
**GUIDELINES FOR THE MANAGEMENT OF A
PERCUTANEOUS OR SEXUAL EXPOSURE TO
BLOODBORNE PATHOGENS**

**DEPARTMENT OF HEALTH AND WELLNESS
PRINCE EDWARD ISLAND**

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INTRODUCTION

These guidelines are designed for health care facilities, public health agencies, laboratories, and emergency response organizations involved in assessing and/or treating persons exposed to potential infections of hepatitis C virus (HCV), hepatitis B virus (HBV), or Human Immunodeficiency Virus (HIV).

Definitions

Immune to HBV- a person who has had a test showing immunity to HBV at any time in the past.

Susceptible to HBV- a person whose anti-HBs test shows that they are not immune to HBV.

Unknown HBV status- no record exists of the person being immune to HBV.

Immunization

It is to be emphasized that hepatitis B vaccine is recommended in the Department of Health and Wellness policy *Immunization and TB Testing* for persons at increased risk of occupational exposure to blood or body fluids for which there is an increased risk of occupational transmission of HBV. Health Care Workers (HCW) or students in training should complete a series of hepatitis B vaccine before there is a potential for exposure to HBV in the workplace.

SUMMARY

STEP 1 - EMERGENCY MANAGEMENT of a Possible Exposure to HBV, HCV or HIV: Make sure emergency first aid is carried out as required.

STEP 2 - EVALUATION of the Significance of Exposure: Determine if the exposure warrants testing of the exposed and/or source person.

STEP 3 - TESTING the Exposed and Source Persons: Assess the exposed and source persons for recommended testing.

STEP 4- TREATMENT After Significant Exposure: Determine if post exposure preventative treatment is necessary/recommended.

IMPORTANT- PLEASE NOTE

CHEMOPROPHYLAXIS for exposure to HIV should be started as soon as possible, ideally within 1-2 hours of exposure, or up to 72 hours after exposure.

HEPATITIS B IMMUNE GLOBULIN (HBIG) should be given to the exposed person preferably within 48 hours of exposure if the exposed person is known to be non-immune. However it may be deferred for up to 72 hours if the exposed person can be tested for Hepatitis B immunity and results reported within 72 hours OR the source person is being tested for Hepatitis B surface antigen and results are expected.

HEPATITIS B VACCINE should be administered to the exposed person after the HBIG is given, preferably within 72 hours. However, it can be delayed up to 7 days or more if the Hepatitis B surface antibody (immunity level) result on the exposed person is expected.

For SEXUAL EXPOSURE (eg. Assault) see page 9.

STEPS IN THE MANAGEMENT OF A POSSIBLE EXPOSURE TO HBV, HCV, OR HIV

STEP 1

Emergency Management Following a Possible Exposure to HBV, HCV, HIV

Post-exposure immediate first aid recommendations include: i) removing contaminated clothing; ii) washing the injured area well allowing any cut area to bleed freely; and iii) applying an antiseptic.

If the eyes, nose, or mouth are involved, it is advised that the involved area be washed well with large amounts of water.

A health care worker should report any injury to their supervisor for documentation of the incident and assessment of its significance.

STEP 2

Evaluation of the Significance of Exposure

Evaluation requires the assessment of both:

- 1) the type of exposure and
- 2) the type of body fluid(s)/tissues from the source.

1) SIGNIFICANT TYPES OF EXPOSURE INCLUDE:

- Exposure of tissue under the skin (e.g., percutaneous, open body cavity or a bite breaking the skin) of the exposed person.
- Exposure of non-intact skin (e.g., cut, chapped or abraded skin).
- Exposure of a mucous membrane (e.g., exposure to the eyes, nose or mouth).
- Transmission of HIV by bites has been reported rarely but might theoretically occur. Saliva that is contaminated with infected blood poses a substantial exposure risk. Saliva that is not contaminated with blood contains HIV in much lower titres and constitutes a negligible risk.
- Percutaneous injuries from needles discarded in public settings such as parks, buses or buildings have never been documented as being responsible for HIV transmission. However, these incidents always are of concern because the needles involved can be discarded by intravenous drug (IVD) users. These injuries typically involve small bore needles that contain limited amounts of blood and the viability of the virus is short-lived.
- Sexual exposures involving receptive anal intercourse. Insertive anal intercourse, penile - vaginal exposures and oral sex represent less risk.
- Needle sharing among IV Drug and steroid users is significant

Notes:

Exposures of blood or body fluids on **intact** skin should generally **not** be regarded as a significant exposure to HBV, HCV or HIV. Exceptions to this which **are** an increased risk include those involving a high titre of HIV in the blood or body fluid, prolonged contact, an extensive area of skin is involved or an area in which skin integrity is visibly compromised.

Postexposure prophylaxis is indicated only for infrequent exposures and NOT for those engaging in frequent recurrent exposures that would require repeated or near-continuous courses of anti-HIV medications (i.e. those engaging in frequent unprotected sexual activity or injection-drug use).

2) **SIGNIFICANT BODY FLUIDS OR TISSUES FROM THE SOURCE**

INCLUDE:

- **Blood, serum, plasma** or any biologic fluid **visibly** contaminated with **blood**
- Organs for donation from a donor infected with HBV, HCV or HIV
- Pleural/amniotic/pericardial/synovial or cerebrospinal fluids containing HBV or HIV
- Uterine/vaginal fluids containing HBV or HIV (unlikely for HCV to be infective)
- Semen containing HBV or HIV (unlikely to be a source of either virus in occupational settings or HCV in any setting)
- Saliva containing HBV (not known to be a source of HCV or HIV)
- Laboratory specimens containing any of the blood and/or body fluids of tissues as above.

Notes:

Feces, nasal secretions, sputum, sweat, tears, urine, and vomitus are **not** implicated in the transmission of HBV, HCV or HIV **unless visibly** contaminated with blood.

The risk of transmission of HBV, HCV or HIV from **screened** donated blood and manufactured blood products prepared for transfusion is **minimal**.

If **both** the type of exposure and source material are significant, continue to STEP 3.

STEP 3

Testing of Source and Exposed Persons after a Significant Exposure

If it has been determined that a significant exposure has occurred, it is advisable to determine if the person who is the source is infected with HBV, HCV or HIV. Every effort should be made to obtain informed consent from the source person. Pre- and post-test counselling must be available to anyone who is tested for HBV, HCV or HIV.

The course of action will depend upon whether the **Source Person** is:

- 1) **identifiable** (see below)
- 2) **positive for HBV, HCV or HIV, or refuses testing or is not identifiable** (see page 5)
- 3) **identifiable and is negative for HBV, HCV or HIV** (see page 6) .

Each of these situations is described below.

1) THE SOURCE PERSON IS IDENTIFIABLE:

VIRUS	RECOMMENDED ACTION
HBV	If the exposed person is known to have been tested at any time in the past and found to be immune to HBV, the source person does not need to be tested. If the exposed person is known to be susceptible to HBV (or status is unknown), test the source for Hepatitis B surface Antigen (HBsAg) <u>and</u> test the exposed person for HBV immunity.
HCV	Test both the source person and exposed person for HCV (Anti-HCV).
HIV	Test both the source person and exposed person for HIV antibodies.

2) **THE SOURCE PERSON IS POSITIVE FOR HBV, HCV OR HIV OR REFUSES TESTING OR IS NOT IDENTIFIABLE:**

VIRUS	RECOMMENDED ACTION
<p>HBV</p>	<p>The exposed person does not need to be tested for immunity to HBV if the exposed person has had a blood test done which showed immunity to HBV at <u>any time</u> in the past.</p> <p>If the exposed person’s HBV status is unknown at the time of the injury <u>and</u> has not had a test indicating immunity to HBV at any time in the past, test the exposed person for HBsAg and anti-HBs.</p> <p>If the exposed person is known to be non-immune to HBV, test the exposed person for HBsAg now and at 3 and 6 months. If the source is positive for HBsAg, provide Hepatitis B Immune Globulin (HBIG) and Hepatitis B Vaccine to the exposed person (See Step 4, page 7).</p> <p>If the source cannot be tested, an assessment of the risk of the source having HBV is necessary and treatment recommended depending upon the risk (See Step 4, page 7).</p>
<p>HCV</p>	<p>Test the exposed person for HCV (Anti-HCV) by EIA at the time of injury; retest for anti-HCV at three and six months post-exposure (if the tests are negative but there are symptoms of HCV infection at any time, do an alanine transaminase (ALT) on the exposed person).</p>
<p>HIV</p>	<p>If the source person is known to be HIV positive and on anti-HIV medication, it is recommended that specialists be consulted (preferably in the clinic where the medication was prescribed). The exposed person may require anti-HIV medication based upon the sensitivity of the virus from the source person.</p> <p>If the source cannot be tested, offer prophylaxis based upon a decision made after discussion with the exposed person regarding the risk of the significance of the exposure. Factors considered in assessing risk are: prevalence of HIV in the area, circumstances of the incident (i.e. correctional facility, etc.), and whether the source person is known to have risk factors for HIV within the past six months (i.e. high-risk sexual behaviour such as men having sex with men, sexual partner of an intravenous drug user, multiple sexual partners; <u>or</u> has had an STD; <u>or</u> is a sexual or blood contact of a known case of HIV infection; <u>or</u> is an intravenous drug user; <u>or</u> has had a tattoo/body piercing procedure done).</p> <p>Test the exposed person for HIV at the time of injury and if negative, retest at six weeks, three months and six months (seroconversion is very rare after six months post-exposure).</p>

3) **THE SOURCE PERSON IS IDENTIFIABLE AND IS NEGATIVE:**

Usually no further action is necessary (for either the source or exposed person) if the source person is negative, **unless particular risk factors are present which increase the chances of infection.**

VIRUS	RECOMMENDED ACTION
HBV	Do not test the exposed person unless the source person is high risk of being in the window period in which case treatment needs to be considered (See Step 4, page 7) and the exposed person tested at the time of exposure and at 3 and 6 months after exposure.
HCV	If the source person is an injection drug user or at increased risk of HCV (may be in the window period), test the exposed person for HCV (anti-HCV) at the time of injury, and at 3 and 6 months.
HIV	If the source is at increased risk of HIV infection, consider that the source may be in the window period for infection, in which case the need for prophylaxis needs to be discussed with the exposed person while considering the risk of infection. It is recommended that the exposed person be tested for HIV at the time of exposure, and at then 6 weeks, 3 and 6 months post exposure.

STEP 4

Treatment

Treatment of the **exposed person** will need to be considered after the following has occurred:

- 1) significant exposure to HBV and HCV (see below)
- 2) significant exposure to HIV (see page 8)
- 3) sexual exposure (see page 9)

1) TREATMENT AFTER SIGNIFICANT EXPOSURE TO HBV AND HCV:

SOURCE INFECTED OR HIGH RISK FOR:	RECOMMENDED ACTION
HBV	<p>If exposed person is immune to HBV, take no further action.</p> <p>If the exposed person is tested and is non-immune to HBV, or immune status is not known and cannot be tested and have results back within 48-72 hours,</p> <ul style="list-style-type: none"> • Take blood for HBsAg, anti-HBs, HIV antibody and HCV antibody before giving HBIg. • Give Hepatitis B Immune Globulin (*HBIg) preferably within 48 of exposure. However, it may be deferred for up to 72 hours if the exposed person can be tested for Hepatitis B immunity and results reported within 72 hours OR the source person is being tested for Hepatitis B surface antigen and results are expected. Efficacy decreases with time and is of unknown benefit if the start date is more than 7 days after exposure. • Administer Hep B vaccine after HBIg is given, preferably within 48 hours. However, it can be delayed up to 7 days or more if the Hepatitis B titre result for surface antibody (immunity level) is expected. If further doses of Hep B vaccine are needed, refer to Chief Public Health Office. If the dose was a booster, no further doses are needed at this time and advise the exposed person to have a titre done by their physician in 4-6 weeks.
HCV	There is no effective chemoprophylaxis or immunoglobulin available.

Note: Donating Blood after Receiving HBIg and Hepatitis B Vaccine

After receiving HBIg, blood should not be donated until the recipient tests negative for HBsAg six months after the exposure. In situations where Hepatitis B vaccine is being given to an individual for routine immunization (not for a possible exposure to HBV), blood should not be donated for 48 hours after receiving the vaccine.

2) **TREATMENT AFTER SIGNIFICANT EXPOSURE TO HIV:**

Exposure	Source Material	Antiviral Treatment
PERCUTANEOUS or MUCOUS MEMBRANE or SKIN	Blood or body fluid containing visible blood in cerebrospinal/ synovial/ pleural/peritoneal/ pericardiac/amniotic fluids or in semen, vaginal fluid or tissue: i) Highest Risk involves an incident in which the source is known to be: <ul style="list-style-type: none"> • HIV positive • Incarcerated • An intravenous drug user • Engaging in high risk sexual activity (see page 9) • From a foreign country known to have a high rate of AIDS/HIV • Source unknown. 	Kaletra + Truvada
	ii) If the source material is highest risk and the exposed person is pregnant	Kaletra + Combivir
	iii) Lowest Risk when the source is known not to be in the high risk group noted above.	Truvada
	iv) If the source material is lowest risk and the exposed person is pregnant	Combivir
	v) Other body fluids with no visible blood	No treatment

Refer to **Appendix 1 pages 12-13** for details on the above medications, common precautions and side effects.

NOTES:

A) When the source cannot be tested or is negative for HIV, but may be in the window period, OR if the significance of the exposure cannot be adequately assessed, the risk of infection should be explained to the exposed person and prophylaxis offered.

The exposed person should be informed of the risk of infection versus the risk of adverse effects from the medication.

- B) Chemoprophylaxis should be started as soon as possible, ideally within 1-2 hours of exposure, and no later than 72 hours after exposure.
- C) HIV antibody testing is recommended for all occupational exposures at baseline, and 6 weeks, 12 weeks and 6 months postexposure.
- D) The following baseline and 12-13 day blood work is required for those on medications:
 - 1) Complete blood work (CBC)
 - 2) BUN/Creatinine
 - 3) Liver enzymes (ALT + AST)

If 12-13 day blood tests are normal, the course of treatment should be extended so that a total of 28 days of treatment is taken.

3)_ POST EXPOSURE PROPHYLAXIS AFTER SEXUAL EXPOSURE:

Sexual exposures involving receptive anal intercourse is considered a high risk exposure. Insertive anal intercourse, penile - vaginal exposures and oral sex represent less risk.

Postexposure prophylaxis is not recommended if initiated 72 hours after exposure to HIV.

Partners who routinely use a condom (when one partner is known to be HIV positive) and experience breakage of a condom should be offered anti-HIV medication. When a condom breaks, an evaluation of the sensitivity of the HIV to antiviral medication of a known positive partner already on anti-HIV therapy is necessary.

Because most of these situations are high risk, the recommended anti-HIV medication is **Truvada** and **Kaletra** or if the exposed person is pregnant **Combivir** and **Kaletra**. Starter packs for these medications are kept in the Prince County Hospital and Queen Elizabeth Hospital Emergency Rooms (see page 10).

HBIG can be administered as in Step 4 page 6, but the interval within which it can be administered is up to 14 days after the last sexual contact with the source.

Hep B vaccine can be administered as in Step 4 page 7.

AVAILABILITY AND COVERAGE OF ANTIVIRAL MEDICATION

Starter Packs

The “starter packs” contain a 4-day supply of medications and are available in the Queen Elizabeth and Prince County Hospitals for Emergency Room use. These packs are supplied by the pharmacies of these two hospitals and the cost is covered by the hospital.

Prescriptions for Course of Treatment

1) Workplace Incidents

Those who are employees with insurance coverage are to take their prescription to a retail pharmacy. If the patient has drug insurance, all or part of the cost may be covered.

Those employees who have an accepted Workers Compensation claim for this specific work related injury will be covered for medications as appropriate. Entitlement to prescription drug coverage is dependant on whether the prescribed drug is related to the diagnosed work related injury or illness. If the Workers Compensation Board has not yet accepted the claim, the worker can pay for the drug directly and submit the original receipt to the Workers Compensation Board for consideration of payment, once the claim is accepted.

2) Community Incidents

Those patients who do not have coverage through their work may have private drug coverage. If the incident occurred in the community and the patient has no coverage, the incident is to be reported to the Office of the Chief Public Health Officer. Upon approval, a letter will be sent to the Provincial Pharmacy approving the provision of the antiviral medication free of charge upon receipt of a prescription in the Provincial Pharmacy. The medication may be picked up at the Provincial Pharmacy in Charlottetown.

NOTE:

Only the community incidents need to be reported to the Office of the Chief Public Health Officer. However, when the source is known to be positive for HIV or HCV, a call to the Office of the Chief Public Health Officer would be appreciated. Call 368-4996 and ask for the CD Nurse.

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APPENDIX 1A

ANTIVIRAL MEDICATIONS RECOMMENDED AFTER A SIGNIFICANT OCCUPATIONAL OR COMMUNITY EXPOSURE TO HIV (as discussed on page 8)

Chemoprophylaxis should be started as soon as possible, ideally within 1-2 hours of exposure, and no later than 72 hours after exposure. The following medications are presently recommended for prevention of HIV:

1) High Risk Exposure

a) **TRUVADA** (EMTRICITABINE 200 mg + TENOFOVIR 300 mg)
Dose: ONE (1) TABLET P.O. DAILY FOR 28 DAYS

And

b) **KALETRA** (LOPINAVIR 200 mg + RITONAVIR 50 mg)
Dose: TWO (2) TABLETS P.O. B.I.D. FOR 28 DAYS

2) High Risk Exposure and the **Source Person is Pregnant:**

a) **COMBIVIR** (ZIDOVUDINE 300 mg + 150 mg LAMIVUDINE)
Dose: ONE (1) TABLET P.O. TWICE A DAY FOR 28 DAYS

And

b) **KALETRA** (LOPINAVIR 200 mg + RITONAVIR 50 mg)
Dose: TWO (2) TABLETS P.O. B.I.D. FOR 28 DAYS

3) Low Risk Exposure

TRUVADA (EMTRICITABINE 200 mg + TENOFOVIR 300 mg)
Dose: ONE (1) TABLET P.O. DAILY FOR 28 DAYS

4) Low Risk Exposure and the **Exposed Person is Pregnant**

COMBIVIR (ZIDOVUDINE 300 mg + 150 mg LAMIVUDINE)
Dose: ONE (1) TABLET P.O. TWICE A DAY FOR 28 DAYS

Note: See page 13 for precautions and common side effects for these medications.

APPENDIX 1B

Precautions and Common Side Effects of Antiviral Medications

Drug	Precautions	Common Side Effects	Side Effects Requiring Immediate Attention	Side Effects to be Assessed at Next Doctor Visit
COMBIVIR	<p>An allergic reaction can occur when starting on any new medication.</p> <p>The patient should be seen immediately by a physician if any of the following symptoms are noted:</p> <ol style="list-style-type: none"> 1) sudden wheezing and chest pain or a tight feeling in the chest 2) swelling of the eyelids, face and/or lips 3) skin rash or hives anywhere on the body 		<ol style="list-style-type: none"> 1) Fever, chills or sore throat 2) Pale skin or muscle weakness 3) Abdominal discomfort, loss of appetite and a general feeling of discomfort 	<ol style="list-style-type: none"> 1) Headache 2) Muscle soreness or nausea 3) Unusual tiredness 4) Trouble sleeping 5) Diarrhea
TRUVADA	<p>Allergic reactions as above for COMBIVIR</p>	<ol style="list-style-type: none"> 1) Nausea, vomiting and/or diarrhea 2) Headache 3) Flatulence 4) Rash 	<p>Renal toxicity due to Truvada is rare but can be serious. The patient should have a normal creatinine before starting the medication and have the creatinine checked after 12 - 13 days on the medication.</p>	
KALETRA	<p>Allergic reactions as above for COMBIVIR</p> <p>Advise women on Kaletra to use protection for pregnancy while on medication and for 2 weeks after as Kaletra can reduce the effectiveness of Ovral TM but not Levonorgestrel TM</p>	<ol style="list-style-type: none"> 1) Diarrhea. If diarrhea occurs, the patient should take the over-the-counter medication Immodium. 2) Numbness or tingling in the inside of the mouth 3) Stomach upset. If the stomach is upset, the patient may take the medication with food. 	<p>See "Precautions"</p> <p>Pancreatitis (rare)</p> <p>Hepatitis (rare) - usually when liver disease already present</p>	

APPENDIX 2

RECOMMENDED ACTION FOLLOWING PERCUTANEOUS (“NEEDLE STICK”) OR MUCOSAL EXPOSURE TO HEPATITIS B VIRUS

Course of Action Following Percutaneous (“NEEDLE STICK”) or Mucosal Exposure to Hepatitis B Virus

Exposed Person		Source*		
Vaccination Status	Anti-HBs Level	HBsAg Positive	Unknown Status	
			High Risk	Low Risk
Vaccinated	≥ 10 IU/L documented at any time.	no action necessary	no action necessary	no action necessary
	known non-responder (anti-HBs Ag level < 10 IU/L after vaccination)	HBIg ^{†,‡}	HBIg ^{†,‡}	no action necessary [‡]
	level unknown and unable to be determined within 48 hours	HBIg [†] + single booster	single booster ± HBIg [†]	no action necessary
Unvaccinated	≥ 10 IU/L	no action necessary	no action necessary	no action necessary
	level unknown at 48 hours or < 10 IU/L	HBIg [†] + full vaccine course	full vaccine course ± HBIg [†]	full vaccine course

* If source is known to be HBsAg negative, no action is required unless exposed person requires initiation of vaccination series.

† Hepatitis B immune globulin 0.06 mL/kg preferably given within 48 hours of exposure. Efficacy decreases with time and is unknown after 7 days.

‡ If exposed person has received only three vaccine doses, an additional three-dose series may be administered.

Source: Canadian Immunization Guide, Seventh Edition, 2006