



Ebola Virus Disease: Prevention and Control Measures for Hospitals

COMITÉ SUR LES INFECTIONS NOSOCOMIALES DU QUÉBEC

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An outbreak of Ebola Virus Disease¹ has been ongoing in West Africa since March 2014. It is the largest outbreak known to date. Although low, the threat of importing Ebola virus disease cannot be excluded. Ebola Virus Disease has a fatality rate of 50% to 90%.

This fact sheet sets out the recommendations of the Comité sur les infections nosocomiales du Québec (CINQ)² for Ebola virus disease prevention and control measures for Québec hospitals. Notwithstanding the transmission of the disease through contact and droplets, the CINQ recommends more important measures to take into account possible airborne transmission, significant environmental contamination by blood, body fluids, secretions or excretions, and high Ebola virus disease fatality.

Hospitals must implement the measures necessary to prevent the transmission of Ebola virus disease.

Last, it is important to remind clinicians and prevention and control teams of Québec hospitals that other infectious diseases can occur upon return from travel, which may require additional prevention and control measures and investigations.

Information on the worldwide situation regarding Ebola virus disease can be found at the following website: <http://www.who.int/csr/don/en/>.

¹ Formerly known as *Ebola haemorrhagic fever*.

² Québec Nosocomial Infection Committee.

Epidemiological Characteristics of Ebola Virus Disease

Clinical characteristics	<ul style="list-style-type: none"> ▪ Sudden disease onset consistent with a non-specific flu-like syndrome: fever, chills, fatigue, myalgia, arthralgia, malaise, headache, cough and sometimes sore throat (average 8-10 days post-exposure). ▪ Frequently, other signs or symptoms approximately 5 days after the initial symptoms: <ul style="list-style-type: none"> ▪ maculopapular erythematous rash on face, neck, trunk and limbs; ▪ gastrointestinal symptoms (e.g. nausea, vomiting, diarrhea, abdominal pain); ▪ respiratory symptoms (e.g. cough, chest pain); ▪ neurological symptoms (e.g. prostration, confusion). ▪ Delayed-onset haemorrhagic manifestations in a third of patients: petechiae, ecchymosis, oozing at vein puncture sites, mucous membranes bleeding (hematemesis, melena, gingival bleeding, epistaxis, hemoptysis). ▪ 50% to 90% fatality rate.
Treatment	<ul style="list-style-type: none"> ▪ Of support. ▪ Experimental vaccine: combination of three monoclonal antibodies that bind to the virus protein.
Virus characteristics	<ul style="list-style-type: none"> ▪ Member of the Filoviridae family, RNA virus with a lipid membrane. ▪ Low infectious dose: 10 virus particles can cause infection. ▪ Immunosuppression following infection. Impairment of the coagulation system. ▪ Survival time in the environment: several days (in liquid or dried material), with infectivity remaining stable at room temperature or at 4 °C. ▪ Sensitive to sodium hypochlorite, liquid solvents, phenol-based disinfectants, peracetic acid, methanol, ether, sodium deoxycholate, 2% glutaraldehyde, 25% Triton X-100, -propiolactone, 3% acetic acid (pH 2.5), formaldehyde and paraformaldehyde, and detergents.
Period of incubation	<ul style="list-style-type: none"> ▪ 2 to 21 days, with an average of 4 to 10 days.
Modes of transmission	<ul style="list-style-type: none"> ▪ Direct contact (through broken skin or mucous membranes) with the blood, body fluids, secretions or excretions (e.g. stool, vomit, urine, sweat, saliva, sperm, breast milk, tears, etc.) of an infected person (living or deceased). ▪ Indirect contact, through objects, surfaces, clothing or bedding contaminated by the blood, body fluids, secretions or excretions of an infected person (living or deceased). ▪ Possibly airborne (opportunistic infection), in cases of pulmonary disease and when performing aerosol-generating procedures. ▪ Transmission reported among family members and friends who took care of infected persons or their remains and in staff not wearing appropriate personal protective equipment.
Period of contagiousity	<ul style="list-style-type: none"> ▪ As soon as symptoms appear. Not contagious during the incubation period, when the patient is asymptomatic. ▪ Contagiousness increases as the disease progresses, particularly with the onset of haemorrhagic manifestations. ▪ Contagious as long as blood, body fluids, secretions or excretions contain the virus. There are documented cases of viral shedding in sperm up to 90 days after illness onset.

Diagnostic tests	<ul style="list-style-type: none"> ▪ Eliminate the most likely diagnoses, particularly malaria (see the <i>Guide pour la gestion des demandes d'analyse provenant de patients chez qui une fièvre virale hémorragique est suspectée</i> [LSPQ, 2014, in French only]). ▪ Contact the provincial public health laboratory (LSPQ) to activate the emergency response plan to have specimens sent for diagnostic testing by the National Microbiology Laboratory (NML) to confirm or rule out a diagnosis of Ebola Virus Disease. ▪ Tests available: <ul style="list-style-type: none"> ▪ NAT molecular detection; ▪ Ebola virus antigen detection; ▪ Virus isolation; ▪ IgM or IgG antibody detection (acute phase, convalescent phase) (LSPQ, 2014). ▪ Ebola virus antigens and nucleic acids can be detected from Day 3 to Days 7–16 after the disease's onset. ▪ IgM antibodies can appear 2 days after disease onset and disappear 30 to 168 days after. ▪ IgG antibodies develop between 6 and 18 days after disease onset and persist for several years.
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Identifying Patients with Suspected Ebola Virus Disease

It is crucial to quickly identify patients with suspected Ebola virus disease in order to immediately apply the prevention and control measures required to adequately protect other patients, visitors and staff.

Triage

If the patient:

- presents with sudden-onset fever;
- AND
- has been in an area at risk for the Ebola virus³ within less than 21 days;

It is recommended to:

- isolate the patient in a negative pressure room (or, if unavailable, a closed room);
- apply additional precautions against transmission by contact and by air (wear a long-sleeved gown, gloves, an N-95 air-purifying respirator [APR]),⁴ with eye protection for all staff who come into contact with the patient;

³ Areas at risk for Ebola virus disease as at August 11, 2014, include the following countries: Guinea, Liberia, Nigeria, and Sierra Leone. For an up-to-date list of countries affected by the Ebola Virus Disease epidemic, visit the following website: <http://www.who.int/csr/don/en/>.

⁴ Also referred to as an APR mask.

- quickly have the patient assessed by a physician.

Given the short amount of time triage takes, the small quantity of aerosols an infected patient produces within that time, and the fact that no procedures that may produce aerosols are done:

- triage may take place in a closed room without negative pressure;
- it is not necessary to allow time for the triage room to vent before receiving another patient;
- it is, however, necessary to disinfect all surfaces with which the patient came into contact.

Emergency Medical Assessment

Assess the patient in a negative pressure room (or, if unavailable, a closed room). The physician must wear the following personal protective equipment: long-sleeved gown, gloves, an N-95 APR and eye protection.

The physician's assessment must provide information on the clinical presentation, travel history and nature of exposure that suggest Ebola virus disease for the purpose of:

- establishing the infection prevention and control measures to be taken to prevent nosocomial transmission; and
- undertaking the necessary investigations to confirm or rule out an Ebola virus disease diagnosis.

For all febrile travellers from a malaria-endemic area (e.g. sub-Saharan Africa), that diagnosis must be considered until determined otherwise.

For a patient to be suspected of having Ebola virus disease, he/she must meet the following clinical and epidemiological criteria:

CLINICAL CRITERIA

- Sudden-onset fever lasting at least 24 hours (≥ 38.5 °C) with:
 - a non-specific flu-like syndrome (e.g. arthralgia, myalgia, fatigue, headache, cough);
- OR
 - symptoms consistent with Ebola virus disease (e.g. mucocutaneous, gastrointestinal, neurological or haemorrhagic manifestations);

AND

EPIDEMIOLOGICAL CRITERIA

Scenario 1:

- A history of travel to an area at risk for the Ebola virus⁵ within less than 21 days;

AND

- for whom exposure without appropriate protection, as defined below, cannot be ruled out:
 - Direct contact with a person (living or deceased) infected, or strongly suspected of being infected, with the virus (e.g. having provided care to; shared the same room or lived under the same roof as; had unprotected sexual relations with; or had contact with the cadaver of during funeral rites);
 - Indirect contact, through objects, surfaces, clothing or bedding contaminated by a person (living or deceased) infected, or strongly suspected of being infected, with the virus;
 - Admission to, health care from, or visits to a hospital or dispensary that received patients infected with the virus;

- Handling, in a laboratory, of Ebola virus strains or clinical specimens (e.g. blood, urine, stool, tissue, cultures) that may contain the Ebola virus from a person infected, or strongly suspected of being infected, with the virus;
- Working in a laboratory that handles bats or non-human primates from an area at risk;⁶
- Contact with the blood or other body fluids of an animal infected, or strongly suspected of being infected, with the virus;
- Direct contacts with bats or non-human primates in an area at risk or from an area at risk;
- Exposure to a cave infested with bats in an Ebola-endemic area;
- Handling (butchering, drying, smoking) or consumption of meat (raw or undercooked) obtained by hunting (particularly non-human primates and bats) in an area at risk;

Scenario 2

- No history of travel to an area at risk;

AND

- for whom has been documented:
 - Close contact with a patient confirmed to have Ebola virus disease within 21 days prior to the disease's onset;

OR

- Sexual relations with a patient confirmed to have Ebola virus disease within 13 days prior to the disease's onset.

⁵ Areas at risk for Ebola virus disease as at August 11, 2014, include the following countries: Guinea, Liberia, Nigeria, and Sierra Leone. For an up-to-date list of countries affected by the Ebola Virus Disease epidemic, visit the following website: <http://www.who.int/csr/don/en/>.

⁶ Areas at risk for Ebola virus disease as at August 11, 2014, include the following countries: Guinea, Liberia, Nigeria, and Sierra Leone. For an up-to-date list of countries affected by the EBOLA VIRUS DISEASE epidemic, visit the following website: <http://www.who.int/csr/don/en/>.

For patients suspected of having Ebola virus disease, it is recommended to:

- immediately notify the medical microbiologist / infectious disease specialist on duty;
- immediately notify the local infection prevention and control team;
- isolate the patient in a negative pressure room or, if unavailable, in a single room where the door is closed at all times and which has a dedicated toilet;
- continue to apply additional precautions against transmission by contact and by air (wear a long-sleeved gown, gloves, an N-95 APR), with eye protection for all staff who come into contact with the patient or the patient's environment, for the duration of the investigation;
- conduct laboratory tests as recommended in the *Guide pour la gestion des demandes d'analyse provenant de patients chez qui une fièvre virale hémorragique est suspectée* (LSPQ, 2014);
- immediately report the case to the Direction régionale de santé publique.

Prevention and Control Measures for Patients with Suspected or Confirmed Ebola Virus Disease

PATIENTS PLACEMENT, STAFF ASSIGNMENT, VISITORS	
Patient placement	<ul style="list-style-type: none"> ▪ Isolate the patient in a negative pressure room or, if such a room is not available, in a single room where the door is closed at all times and which has a dedicated toilet. ▪ Ideally, use an anteroom for storing clean equipment and putting on personal protective equipment. ▪ Post a sign on the door of the room indicating that access is restricted and listing the measures to be taken. ▪ Group all confirmed Ebola Virus Disease patients into one care unit.
Staff assignment	<ul style="list-style-type: none"> ▪ Keep the number of caregivers to a minimum. No trainees or volunteers. ▪ Maintain a log of all persons entering the room. ▪ Train assigned staff on disease epidemiology and prevention and control measures. In particular, train staff on how to properly take off personal protective equipment so as to prevent any risk of infection or contamination. ▪ Provide the necessary assistance with safely putting on and taking off personal protective equipment.
Patient's movements outside of the room	<ul style="list-style-type: none"> ▪ Limit the patient's movements outside of the room. ▪ Notify the department in advance of the measures to be taken. Avoid having the patient wait in a room with other people. ▪ The patient must perform hand hygiene with an alcohol-based hand rub. ▪ The patient must wear a surgical or procedure mask and be covered with a clean sheet or wear a long-sleeved gown. ▪ The stretcher bearer must wear new personal protective equipment suitable for moving the patient outside of the room. ▪ The stretcher bearer must use a route that avoids well-frequented areas and must use a dedicated elevator.
Visitors	<ul style="list-style-type: none"> ▪ Limit the number of visitors. Only grant access to those who are essential to the patient's well-being and care. ▪ Maintain a log of all persons entering the room. ▪ Inform visitors of the measures to be taken. Assist them with safely putting on and taking off personal protective equipment and performing hand hygiene.

HAND HYGIENE, PERSONAL PROTECTIVE EQUIPMENT AND OTHER PRECAUTIONS	
Hand hygiene	<ul style="list-style-type: none"> ▪ Soap and water or alcohol-based hand rub.
Additional precautions and duration	<ul style="list-style-type: none"> ▪ Against transmission by contact and by air with eye protection. ▪ Duration: Until an Ebola virus disease diagnosis is ruled out or, if confirmed, for the duration of hospitalization or the period of contagiousity, whichever is longer.
Aerosol-generating procedures	<ul style="list-style-type: none"> ▪ The following procedures must be performed in a negative pressure room: <ul style="list-style-type: none"> ▪ Intubation and extubation. ▪ Bronchoscopy. ▪ Open-circuit suctioning of secretions from the airway. ▪ Sputum induction. ▪ Positive pressure ventilation via face mask (BiPAP, CPAP). ▪ High-frequency oscillatory ventilation. ▪ Nebulized treatment. ▪ Only perform aerosol-generating procedures when absolutely necessary. ▪ Limit the number of people present in the room during the procedure. ▪ Disinfect surfaces that may have been contaminated with droplets or other body fluids from the patient.
Personal protective equipment	<p>At all times, use:</p> <ul style="list-style-type: none"> ▪ An N-95 APR; ▪ Single-use eye protection: safety goggles or face shield; ▪ Single-use long-sleeved waterproof gown; ▪ Waterproof overshoes; ▪ Long-cuff nitrile gloves that fit properly and that are pulled over the wrists of the gown. Consider wearing a second pair of gloves depending on the risk of exposure associated with the procedure (e.g. vein punctures, insertion of an intravenous catheter through a central line). <p>Personal protective equipment must be put on before entering and taken off before leaving the room, except for the N-95 APR, which must be taken off after leaving the room.</p> <p>Wear closed shoes that are resistant to sharp objects. Do not wear personal clothing. Wear the uniforms provided by the establishment.</p> <p>At times when the patient is losing a lot of blood or other body fluids (e.g. vomiting, diarrhea, bleeding), also use:</p> <ul style="list-style-type: none"> ▪ Face shield; ▪ Waterproof apron; ▪ Head covering; ▪ Waterproof leg coverings and overshoes; ▪ Double gloves (2nd pair should be long-cuff gloves to cover the 1st pair of short-cuff gloves). <p>OR</p> <ul style="list-style-type: none"> ▪ Biological protection suit.
Health-care and medical equipment	<ul style="list-style-type: none"> ▪ Limit the amount of health-care and medical equipment that enters the room. ▪ Dedicate health-care and medical equipment for the patient (e.g. thermometers, sphygmomanometer, stethoscope). ▪ Health-care and medical equipment that are not single-use must be cleaned according to internal procedure.

Sharp objects	<ul style="list-style-type: none"> ▪ Limit the use of sharp objects. Use needle-free injection systems whenever possible. ▪ Limit vein punctures and invasive procedures. ▪ Provide a sufficient number of containers to dispose of sharp objects at the point of care. Never fill the containers to more than three quarters full. ▪ Avoid the use of glass tubes for samples.
Management of excreta	<ul style="list-style-type: none"> ▪ Have the patient use a dedicated toilet whenever possible. ▪ If the patient cannot use the toilet, have him/her use a dedicated commode chair lined with sanitary bags to collect stool and urine. ▪ Dispose of sanitary bags and their contents as set out in the “waste management” section. ▪ When emptying excreta into the toilet, minimize the risk of splashing and contamination of surfaces. ▪ Clean and disinfect the commode chair with a 5000 ppm sodium hypochlorite solution, ideally after every use but at least once per day. ▪ Whenever possible, use single-use containers for systems that suction respiratory and nasogastric secretions.
ENVIRONMENTAL CLEANING, LINEN	
Disinfection of the environment	<ul style="list-style-type: none"> ▪ Use the following personal protective equipment: <ul style="list-style-type: none"> ▪ An N-95 APR; ▪ Single-use eye protection: safety goggles or face shield; ▪ Single-use long-sleeved waterproof gown; ▪ Waterproof overshoes; ▪ Long-cuff nitrile gloves that fit properly and that are pulled over the wrists of the gown. <p>Personal protective equipment must be put on before entering and taken off before leaving the room, except for the N-95 APR, which must be taken off after leaving the room.</p> <p>Wear closed shoes that are resistant to sharp objects.</p> <ul style="list-style-type: none"> ▪ Clean and disinfect surfaces at high risk of contamination and floors at least once a day. When soiled, use a germicidal detergent approved for hospital use (e.g. quaternary ammonium, stabilized hydrogen peroxide or chlorine solution). ▪ Do not spray disinfectants. ▪ Use a 5% bleach solution (sodium hypochlorite) with a concentration of 5000 ppm to disinfect surfaces or objects contaminated by blood or other body fluids. ▪ Use a 5000 ppm chlorine solution for the final disinfection. ▪ Cloths, rags and mop pads must be thrown out with the biomedical waste.
Dishware	<ul style="list-style-type: none"> ▪ Use disposable dishware and utensils.
Linen	<ul style="list-style-type: none"> ▪ Use disposable linen and bedding.
WASTE MANAGEMENT	
Waste management	<ul style="list-style-type: none"> ▪ Consider all waste as biomedical waste. ▪ Provide a large garbage can labelled biomedical waste in the patient’s room, near the door, to collect used personal protective equipment, single-use medical equipment, dishware, bedding, etc. ▪ Dispose of biomedical waste daily. At the room exit, place the waste in a leak-proof container for immediate transport to the processing location. The exterior of the leak-proof container must be disinfected immediately upon leaving the room. ▪ Treat waste according to the procedure for biomedical waste management set out in Section 2 of the regulations on biomedical waste in the <i>Environment Quality Act</i> (R.S.Q. c Q-2, r.12).

OTHER ACTIVITIES	
Samples and laboratory tests	<ul style="list-style-type: none"> Follow the recommendations for safely collecting specimens, and for safely handling and transporting laboratory specimens, set out in the document entitled <i>Guide pour la gestion des demandes d'analyse provenant de patients chez qui une fièvre virale hémorragique est suspectée</i> (LSPQ, 2014).
Human remains management	<ul style="list-style-type: none"> The remains of a person who has died from Ebola virus disease must be handled in accordance with the <i>Act Respecting Medical Laboratories, Organ and Tissue Conservation and the Disposal of Human Bodies</i> (R.S.Q. c L-0.2). Wear personal protective equipment until the remains are in a leak-proof, sealed double bag. The handling of human remains should be kept to a minimum. Do not perform an autopsy. The body should not be embalmed. It must be cremated immediately or placed in a leak-proof coffin for burial. A viewing is not permitted. While waiting for confirmation of a suspected Ebola virus disease case, the remains are placed in a leak-proof, sealed double bag. No preparing of the body is permitted.
Contact management	See table: Risk categories and management of the contacts of confirmed Ebola Virus Disease patients.

Risk Categories and Contact Management of Patients with Confirmed Ebola Virus Disease

Risk categories*	Contact management
<p>No-risk casual contacts</p> <ul style="list-style-type: none"> ■ People who have not had direct contact with the infected person or his/her body fluids (e.g. blood, secretions, excretions, tissue). ■ People who have not had close personal contact with the infected person, i.e. have waited in the same waiting room, have stayed in the same hotel, have been on the same airplane. 	<ul style="list-style-type: none"> ■ Inform the people in question that there is no risk.
<p>Low-risk close contacts</p> <ul style="list-style-type: none"> ■ Staff members (physicians, nurses, ambulance attendants) who have provided care to the infected person or who have transported the infected person without using the appropriate protection or while taking the appropriate precautions and using personal protective equipment, but not applying proper techniques. ■ Laboratory staff who have handled laboratory specimens collected from the patient while taking the appropriate precautions and using personal protective equipment, but not applying proper techniques. ■ Anyone who has had close, face-to-face contact with an infected person who has a fever. ■ Anyone who has shared a room with a confirmed Ebola virus disease patient and who has used the same health-care equipment or toilet as the patient while the patient was in the initial phase of the disease (prodrome). <p>High-risk close contacts</p> <ul style="list-style-type: none"> ■ Anyone who has had unprotected contact via a mucous membrane (e.g. splash) or the skin (e.g. handling contaminated clothing or bedding) with blood or other body fluids from the infected person (e.g. secretions, excretions, tissue). ■ Anyone who has had close, face-to-face, unprotected contact with a patient who was coughing or vomiting, or who had a nosebleed or diarrhea. ■ Patient who has shared a room with a confirmed Ebola virus disease patient and who has shared a toilet or visibly contaminated health-care equipment with him/her during the initial phase of the disease. ■ Patient who has stayed in the same room as a patient in the terminal phase of the disease without adequate protection. ■ Anyone who lives with the patient and has cared for or attended to him/her, who has had skin-to-skin contact with the infected person, who has held hands with, hugged, kissed or had sexual relations with the infected person. ■ Anyone who has been pricked with a needle or has had a puncture injury during exposure to blood or other body fluids from the infected person. ■ Health care staff members (physicians, nurses, ambulance attendants) who have provided care to the infected person or who have transported the infected person without using the appropriate precautions and personal protective equipment and who have had unprotected contact via a mucous membrane or the skin with blood or other body fluids from the infected person. ■ Laboratory staff who have handled laboratory specimens collected from the patient without using the appropriate precautions and personal protective equipment and who have had unprotected contact via a mucous membrane or the skin with blood or other body fluids from the infected person. 	<ul style="list-style-type: none"> ■ Perform first aid as recommended following exposure to body fluids. ■ If it is a patient: <ul style="list-style-type: none"> ■ Notify the attending physician, the infection prevention and control department, and the direction régionale de santé publique; ■ Conduct a medical assessment of the transmission risk; ■ If hospitalized, place the patient in a private room with a dedicated toilet; ■ If he/she is at home, follow the procedure for managing contacts in the community – contact the direction régionale de santé publique. ■ Monitor the exposed person's temperature twice a day for three weeks following the exposure. ■ If he/she has a fever of 38.5 °C or higher or other symptoms associated with Ebola virus disease, he/she must be isolated, and the recommendations for managing suspected or confirmed Ebola virus disease cases must be followed. ■ If it is a staff member of a health care setting: <ul style="list-style-type: none"> ■ The staff member must notify his/her immediate supervisor and the health department; ■ Conduct a medical assessment of the transmission risk; ■ The health care worker may continue to work as long as he/she does not experience symptoms related to the exposure; ■ The worker must have his/her temperature taken twice a day for three weeks following the exposure. ■ If he/she has a fever of 38.5 °C or higher or other symptoms associated with Ebola virus disease: have him/her cease work immediately; contact the establishment's occupational health and safety office in order to have a medical consultation with the medical microbiologist / infectious disease specialist on duty. Isolate the worker and follow the recommendations for managing suspected or confirmed Ebola virus disease cases. ■ Notify the direction régionale de santé publique, which will conduct an investigation. Notify the infection prevention and control team.

* Transmission risk increases when the contact with the infected patient occurs in the final stages of the disease.

References

Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals 08-05-2014, <http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>

CENTRE HOSPITALIER UNIVERSITAIRE DE QUÉBEC, Protocole PCI – Alerte fièvres virales hémorragiques, Direction des soins infirmiers, Programme de prévention et contrôle des infections, CHU de Québec, 31 July 2014, 15 p. (in French only).

Direction de santé publique de l'Agence de la santé et des services sociaux de Montréal. Guide régional pour les centres hospitaliers Prise en charge d'un patient possiblement atteint d'une maladie à virus Ebola, August 2014 (in French only)

ECDC (2014). Rapid risk assessment: Outbreak of Ebola virus disease in west Africa, 3rd update 1 August 2014. <http://www.ecdc.europa.eu/en/publications/Publications/ebola-outbreak-west-africa-1-august-2014.pdf>

HEALTH PROTECTION SURVEILLANCE CENTRE (2012). The management of viral hemorrhagic fevers in Ireland, 117 pages. <https://www.hpsc.ie/hpsc/A-Z/Vectorborne/ViralHaemorrhagicFever/Guidance/File.12936.en.pdf>

LABORATOIRE DE SANTE PUBLIQUE DU QUÉBEC, Maladie à virus Ebola (maladie à virus Ebola) – Guide pratique pour la gestion des demandes d'analyses provenant de patients chez qui une maladie à virus Ebola est suspectée, Institut national de santé publique du Québec, 31 July 2014, 12 p. (in French only).

WORLD HEALTH ORGANIZATION, Interim Infection Prevention and Control – Guidance for Care of Patients with Suspected or Confirmed Filovirus haemorrhagic fever in Health-Care Settings, with Focus on Ebola, August 2014, 13 p.

UK Department of health (2012). Management of hazard group 4 viral hemorrhagic fevers and similar human infectious diseases of high consequence, Health and safety Executive, UK, 99 pages. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947382005

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