- percutaneous, permucosal, non-intact skin exposure, or large, prolonged exposure of blood or body fluid on skin has occurred;
 - the exposure is to blood, potentially infectious body fluid, or tissue;
 - the source is considered potentially infectious (positive test, or in a higher risk group, or exposure occurred in a higher risk setting);
- and**
- the exposed person is considered susceptible (no history of a positive test to either HIV, HCV, **OR** HBV, and no history of successful Hepatitis B immunization).

6.0 COUNSEL

Provide post-exposure counselling in the health facility, with more detailed counselling to be provided by the family physician, other designated physician, or public health nurse at a follow-up visit. Counselling should include points in section 10.0 “Blood and Body Fluid Exposure Counselling Guidelines” and the guidelines provided by the BC Centre for Excellence in HIV/AIDS in the antiretroviral starter kit, if the kit is being provided to the exposed person.

7.0 ARRANGE CLINICAL AND LABORATORY FOLLOW-UP

If possible, take the required initial bloodwork of the exposed person and source while they are in the health facility. Use the HLTH 2339: “Management of Percutaneous or Permucosal Exposure to Blood and Body Fluid/Laboratory Requisition. This form can be ordered from Warehousing Services in Victoria: (250) 952-4439.

For HIV testing, send the specimen(s) to BCCDC Laboratory Services (604-660-9709) or UBC Virology Laboratory (604-806-8420). Identify the specimen(s) as a blood and body fluid (BBF) exposure incident with possible HIV exposure so that rapid turn around can be achieved. Also phone the lab to notify staff that this is a possible HIV exposure.

For testing done at BCCDC Laboratory Services, results may be obtained by phoning: (604) 660-5100, Monday to Friday 8:30 am to 4:30 pm.

If specimens need to be sent to BCCDC Laboratory Services after regular working hours, contact the BCCDC Medical Microbiologist on call to receive instructions: phone: (604) 661-7033).



After hours contact the BCCDC Medical Microbiologist on call if there is an urgent need to discuss results. Phone: (604) 661-7033.

Clinical and laboratory follow-up should be arranged with the exposed person's family physician or other physician designated by the health facility or their delegate. Use the "Letter for Follow-up Physician", (HLTH 2340), which outlines tests performed and specifies the timing of further tests. This form can be ordered from Warehousing Services in Victoria: (250) 952-4439.

Give the white copy (copy 1) of the HLTH 2340 to the exposed person so that they can give it to the follow-up physician.

Table 3 summarizes the testing of the exposed person.

**Table 3: Testing of the exposed person**

TIME SINCE EXPOSURE	Anti-HIV	Anti-HCV	HBs Ag♦	Anti-HBs♦	Anti-HBc♦	RATIONALE FOR TESTING OF THE EXPOSED PERSON
ASAP usually in Emergency	√	√	√	√	√	To check baseline status of the exposed person. Negative or non-reactive test results suggest no prior infection.
2 weeks after exposure	If source is HCV+, test exposed person for HCV infection by RT-PCR					If HCV RT-PCR +, early treatment may be beneficial.
6 weeks after exposure	√					To check whether seroconversion has occurred. A change from the initial negative (or non-reactive) test result to a positive (or reactive) result indicates that seroconversion has occurred. Seroconversion following a blood or body fluid exposure does not definitively establish that the exposure was the source of the virus if the exposed person has other risk factors.
3 months after exposure	√	√ (unless prior HCV RT-PCR +)	√			
6 months after exposure	√		√	√	√	
12 months after exposure	√	√	√	√	√	A negative (or non-reactive) test result at 12 months following exposure indicates that infection has not occurred from this exposure. Testing at 12 months is primarily to rule out infections resulting from a prolonged incubation period that may occur after the administration of HBIG or antiretrovirals, or immunosuppression.

♦ See Table 5: Hepatitis B post-exposure prophylaxis

Note: If the exposed person is a pregnant woman, request HBV testing as close to delivery as possible.



8.0 RECORD

The white and yellow copies (copies 1 and 2) of the “Management of Percutaneous or Permucosal Exposure to Blood or Body Fluid/Laboratory Requisition” (HLTH 2339) contain information pertaining to the source person. **For reasons of confidentiality, the white copy should be forwarded ONLY to the laboratory that will be doing testing for the exposed person (and/or the source person). If it is an occupational exposure, the yellow copy should be forwarded ONLY to the exposed person's worksite occupational health department.**

The health care worker should record information on the exposed person’s chart or emergency record form with respect to the risk assessment and post-exposure management or, if accessible, record in the Public Health Information System (iPHIS) notes section.

If it is an occupational exposure, follow Worker’s Compensation Board (WCB) guidelines for injury reporting. This must not delay emergency assessment and management. **Forward the pink copy (copy 3) to the WCB. The WCB will pay the physician/health care facility for the completion of the form for occupational exposures. The pink copy may be faxed to the WCB at (604) 276-3195 (Lower Mainland) or Toll Free 1-888-922-3299.**

Attach the **goldenrod copy (copy 4)** of the “Management of Percutaneous or Permucosal Exposure to Blood or Body Fluid/Laboratory Requisition” (HLTH 2339) to the record established for the exposed person.

Complete HLTH 2340 (Letter to Physician). Give white copy to client. Distribute other copies as indicated on bottom on the form.

9.0 POST-EXPOSURE TREATMENT

9.1 HIV exposure

9.1.1 Antiretroviral therapy

For sources known to be or may possibly be infectious for HIV, determine whether the type of exposure presents a risk of transmission for which antiretroviral therapy is warranted. Table 4 specifies stratification of HIV exposures.



Table 4: Stratification of HIV exposures

EXPOSURE RISK	TYPE OF EXPOSURE	RECOMMENDATION
<p>SIGNIFICANT RISK:</p> <ul style="list-style-type: none"> Infectious body fluid and an HIV positive source or a known high-risk source. 	<ul style="list-style-type: none"> Any percutaneous exposure to infectious body fluids ♦ Mucous membrane or non-intact skin exposure (i.e. more than a few drops of blood and/or duration of exposure of several minutes or more). In the event of a large prolonged exposure of blood on intact skin, assess the integrity of the skin. If appropriate, treat as a significant risk exposure. 	<p>Antiretroviral starter kit.</p> <p>Consult with BC Centre for Excellence in HIV/AIDS as soon as possible in all cases. (Pharmacy 1-888-511-6222 or hotline 1-800-665-7677)</p>
<p>NEGLECTIBLE RISK:</p> <ul style="list-style-type: none"> Source known or presumed to be HIV negative Injury not known to transmit HIV Body fluid not known to transmit HIV 	<ul style="list-style-type: none"> Percutaneous, mucous membrane or skin exposure to non-infectious body fluid – source HIV positive or negative. Intact skin exposure to a small quantity of blood (<3 drops) or fluid visibly contaminated with blood of a short duration (<3 minutes). Bites unless there has clearly been transmission of infected blood. A superficial scratch that does not bleed. Injuries received in fights would rarely be appropriate indications for prophylaxis unless it is clear that transfer of infected blood has occurred. 	<p>No antiretrovirals recommended.</p> <p>Offer counselling clarifying the negligible risk of HIV infection and advise re: risk prevention (i.e. preventing recurrences of exposure incidents).</p>

♦ Antiretrovirals (ARTs) are not provided free to persons exposed to HIV as part of their personal lives (e.g. consensual adult sex, or sharing drug injection equipment). However, the assessing physician may elect to prescribe ARTs for these situations. Prophylaxis is not recommended for needlesticks from abandoned needles when they are outside the healthcare setting or when there is no history of the use of the needle or the time of abandonment.



Antiretroviral therapy will vary for children, pregnant women, and for those exposed to a source known to have been on antiretroviral therapy. The BC Centre for Excellence in HIV/AIDS will tailor a prophylactic regimen for these individuals and also if there is a possibility of the source's HIV infection being drug resistant.

The starter kit contains a 5-day supply of antiretroviral medications according to current recommendations of the BC Centre for Excellence in HIV/AIDS.

Within three days, follow-up should occur with the exposed person's family physician, occupational health physician, or physician designated by the Emergency Department so that an assessment can be made of the need for a full month of antiretroviral therapy.

This physician should also ensure completion of post-exposure follow-up testing and hepatitis B immunoprophylaxis.

A full one-month course of antiretroviral medication will be provided, if indicated, by the BC Centre for Excellence in HIV/AIDS through the exposed person's family physician or designated follow-up physician.

Antiretroviral starter kits will be provided for all accidental exposures to HIV from blood or body fluid occurring in health care facilities. For most community exposures, antiretrovirals will not be provided unless there is significant risk. Antiretrovirals are not recommended for needlesticks from an abandoned needle in a community setting when there is no history of the origin of the needle or the time of its abandonment. There are several reasons for this: (i) there has never been a HIV seroconversion anywhere from a community exposure, (ii) there are real risks from the anti-retrovirals, and (iii) risks from the antiretrovirals outweigh the theoretical risk of seroconversion from a community exposure.

The guidelines can also be applied to manage victims of sexual assault. The BC Women's Hospital Sexual Assault Service has drafted a detailed protocol for managing HIV exposure in victims of sexual assault; this protocol is available from the Sexual Assault Service.



The BC Centre for Excellence in HIV/AIDS does not provide provincially funded antiretrovirals to persons exposed to HIV as part of their personal lives (e.g. consensual adult sex or sharing drug injection equipment). These medications can be acquired privately at a pharmacy with a prescription from a physician.

9.1.2 Post-exposure HIV testing

The exposed person should be tested for anti-HIV at the time of the exposure in order to determine whether they are already seropositive.

If the test result at the time of the exposure is negative, post-exposure follow-up HIV testing of the exposed person should be undertaken at:

- **6 weeks**
- **3 months**
- **6 months**
and
- **12 months**

If the source person tests anti-HIV negative and is not in a high-risk group within the HIV window period, no HIV follow-up testing of the exposed person is indicated.

9.1.3 Post-exposure HIV antiretroviral therapy in children

The risk of children being infected with HIV from accidental needlestick injuries, biting, or sexual assault is very low. Antiretroviral agents should be considered for children where the exposure is likely to have resulted in a transfer of potentially infectious body fluid. In children this would most commonly occur from blood or semen from a person who is known to be HIV- positive or could potentially be HIV- positive.

The risk of HIV infection is negligible in bites from children. Antiretroviral therapy should only be considered for human bites in children that result in the skin being broken and when bleeding has occurred and there is blood in the mouth of the biter who is known to be HIV positive. Should a child bite an HIV-positive person, prophylaxis may be considered if there is blood in the mouth of the child and there are areas of non-intact mucosa.



Refer to guidelines from the BC Centre for Excellence in HIV/AIDS for detailed information about the recommended antiretroviral medications and dosages for children, or call their Pharmacy at 1-888-511-6222.

9.1.4 Post-exposure HIV antiretroviral therapy in pregnant women

For the post-exposure HIV antiretroviral therapy of pregnant women or women who may be pregnant, consult the BC Centre for Excellence in HIV/AIDS.

9.2 HBV exposure

For any percutaneous, permucosal exposure (including bites), or non-intact skin exposure, determine whether post-exposure immunoprophylaxis is required by testing both the exposed person and the source person for HBsAg, anti-HBs, and anti-HBc.

If the source is unknown or untested (e.g. a needlestick from an abandoned needle in any community setting) offer hepatitis B vaccine, but not HBIG.

If the exposed person is HBsAg positive, they are already infected with the hepatitis B virus and no post-exposure HBV immunoprophylaxis is required.

If the exposed person is HBsAg and anti-HBc negative, use results of their anti-HBs test to determine requirement for immunoprophylaxis. See Table 5. Refer to the BC Centre for Disease Control Communicable Disease Control Manual - Immunization Program Chapter –Section 7 Biological Products for specific details pertaining to the administration of hepatitis B immune globulin (HBIG) and hepatitis B vaccine:

<http://bccdc.org/content.php?item=83#1>



Table 5: Hepatitis B post-exposure prophylaxis

Vaccination history of exposed person	Test exposed person for: HBsAg, anti-HBc & anti-HBs.	If source is HBsAg positive or tests positive within 48 hrs of exposure♣	If source is unknown/not tested/tests HBsAg negative within 48 hours of exposure♣	Post-exposure re-testing
Documented anti-HBs level (≥10 IU/L) on prior testing	Test for all three markers for medical-legal purposes	No action required.	No action required.	No action required.
Unvaccinated or Known non-responder* to one course of Hep B vaccine	Test for all 3 markers Test for all 3 markers	Give Hepatitis B Immune Globulin (HBIG)• and Hepatitis B vaccine series♥	Give Hep B vaccine series Give 2 nd Hep B vaccine series	Re-test for HBsAg at 3 months & for all 3 markers at 6 & 12 months♦
Received 1 dose of Hep B vaccine, anti-HBs status unknown	Test for all 3 markers	Give HBIG & complete Hep B vaccine series.	Complete Hep B vaccine series.	Re-test for HBsAg at 3 months & for all 3 markers at 6 & 12 months♦
Received 2 doses of a 3 dose series of Hep B vaccine, anti-HBs status unknown	Test for all 3 markers. If anti-HBs is <10 IU/L, then→	Give HBIG & 3rd dose of Hep B vaccine. Repeat 3 rd dose if given too early in series.	Give 1 dose of Hep B vaccine & retest for anti-HBs in 4 wks; if <10 IU/L repeat series.	Re-test for HBsAg at 3 months & for all 3 markers at 6 & 12 months♦
	Test for all 3 markers. If anti-HBs is ≥ 10 IU/L, then→	Do not give HBIG. Complete Hep B vaccine series.	Do not give HBIG. Complete Hep B vaccine series.	No re-testing required.
Complete Hep B vaccination (2 or 3 dose series) and anti-HBs status unknown or anti-HBs < 10 when tested > 6 months post-vaccination	Test for all 3 markers. If anti-HBs is <10 IU/L, then→	Give HBIG and 1 dose of vaccine.	1 dose Hep B vaccine & retest for anti-HBs in 4wks; if <10 IU/L complete second series.	Re-test for HBsAg at 3 months & for all 3 markers at 6 & 12 months♦
Known non-responder* after two courses of Hep B vaccine	Test for HBsAg & anti-HBc. Do not test for anti-HBs.	Give HBIG only & give another dose of HBIG in 1 mo.	No action required.	Re-test for HBsAg at 3 months & for HBsAg & anti-HBc at 6 & 12 months.

♣ Consensual adult sex with known STW or IDU is not an indication for HBIG, nor is a community acquired needlestick injury: the risk of transmission is low and the number needed to treat to prevent infection is extremely high. HBIG is indicated in the case of sexual assault

• HBIG dose for all clients ≥ 8.3kg is 0.06ml/kg. Give HBIG as soon as possible, and no later than 14 days following an exposure. If the client presents >14 days following an exposure, give Hepatitis B vaccine only.

♥ Hepatitis B vaccine schedule is 0,1 and 6 months for post-exposure prophylaxis.

* A non-responder to a series of Hepatitis B vaccine is someone who demonstrates an anti-HBs level of < 10 UI/L, when measured 1 to 6 months post-vaccination.

♦ A second series of Hepatitis B vaccine is offered to non-responders when there has been percutaneous or mucosal exposure.

Note: this table does not apply to post-exposure management of immunocompromised persons. This group requires consultation with a physician specializing in infectious diseases.



If indicated, give HBIG and one dose of hepatitis B vaccine in the hospital Emergency Department or health facility. Any subsequent doses of vaccine are to be given by the family physician or health unit.

If the exposure occurred in an occupational setting and the employer offers a hepatitis B immunization program, the employer should provide the remaining doses of vaccine.

A person partially immunized in the past requires only the number of doses needed to complete the recommended series, regardless of the time elapsed since the previous dose.

Provincially funded hepatitis B vaccine can be given, if indicated, for exposures occurring through consensual adult sex or sharing injection drug equipment.

If the initial tests for HBsAg, anti-HBs, and anti-HBc are negative, the exposed person is not immune. Test for HBsAg at 3 months post-exposure and for HBsAg, anti-HBs, and anti-HBc at 6 and 12 months post-exposure in order to determine whether acute infection has occurred, or whether the exposed person developed vaccine immunity.

If the current exposure is assessed as a low risk for transmission of HBV, but either the exposed or the source person is identified to have risk factors for either HBV or another exposure, offer hepatitis B vaccine to both persons.

9.3 HCV exposure

At the present time, no post-exposure treatment is recommended for HCV. However, the anti-HCV status of the exposed person should be determined at the time of the exposure to assess whether the person has been infected with HCV in the past.

If the initial anti-HCV test is negative, the exposed person should be tested for seroconversion at 3 months and 12 months post-exposure. If seroconversion occurs, the client should be evaluated for possible treatment. Early treatment following seroconversion may be beneficial.

If the source is HCV+, test the exposed person for HCV infection by HCV RT-PCR at two weeks post-exposure.



9.4 Tetanus prophylaxis

Tetanus immunoprophylaxis is administered according to the type and degree of injury of the exposed person, where applicable, and NOT because tetanus is bloodborne. A percutaneous injury which occurs in the outdoor environment presents a low (theoretical) risk of contamination with *C. tetani* spores which are usually found in dirt. Consider every blood and body fluid exposure as an opportunity to update incomplete or overdue tetanus immunization. Refer to Table 6, which specifies the indications for tetanus immunoprophylaxis.

Table 6: Guide to tetanus prophylaxis in wound management

History of Tetanus Immunization	Clean, minor wounds		All other wounds	
	Td	TIG	Td	TIG
Uncertain or < 3 doses	Yes	No	Yes	Yes
Primary immunization complete♣♦	Yes●	No	Yes♥	No♠

- ♣ For additional information on the primary immunization schedule for persons ≥ 7 years of age, see the BC Ministry of Health Immunization Program Manual.
- ♦ **Wound management for children < 7 years of age would be based on specific spacing and doses required as per Pentacel™ and Quadracel™ vaccines.**
- Yes, unless there is documentation of a booster within the last 10 years.
- ♥ Yes, unless there is documentation of a booster within the last 5 years. The bivalent toxoid, Td, is not considered more reactogenic than T alone and is recommended for use in this circumstance. The client should be informed Td was given.
- ♠ No, unless individuals are known to have a significant immune deficiency state (e.g., HIV, agammaglobulinemia) since immune response to tetanus toxoid may be sub-optimal.

Note: Tetanus toxoid and Tetanus Immune Globulin (TIG) should be administered using separate syringes and different sites. If a contraindication exists for tetanus toxoid, TIG would be given when tetanus immunization is required.



10.0 BLOOD AND BODY FLUID EXPOSURE COUNSELLING GUIDELINES

Initial counselling should be done in the Emergency Department or other health facility where post-exposure management is provided. More detailed counselling should be done by the follow-up physician. The following are the major points that should be covered during initial counselling.

10.1 Risk of transmission to the exposed person

The risk of infection after exposure to infected blood or body fluid varies by bloodborne pathogen. The risk of transmission after percutaneous exposure to HIV-infected blood or body fluids is about 0.3% (3 in 1000); whereas it is estimated to be greater for HBV (30% if HBeAg reactive; 5 – 10 % if HBeAg non-reactive)) and is between 3 - 10% for HCV, depending on the viral load. The risk of HIV transmission following mucocutaneous exposure is about 0.1% (1 in 1000).

If the source is not known to be HIV positive, the risk of transmission drops dramatically and frequently the risk of prophylaxis exceeds the risk of infection.

Evidence shows that antiretroviral therapy can reduce the risk of transmission of HIV by 86%.

The risk will vary somewhat depending on the body site of the exposure, the type of exposure, and the source. In the instance of HIV transmission through percutaneous injury, increased risk is associated with the following factors: greater depth of the injury, greater volume of blood injected, visible blood on the device and/or the device previously in a source's artery or vein, and larger gauge of needle (larger bore needles present greater risk because of the larger volume of blood exposure). Exposures from sources with a high viral load of HIV, HBV, or HCV (i.e. seroconversion in the acute phase of these viral infections, or in late stage AIDS) are also associated with a greater risk of transmission.

The risks and benefits of post-exposure immunoprophylaxis or treatment should be discussed and appropriate measures recommended to the exposed person.



10.2 Testing

In recommending initial testing of the exposed person, it is important they understand that it is baseline testing and that additional follow-up testing is required to determine whether transmission took place as a result of the exposure. Baseline serologic testing is important for comparison with follow-up testing post exposure in order to document whether seroconversion to HIV, HBV or HCV has occurred. This is particularly important for occupational exposures which may involve Workers' Compensation or for exposures which may lead to civil or criminal proceedings. The exposed person should be encouraged to undergo initial testing for their baseline HIV, HBV, and HCV status immediately.

If a woman of childbearing age is exposed, consider pregnancy testing when warranted.

10.3 Follow-up of exposed person

Encourage the exposed person to follow-up with their family physician or other designated physician as it is extremely important to discuss the results of baseline testing and to arrange for subsequent testing. It is also necessary to complete the hepatitis B vaccine series and/or a month of antiretroviral therapy, if indicated. If antiretrovirals are started, it is essential that the exposed person follow-up with a physician as soon as possible: the antiretroviral starter kits contain only a five day supply of medication.

10.4 Follow-up of source person

Encourage the source person to follow-up with their family physician should any of their test results be positive.

If the source person is HBV negative, recommend hepatitis B vaccine for the event of any future exposures.



10.5 Reducing transmission to others

Exposed persons will be anxious and upset when initially assessed. They may not remember all the information provided in initial counselling. It is therefore important that there is repeated and more detailed counselling.

Physicians inexperienced in counselling of this nature should contact their local health unit or STD/HIV clinic and enquire about counselling resources. Information pamphlets or BC Health Files may be helpful in providing information that the exposed person can review at home:

<http://www.bchealthguide.org/healthfiles/>

After the exposure has occurred, it is not possible to determine for at least 6 months whether infection has occurred. If infection has occurred, the exposed person then is capable of transmitting infection to others. While waiting for 6 month follow-up testing to determine if seroconversion to exposed antigens has occurred, the exposed person should take the following precautions to prevent potential transmission of pathogens to others:

- Abstain from sexual intercourse (vaginal, oral or rectal) or use a latex condom with a water-based lubricant for all acts of sexual intercourse.
- Do not donate blood, plasma, organs, breast milk, tissue or sperm.
- Do not share toothbrushes, dental floss, razors, needles or other implements that may be contaminated with blood/body fluids.
- Cover open cuts/lesions until healed.
- Appropriately dispose of articles with blood on them (e.g. tampons, pads, Kleenex, dental floss and bandages). Dispose of bloody sharp items (razors, needles, etc) into a hard-sided container, taped shut. Dispose in regular garbage do not place in container for recycling.
- Clean up spills of blood with detergent and water, wet surfaces with 1 part bleach to 9 parts water and leave sitting for 10 minutes.
- Avoid sharing needles, drug snorting equipment, etc.
- Defer a planned pregnancy; but if you become pregnant, consult Oak Tree Clinic at BC Women's Hospital.

The risk of transmission of HIV through breastfeeding is highest for women who seroconvert while breastfeeding. If the source person is being tested, breast milk can be pumped, dated, and frozen while waiting for the test results.



Breastfeeding can be resumed and the frozen milk used if the source is found to be negative and not in any risk group. If a breastfeeding mother is on antiretrovirals while waiting for the results on the source person, she should discard any breast milk pumped during that time.

HCV RNA and anti-HCV antibodies have both been detected in colostrum and breast milk. The issue of breast-feeding when the mother is anti-HCV positive is controversial. If the mother was exposed to an anti-HCV+ source, she should consult her physician to discuss the risks and benefits of breast feeding.

If a breastfeeding mother is exposed to a HBV positive source **or** an unknown source immunize both the mother and her infant against hepatitis B, using both hepatitis B vaccine and HBIG. The mother can then continue to breast-feed.

In addition to these basic guidelines for counselling, exposed persons who are started on antiretroviral therapy should be provided with information contained in the starter kit provided by the BC Centre for Excellence in HIV/AIDS regarding scheduling and potential side effects of antiretroviral medications.

If the exposed person is a healthcare worker, they may continue to practice provided they:

- Comply with the recommended follow-up testing
- Receive counselling from their worksite Occupational Health, Infection Control, or Public Health Unit on Standard or Routine Precautions
- Double glove if performing exposure-prone procedures in the 6 months post-exposure
- Seek immediate medical assessment if they experience symptoms of infection with HIV, HBV, or HCV during the year after the exposure
- Cease practice pending assessment from the appropriate professional governing body (e.g. College of Physicians and Surgeons of BC, Registered Nurses Association of BC, College of Dental Surgeons of BC) if they undergo seroconversion for any virus during follow-up testing.

The appropriate governing body will only consider restrictions or modifications in practice if the exposed health care worker becomes infected. Restrictions are not necessary following exposure alone.



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