Influenza, seasonal

CHAPTER CONTENT

The following chapter is adapted with permission from Alberta Health, for additional guidance related to the management of seasonal influenza see: Alberta Public Health Disease Management Guidelines: Influenza, seasonal.

1. CASE DEFINITION

Confirmed Case

- A person with clinically compatible Influenza-Like Illness (ILI)* signs and symptoms and laboratory confirmation of infection with seasonal influenza virus by:
  - Detection of influenza virus RNA (e.g., via real-time reverse transcriptase polymerase chain reaction [RT-PCR])

    OR
  - Demonstration of influenza virus antigen (e.g., via Rapid influenza diagnostic tests (B) in an appropriate clinical specimen (e.g., nasopharyngeal/throat swabs)

    OR
  - Significant rise (e.g., fourfold, or greater) in influenza IgG titre between acute and convalescent sera

    OR
  - Isolation of influenza virus from an appropriate clinical specimen.

***Influenza-Like Illness (ILI) Definition**

Acute onset of respiratory illness which includes cough (new or worsening chronic cough) and one or more of the following symptoms: fever, shortness of breath, sore throat, myalgia, arthralgia, and/or prostration.

NOTE: In children under five years of age, GI symptoms may also be present. In people under five years of age or 65 years of age and older fever may not be prominent.

2. DIAGNOSIS

- Complete a nasopharyngeal swab for respiratory virus panel Nucleic Acid Amplification Test (NAAT) on all clients with ILI.
- Diagnosis of influenza is made through a variety of molecular assays (e.g., RT- PCR) and antigen detection tests (e.g., RIDTs).
- Diagnosis can also be made using viral culture; however, this testing method does not provide results in a timely manner to inform patient management.
- Some molecular assays that are routinely used are designed to detect an influenza A or B infection but not necessarily to differentiate the subtype of influenza (e.g., an individual may be infected with influenza A H1N1, but the test will only report that influenza A was detected in the specimen). There are other assays that are designed to detect influenza subtypes.
- For more information, refer to the Alberta Provincial Laboratory Guide to Services.

3. REPORTING

All HCPs must follow the NWT *Public Health Act*. Measures for contact tracing and legislative requirements are laid out within the *Reportable Disease Control Regulations* and reporting timelines are found in the *Disease Surveillance Regulations*.

Note: the only acceptable methods of reporting to the OCPHO are outlined below. Information provided outside of these methods will not be considered reported unless otherwise stated by a CPHO delegate.

Health Care Professionals

For **Part 2** written report within 24 hours

- Confirmed and probable cases are to be reported to the Office of the Chief Public Health Office (OCPHO) within **24 hours** after diagnosis is made or opinion is formed by completing and fax (867-873-0442) the following:
  - Viral Respiratory Illness Hospital Admission Or Death Reporting Form
  - Forms are required for cases that have been admitted to hospital and/or have died. All other cases are reported by lab only
- If there are any updates regarding the case or contacts the appropriate form will need to be resent with the additional information

- **Immediately** report all outbreaks or suspect outbreaks by telephone (867)-920-8646 to the OCPHO

Laboratories

- Report all positive results to the OCPHO by fax (867) 873-0442 within **24 hours.**

4. OVERVIEW

Causative Agent

Influenza viruses belong to the Orthomyxoviridae family. There are four distinct types of influenza: A, B, C and D:

- Influenza A and B viruses cause most seasonal influenza outbreaks. However, only influenza A viruses are known to cause pandemics.
- Influenza A virus is further subtyped based on the 18 different hemagglutinin (H) and 11 different neuraminidase (N) surface glycoproteins. Current subtypes of influenza A viruses that routinely circulate in people include A(H1N1) and A(H3N2).
- Influenza B viruses have diverged into two antigenically distinct lineages: Yamagata and Victoria.
- Influenza viruses undergo continuous change in two ways. The first, known as antigenic drift occurs when small changes in the genetic code of the virus (mutations) lead to changes in the surface proteins of influenza viruses. The second is when influenza A virus undergoes a significant and abrupt change which is known as antigenic shift, usually resulting from blending between different animal and human strains create novel strains of virus.
- The constant emergence of new strains is the reason why previous years' influenza vaccine may no longer be effective and why an individual may catch influenza illness multiple times over their lifespan.
- Influenza pandemics occur when most humans have little or no immunity to a novel influenza A virus which leads to sustained human-to-human transmission and communitywide outbreaks.

Clinical Presentation

Influenza typically begins with an abrupt onset of fever, chills, headache, prostration, myalgia, and dry cough. These symptoms are commonly followed by sore throat, nasal congestion, and rhinitis. The cough can last two weeks or more with the fever and other symptoms resolving in five to seven days in uncomplicated cases. Gastrointestinal (GI) involvement (nausea, vomiting and diarrhea) has been reported in children with influenza but is uncommon in adults.

Major Complications

Complications from influenza infection include primary influenza viral pneumonia, bacterial pneumonia (e.g., *Streptococcus pneumoniae*, *Staphylococcus aureus*, and *Streptococcus pyogenes*),

exacerbation of chronic pulmonary conditions, sinusitis, otitis media, febrile seizures, encephalitis, myositis, and death.

Reye syndrome has also been associated with influenza infections in children. It is typically seen in children who have been given aspirin to treat fever from influenza.

The people at high risk of influenza-related complications or hospitalization include:

- Adults 65 years of age and older.
- All children younger than five years of age.
- People who are pregnant.
- People of any age who are residents of nursing homes and other chronic care facilities.
- Adults and children with the following chronic health conditions:
  - Cardiac or pulmonary disorders.
  - Diabetes mellitus and other metabolic diseases.
  - Cancer and other immunocompromising conditions due to underlying disease and/or therapy.
  - Renal disease
  - Anemia or hemoglobinopathy.
  - Neurologic or neurodevelopmental conditions.
  - Morbid obesity (BMI of 40 and over).
  - Children up to 18 years of age undergoing treatment for long periods with acetylsalicylic acid (ASA).

Transmission

Influenza virus particles are mainly spread via respiratory droplets and small particle aerosols which are released from infected people when they sneeze, breathe, cough, or talk. These droplets generally do not stay suspended in the air and usually travel less than two metres (six feet). They may enter another person's eyes, nose, or mouth, or fall onto surfaces in the immediate environment.

Indirect transmission may also occur such as when touching surfaces contaminated with influenza virus and then touching the eyes, nose, or mouth. The virus can survive on hard surfaces (door handles, telephones, computer keyboards, light switches, countertops, etc.) for one to two days and on soft surfaces (cloth, tissues, and paper) for 8–12 hours. These fomites can serve as a source of infection for up to eight hours on hard surfaces and only a few minutes on soft surfaces.

Incubation Period

The incubation period for influenza is generally one to four days with an average of two days.

Clinical Guidance

- Refer to the facility's infection, prevention, and control policies for further information.

- For patient-specific clinical management consult your local healthcare professional, paediatrician, or infectious disease specialist.

5. PUBLIC HEALTH MEASURES (OUTBREAK ONLY)

Key Investigation

Refer to the Alberta Public Health Disease Management Guidelines: Influenza, seasonal.

Management of Influenza and Influenza-Like-Illness (ILI) Outbreaks in Congregate Settings

- ILI or confirmed influenza outbreaks should be managed as per direction from the OCPHO who will determine the need and extent of outbreak control measures, including the use of antivirals.
- The most important control measure to prevent serious morbidity and mortality from influenza outbreaks is annual immunization. Refer to GNWT HSS/Services/Influenza for more information.

Management of Cases

- Individuals with symptoms of influenza should be advised to self-isolate and monitor themselves for worsening symptoms.
- General guidance in high-risk settings should include site-specific infection prevention and control precautions to prevent disease transmission. Please refer to the facility's infection, prevention, and control policies for further information.
- Antiviral treatment may be considered for severe illness or for individuals at high risk for severe outcomes.

Management of Contacts

- Post-exposure prophylaxis (PEP) may be recommended for the following in high-risk settings unless a contraindication is present:
  - Contacts that are at high risk for influenza-related complications (regardless of their influenza immunization status).
  - Unimmunized healthcare workers in high-risk settings.

Prevention

- Provide general and ongoing public education regarding preventive measures against influenza such as staying away from people who are sick, staying home if sick, covering coughs and sneezes and practicing frequent hand hygiene.
- All NWT residents six months of age and older are eligible to receive annual influenza vaccine under the provincially funded program. Refer to GNWT NTHSSA/Services/Seasonal Flu Clinics for more information.
- Pneumococcal vaccine may be useful in preventing secondary bacterial infections in populations at high risk for influenza related complications.

6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

For more information about seasonal influenza:

- The Government of Alberta: Alberta Public Health Disease Management/influenza, seasonal
- The Government of Canada: Canada/ Flu (influenza): For Health professionals
- The Government of Canada: Reye's Syndrome
- The Government of the Northwest Territories: Respiratory Illnesses Information
- The Government of the Northwest Territories: NTHSSA/Services/Seasonal Flu Clinics
- The Government of the Northwest Territories: HSS/Professionals/Services/Policies and Guidelines, Standards and Manuals
- Centers for Disease Control and Prevention: CDC/ Influenza (Flu)
- National Advisory Committee on Immunization: Statement on seasonal influenza vaccine
- World Health Organization: WHO/ Influenza (Seasonal)

7. EPIDEMIOLOGY

- For more information on the epidemiology of seasonal influenza in the Northwest Territories (NWT) see: Epidemiological Summary of Communicable Diseases HSS Professionals

8. REFERENCES

Government of Alberta: Alberta Public Health Disease Management: Influenza, seasonal https://open.alberta.ca/dataset/62c6352f-fd9e-4c42-9867-9f2b142b6eff/resource/66305c25-6b81-4f51-a5e5-4a5e34cf0494/download/hlth-phdmg-influenza-seasonal-2023-03.pdf

Government of Canada: Flu (influenza): For health professionals https://www.canada.ca/en/public-health/services/diseases/flu-influenza/health-professionals.html#a5