

21. FIRST-AID AFTER OCCUPATIONAL EXPOSURE

Occupational exposure

Contact with blood or any other biological fluid carrying risk for the healthcare worker of contracting a transmittable disease. During the dental procedure, saliva is considered to be contaminated by the blood.

Responsible management of occupational exposure is crucial for healthcare workers. While the risk of contracting HIV is low, the relative risks of contracting hepatitis B and C are higher. Assessment of the follow-up in the event of exposure depends on the degree of severity of the wound and on the type of exposure (percutaneous, mucous membranes, healthy skin, damaged skin).

Prevention

Regardless of the patient being treated, dental care professionals must always take the following precautions so as to avoid injury:

1. Use personal protection and wear utility gloves to clean instruments and the work area after patient treatment.
2. Never cap needles with both hands. Use the one-hand technique or protective shields.
3. Do not try to catch an instrument you drop: let it fall.
4. Carefully carry instruments between the treatment area and the sterilization area.
5. Handle pointed instruments and sharps (needles, burs, etc.) with caution and dispose of them in the designated containers.
6. Use cassettes for instruments: they have the advantage of minimizing the risk of injury.
7. Verify seroconversion.

The sheet **Procedures to follow in the event of occupational exposure** must be posted in plain sight in every operatory.

It is strongly recommended that the clinic have at least one eye wash fountain.



Blood-Borne Infection Risk Assessment Unit

Like other healthcare professionals, dentists and dental hygienists carrying a blood-borne infection and who are performing procedures involving a risk of transmitting the infection can undergo a confidential assessment for the risk of transmission provided by the Institut national de santé publique (INSPQ). As required, a committee of experts can make recommendations to the professional orders concerned on the risk of infecting their patients.

Every professional has an ethical obligation to protect his or her patients. Professionals who know they are carrying a blood-borne infection must undergo the transmission risk assessment provided by the Unit. The **Blood-Borne Infection Risk Unit** has provided this service to the professionals involved since January 2005 and to students since 2006.

To take advantage of this free and confidential service, call **1-866-680-1856**.

Every professional must refrain from practising his profession or performing certain professional acts to the extent that his state of health is an obstacle thereto. (Professional Code R.S.Q., C.c-26, section 54)

For more information, go to www.inspq.qc.ca/asp/en/sertih_en.aspx.

First-aid protocol in the event of accidental contamination

Any accidental contamination with blood or organic fluid potentially infected with hepatitis B or C (HBV/C) or with the human immunodeficiency virus (HIV) requires quick, appropriate intervention by the healthcare worker, even if he or she was previously vaccinated against hepatitis B. It should be stressed that in this respect some people do not respond to the vaccination.

Every dental clinic must in advance establish a procedure to follow and enter into an agreement with a health service, whether a clinic or other organization, to provide support in the event of accidents or emergencies.

Biological materials

Risky biological materials consist of blood, semen, vaginal secretions, or any other body fluid visibly contaminated with blood. Saliva is considered to be contaminated by blood during dental procedures and dental surgery. Until now, only blood, fluids visibly contaminated with blood, and fluids in research laboratories containing virus concentrates were found to be involved in the occupational transmission of HIV. Moreover, in the absence of visible blood in saliva, exposure to the saliva of a person living with HIV-AIDS is not considered to be a risk for transmission of HIV. The same holds true for tears, sweat, urine, and feces. On the other hand, maternal milk from women living with HIV-AIDS is involved in the transmission of HIV to newborns. HIV can thus be transmitted during breastfeeding by women living with HIV-AIDS. However, skin contact with this milk does not represent a risk for HIV transmission. With regard to hepatitis C, only transmission through infected blood is possible; and for hepatitis B, in addition to blood, saliva is a risk factor if the person has been bitten by an infected person.

Medical consultation

If there is a risk of transmission of a blood-borne infection, it is essential to seek a medical consultation as quickly as possible to determine the need for **post-exposure chemoprophylaxis**. In fact, antiretroviral drugs must be taken in the first few hours following exposure.

During the medical consultation, the risk of exposure will be assessed based on the type of biological materials involved, the means of exposure, and the severity of exposure. The person exposed to the risk will also be examined as well as the source person, if possible.

Source person

All efforts to obtain information from the source person must be made in the strictest confidentiality, without pressure or prejudice.

If possible, the source person will be assessed to determine whether he or she is infected with HIV, HBV, HCV, or any other active infection (malaria, syphilis, etc.). To do so, screening tests must be conducted with the individual's authorization. Also being assessed will be the person's medical history and clinical symptoms that may be associated with a transmittable infection and the main risk factors¹ for the following pathogens:

- HIV (e.g., injection drug use, unprotected sex with multiple homosexual or heterosexual partners, or with an HIV-infected partner, or a partner at high risk of being HIV infected, the fact of having received blood or blood products before 1985, coming from a region with a high endemicity for HIV infection);
- HBV (e.g., injection drug use, unprotected sex with multiple homosexual or heterosexual partners, or with an HBV-infected partner, or a partner at high risk of being HBV infected, close family contact with the HBV-infected person, the fact of having received blood or blood products before 1970, coming from a region with a high endemicity for hepatitis B);
- HCV (e.g., injection drug use, the fact of having received blood or blood products before 1990, the fact of having undergone hemodialysis, coming from a region with a high endemicity for hepatitis C);

If the person is HIV-negative, it is generally not necessary to take any further action. On the other hand, if the exposed person tests HIV-positive, the stage of the infection should be identified and post-exposure chemoprophylaxis begun as quickly as possible. If it is uncertain whether or not the source person is HIV-infected, it is recommended to consult a physician to receive the necessary follow-up.

If the source person is HBV-negative, it is generally not necessary to take any further action. However, if the source person is HBV-positive or if there is any doubt, even if the exposed person has been vaccinated, it is recommended to consult a physician for blood testing for HBV and HBV antibodies and to receive the necessary follow-up.

If the source person is HCV-negative, it is generally not necessary to take any further action. However, if the source person is HCV-positive or if there is any doubt, it is recommended to consult a physician to determine the serum levels of hepatic enzymes and HCV antibodies and to receive the necessary follow-up. It should be noted that to date there exists no prophylaxis to prevent the transmission of HCV.

Exposed person

The exposed person must undergo screening for the pathogen or pathogens involved in order to determine his or her serological status at the time of exposure. In the event that the source person represents a risk for HIV transmission, the exposed person begins chemoprophylaxis and is periodically tested during follow-up (e.g., three or six months after exposure).

It should be noted that dental care workers who, in their work, are likely to be in contact with blood should be vaccinated for HBV. Testing for HBV antibodies must be within four to eight weeks after the third dose of the vaccine in order to establish response to the vaccine.

Exposure report

Fill out the **Exposure report**. This information is essential for good management of exposure follow-up.

See Appendix IX:

p. 67: Protocol to Follow after Exposure to a Biological Material;

pp. 69-70: Dental Clinic Accident Report Following Accidental Exposure to Blood or other Biological Fluids.

¹- The order in which these risk factors is described is not indicative of their relative importance.

APPENDIX IX

Protocol to Follow after Exposure to a Biological Material

These are the first actions to take after exposure to a biological material:

- **Following a percutaneous exposure such as a needlestick, a cut, or a scratch with broken skin, involving blood or a contaminated instrument** (contaminated instruments such as needles or other sharps that penetrate the skin):
 1. Wash the wound for several minutes with tap water and soap or with an antiseptic solution, and then rinse with water.^{2,3}
 2. Request a medical consultation to determine the need for chemoprophylaxis.
 3. Fill out an exposure report.
- **Following a cutaneous exposure or when there is blood contact on damaged skin (the integrity of the skin has been compromised when there is dermatitis, a scratch, or an open wound):**
 1. Wash the wound for several minutes with tap water and soap or with an antiseptic solution, and then rinse with water.
 2. Request a medical consultation to determine the need for chemoprophylaxis.
 3. Fill out an exposure report.
- **Following a cutaneous exposure or when there is blood contact on healthy skin (contact with intact skin generally does not involve a risk of transmission of HIV, HBV, HCV, or other pathogens. But prolonged contact or exposure to a large area of body surface carries a risk of contamination):**
 1. Clean the affected area thoroughly with tap water and soap.
 2. Given that healthy skin is the best protection, chemoprophylaxis is not required. In case of prolonged exposure to blood that may be contaminated, it is best to consult a physician and to fill out an exposure report.
- **Following exposure of a mucous membrane or contact of a mucous membrane with blood (the mucous membrane of the eye or the mouth is a port of entry for pathogens when there is contact):**
 1. As quickly as possible, rinse the area abundantly for several minutes with tap water.⁴
 2. Request a medical consultation to determine the need for chemoprophylaxis.
 3. Fill out an exposure report.

²- According to the CDC, while there is no contraindication, there is no evidence of risk reduction by encouraging bleeding or by using an antiseptic solution. However, the application of caustic agents (e.g., bleach) or the injection of antiseptics or disinfectants into the wound is not recommended. These recommendations are from the report of the Centers for Disease Control and Prevention (CDC). *Public Health Service Guideline for the Management of Health-Care Worker Exposures to HIV and Recommendations for Postexposure Prophylaxis*. MMWR 1998; 47 (No. RR-7).

³- MSSS, *Guide pour la prophylaxie postexposition (PPE) aux personnes exposées à des liquides biologiques dans le contexte du travail*, 2006, p. 11:....encourage bleeding of the lesion immediately without traumatizing its immediate surroundings.

⁴In the case of the ocular mucous membrane, use an eye wash.

Where to consult?

After first aid, the next step is to consult a competent person for follow-up after exposure. To do so, it is strongly recommended that you go to the nearest hospital emergency centre in order to be cared for as soon as possible. These centres have the advantage of being able to administer a chemoprophylactic treatment on the spot. It is important to specify the cause of your emergency and to insist on being seen in less than two hours.

Don't wait for an emergency to start looking for where to go. Get information at your hospital or from a nearby physician to find out if they are ready to treat you and if they have the appropriate medications for a chemoprophylaxis. In the case of an incident, you will be prepared to refer members of your team.

Public health departments

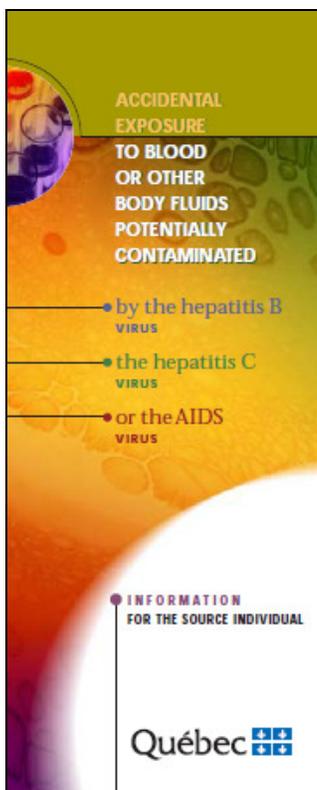
Aside from an emergency centre, you can call the regional public health departments where their consulting physicians will answer your questions.

Contact information available at Directions de santé publique: www.msss.gouv.qc.ca/reseau

Information pamphlet

The Ministry of Health and Social Services has published the following information pamphlet:

Accidental exposure to blood or other body fluids potentially contaminated by the hepatitis B virus, the hepatitis C virus, or the AIDS virus—Information for exposed persons.



This information pamphlet is available in English and in French in four versions:

- Information for the source individual
- Information for exposed persons
- Information for the parents of an exposed child
- Information for healthcare workers

Source: www.msss.gouv.qc.ca/en/documentation

DENTAL CLINIC ACCIDENT REPORT FOLLOWING ACCIDENTAL EXPOSURE TO BLOOD OR OTHER BIOLOGICAL FLUIDS

Important: It is essential to report every accidental exposure to blood or other biological fluids and to consult a physician immediately. After medical consultation, this report must be placed in the personnel file of the worker.

Section I: GENERAL INFORMATION

1. Worker identification

Last name:	First name:
Job title:	
Office telephone:	Home telephone:

Hepatitis B vaccination

- No
 Yes (specify) _____ Complete (3 doses) Incomplete (1 or 2 doses)
 Unknown

Anti-HBs measured

- No
 Yes
Date of serological verification: ___ / ___ / ___ ≥ 10 IU/L ≤ 10 IU/L

Section II: INFORMATION CONCERNING EXPOSURE

2. Date of exposure: ___ / ___ / ___ (d/m/y) Time: _____

3. Place where exposure occurred: _____

4. Biological fluids involved: (check the appropriate box or boxes)

- Blood
 Other fluid or tissue. Specify: _____
Blood-tinged? Yes No Do not know
 Unknown

5. Type of exposure:

- Percutaneous (answer questions 6–10)
 Mucocutaneous (answer questions 11–13)

A. PERCUTANEOUS EXPOSURE (If no, go to question 11)

6. Type of exposure:

- Cut
 Needlestick
 Scratch
 Bite

7. Instrument involved: (check the appropriate box or boxes)

- Was visibly contaminated with blood before exposure occurred
 Had been used with a patient, but no blood visible on the instrument
 Contaminated directly from a blood vessel
 Unknown
 Does not apply

Type of instrument (description): _____

8. Depth of the wound:

- Superficial (with or without bleeding)
- Deep (with or without bleeding)

9. Did the instrument pierce clothing or a glove?

- Yes Do not know
- No Does not apply

10. If a bite is involved, was there blood present originating from the mouth of the aggressor?

- Yes Do not know
- No

B. MUCOCUTANEOUS EXPOSURE (If none, go to question 14)

11. Amount of blood in contact with damaged skin or with mucous membranes:

- A few drops
- Small amount (≤ 5 ml–1 tsp)
- Medium amount (≤ 50 ml - 1/4 cup)
- Significant amount (> 50 ml)
- Unknown

12. Duration of contact (indicate the approximate time, in minutes): _____

13. In the case of spatter or contact with a wound, what was the size of the surface affected?

- Less than 1 cm²
- From 1 cm² to at least 5 cm²
- 5 cm² or more
- Unknown
- Does not apply

Section III: INFORMATION ABOUT THE SOURCE

14. Source individual known or identified:

- Yes (send contact information in confidence to the treating doctor)
- No

15. Other relevant information about the source individual:

Worker's signature: _____ Date: ____ d / ____ m / ____ y

Sources: DSP de Montréal-Centre
DSP du Saguenay-Lac Saint-Jean, adapted and updated February 2000