

3.1 Introduction

This Respiratory section includes the procedure required in order to complete investigation, control and reporting measures for diseases transmitted via respiratory routes. For each of these diseases, prompt recognition and control measures are vital to containment. The prevention and control measures may vary slightly with each disease, dependant upon several disease-specific factors. The following are general guidelines and further description is provided in each disease section, for those diseases which are preventable by routine vaccination please see that section.

Policy

All laboratory confirmed respiratory illnesses are to be reported to the RMOH or designate, appropriately treated and case follow up completed. Reports from the Provincial Public Health Laboratory are sent to the office of the RMOH, CMOH as well as the attending physician.

General Procedure

- Confirm the diagnosis, and confirm whether or not the case has been informed. If confirmation is delayed request immediate notification of test results from the laboratory.
- Obtain required demographic information in relation to the case and the attending physician.
- Contact the case to determine if this individual is in a situation where there is a high risk of transmission of the illness (e.g. childcare, health care worker).
- Investigate the most probable source of infection which should include:
 - Recent exposure to someone else who is sick with similar symptoms
 - Travel history
 - Attendance in childcare, school, daycare, healthcare settings
- Conduct contact tracing to determine if the contact is in a high risk group.
- Conduct contact tracing to inform contacts of any prophylaxis and/or exclusion measures.
- Refer to disease-specific measures and implement necessary activities.
- Educate case and contacts regarding the disease.
- Complete case detail investigation forms on specific diseases.
- Report as per List A, B, C.
- Publicly funded treatment is indicated for meningococcal disease, tuberculosis and Haemophilus influenza type B (Hib) invasive disease. These treatments or prophylaxis are provided through the public health office in the Regional Health Authority.

Roles and Responsibilities

Laboratory:

Report to CMOH, RMOH and attending physician within four working days for list B, immediately by telephone for list A, aggregate data within one week.

RMOH or designate:

- Assign and initiate investigation within four working days
- Ensure confidentiality
- Ensure completion of investigation, follow up and reporting
- If outbreak occurs assign outbreak committee and procedure

Investigator:

- Ensure case has been informed and treated
- Followed up as necessary with contacts (through the physician or public health)
- Ensure education for prevention has been appropriately disseminated

Guidelines around confidentiality

- Be sensitive to personal circumstances of the situation
- Explain the method of contact notification to case to ensure full cooperation
- Divulge personal information of the case or any contacts only with signed consent form
- Never e-mail names of cases or contacts; fax only if using secure fax line
- Mark all correspondence as personal and confidential

Reports from other Provinces and Territories

Reports of persons tested in other provinces are reportable in the province or territory where tested but if the person has moved back to NL reports are forwarded to the office of the CMOH for follow-up as necessary. When follow up is complete the region must notify the office of CMOH of the outcome of follow-up within two months.

Persons who have moved from Newfoundland and Labrador who may be cases or contacts will also be followed up through contact within provincial/territorial CMOH office through the Newfoundland and Labrador Provincial Medical Officer of Health.

The other diseases transmitted by the respiratory route are found in the following websites

- Invasive Group A Streptococcal Disease – Infection Control Guideline available at http://www.health.gov.nl.ca/health/publichealth/cdc/invasive_groupa_streptococcal_management.pdf
- Invasive Meningococcal Disease (IMD) – Infection Control Guideline available at http://www.health.gov.nl.ca/health/publichealth/cdc/meningococcal_management.pdf
- Invasive Pneumococcal Disease (IPD) – Diseases Preventable by Routine Vaccination available at: http://www.health.gov.nl.ca/health/publications/diseasecontrol/vpd_2010.pdf
- Laboratory Confirmed Influenza – see Diseases Preventable by Routine Vaccination http://www.health.gov.nl.ca/health/publications/diseasecontrol/vpd_2010.pdf
- Tuberculosis – Infection Control Guideline available at http://www.health.gov.nl.ca/health/publichealth/cdc/tuberculosis_management_october2010.pdf

3.2 Hantavirus Pulmonary Syndrome

List B

Only confirmed cases of disease are reported

Case Definition

Confirmed case

Clinical illness¹ with laboratory confirmation of infection:

- Detection of IgM antibodies to hantavirus
- OR
- Detection of a significant (e.g., fourfold or greater) increase in hantavirus-specific IgG antibody titres
- OR
- Detection of hantavirus RNA in an appropriate clinical specimen
- OR
- Detection of hantavirus antigen by immunohistochemistry

¹ Clinical illness is characterized by:

- a febrile illness {temperature > 38.3°C (101°F) oral} requiring supplemental oxygen
- AND
- bilateral diffuse infiltrates (may resemble acute respiratory distress syndrome (ARDS))
- AND
- develops within 72 hours of hospitalization in a previously healthy person
- OR
- An unexplained illness resulting in death with an autopsy examination demonstrating non-cardiogenic pulmonary edema without an identifiable specific cause of death

Clinical Presentation

Infection with hantavirus is called Hantavirus Pulmonary Syndrome (HPS). Individuals usually experience fever, chills, occasional headaches, and sometimes gastrointestinal symptoms. Five days after the onset of initial symptoms, cough and shortness of breath typically develop and over the next 24 hours pulmonary edema and deterioration of cardiopulmonary function occur rapidly. Infection without symptoms is very rare. Patients presenting with severe illness due to HPS have a poor prognosis despite ICU care.

Epidemiology

Occurrence: Hantavirus infection was first recognized in North America in 1993. Since then sporadic cases have been identified in the United States and in Canada. Since 1994 when active surveillance for HPS was initiated in Canada, the number of cases per year has fluctuated from a high of eight in 1994 to two cases in 1999. To date about 61 cases have been reported in Canada with at least 20 deaths. No human cases have been reported in Newfoundland and Labrador (NL).

Reservoir: The primary reservoir is the deer mouse. Antibodies have been found in other rodents such as in chipmunks and pack rats.

Transmission: Human infection occurs most commonly through the inhalation of infectious, aerosolized saliva or excreta from rodents. Persons visiting laboratories where infected rodents were housed have been infected after only a few minutes of exposure to animal holding areas. Transmission can occur when dried materials

contaminated by rodent excreta are disturbed and inhaled, directly introduced into broken skin or conjunctivae, or possibly, when ingested in contaminated food or water. Persons have also acquired HPS after being bitten by rodents. High risk of exposure has been associated with entering or cleaning rodent-infested structures.

Incubation Period: The incubation period is thought to be approximately two weeks with a range of a few days to six weeks.

Communicability: There is no evidence of person to person transmission in North America.

Diagnosis: Clinical signs and symptoms must be confirmed by laboratory findings.

Control Measures

Management of Case: There is no specific treatment or cure for hantavirus infection. Treatment of patients with HPS remains supportive. If there is a high degree of suspicion of HPS, patients should be immediately transferred to an emergency department or intensive care unit (ICU) for close monitoring and care.

Management of Contacts: Investigate contacts to determine if they have had the same exposure to HPS as the case. Provide education on the signs and symptoms of HPS and advise exposed contacts to seek medical care if symptoms develop.

Management of Outbreaks: An outbreak management team should be established to address infection prevention and control measures.

Preventive Measures

The best approach for disease prevention and control is through environmental hygiene practices that discourage rodents from colonizing the home and work environment and that minimize aerosolisation and contact with HPS in saliva and excreta. Measures include:

- Preventing rodent exposure
 - eliminate food sources available to rodents in structures used by humans
 - limit possible nesting sites for rodents
 - seal entrances for rodents in the home or cabin
- Safely cleaning up rodent infested areas
 - Ventilate enclosed areas before cleaning for 30 minutes or more
 - Wear an appropriate, well fitting NIOSH approved N 95 respirator, rubber gloves and goggles
 - Disturb the droppings and nesting materials as little as possible. Do *not* sweep before wetting the area and do not use a vacuum cleaner to remove them
 - Thoroughly and carefully wet contaminated areas with detergent to deactivate the virus. Wetting the area will prevent virus particles from being released into the air when material is disturbed during clean-up (do not use a sprayer)
 - Most general purpose disinfectants and household detergents are effective
 - Diluted bleach (one part bleach to 10 parts water) can be used
 - Wipe up droppings, nesting materials and other debris with a paper towel and place in a sealed plastic garbage bag
 - Double bag the contents and dispose as appropriate to local bylaws
 - Clean surfaces that were in contact with mice or their droppings with a solution of water and disinfectant
 - Wash rubber gloves with disinfectant *before removing them*

Wash your hands with soap and water after removing gloves

- Providing a fact sheet
 - Available at http://www.nr.gov.nl.ca/agric/animal_diseases/wildlife/pdf/hantavirus.pdf

Procedure and Reporting Requirements

- Physicians, laboratories and communicable disease control nurses (CDCNs), and infection control practitioners (ICPs) must immediately report suspect or confirmed cases to the Regional Medical Officer of Health (RMOH)
- RMOH office will notify local physicians, nurse practitioners, environmental health officers, community health nurses, CDCNs, and ICPs, in the particular region as required for follow-up and case investigation
- RMOH reports to provincial office as per list B
- CDCN enters the case into the electronic reporting system and completes an outbreak report form if indicated
- Provincial Disease Control
 - reports the aggregate case data to other health regions
 - reports the identified case to Public Health Agency of Canada

3.3 Invasive Group A Streptococcal Disease

List A

Infection Control Guideline available at:

http://www.health.gov.nl.ca/health/publichealth/cdc/invasive_groupa_streptococcal_management.pdf

3.4 Invasive Meningococcal Disease

List A

Infection Control Guidelines available at:

http://www.health.gov.nl.ca/health/publichealth/cdc/meningococcal_management.pdf

3.5 Invasive Pneumococcal Disease (IPD)

List B

Diseases Preventable by Routine Vaccination available at:

http://www.health.gov.nl.ca/health/publications/diseasecontrol/vpd_2010.pdf

3.6 Laboratory-Confirmed Influenza

List B

Diseases Preventable by Routine Vaccination available at:

http://www.health.gov.nl.ca/health/publications/diseasecontrol/vpd_2010.pdf

3.7 Legionellosis – to be developed

List A

3.8 Leprosy - to be developed

List B

3.9 Severe Respiratory Illness – to be developed

List A

3.10 Tuberculosis

List A

Infection Control Guideline available at

http://www.health.gov.nl.ca/health/publichealth/cdc/tuberculosis_management_october2010.pdf