Respiratory Syncytial Virus (RSV)

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1. CASE DEFINITION

Confirmed Case

- Clinical illness* with laboratory confirmation of infection:
  - Detection of respiratory syncytial virus (RSV) nucleic acid (i.e., polymerase chain reaction [PCR]) in an appropriate clinical specimen (i.e., nasopharyngeal [NP] swab or aspirate, throat swab or auger suction) ***OR***
  - Detection of RSV viral antigen in NP cells by Immunofluorescence Assay (IFA) or Enzyme Immunoassay (EIA) ***OR***
  - Isolation of RSV from respiratory secretions in cell culture

Probable Case

- Clinical illness* in a person who is epidemiologically linked to a confirmed case

*Clinical illness manifests as pneumonia, bronchiolitis, tracheobronchitis or upper respiratory track illness, often accompanied by fever and otitis media.

2. DIAGNOSIS

- NP secretions are obtained and sent for testing
- A point of care test (PCT) is available at Stanton Territorial Hospital for rapid detection of RSV, but confirmation via PCR is needed for reporting purposes
- For more information refer to the Alberta Provincial Laboratory Guide to Services

3. REPORTING

As set out in the *NWT Public Health Act, Reportable Disease Control Regulations (Section 4) and Disease Surveillance Regulations (Sections 6-10 and Schedule 3)* health care professionals and laboratories are legally required to report a diagnosis or formed opinion of a reportable disease to the Chief Public Health Officer (CPHO) or designate **within the timeframe identified in the regulations.**

Health Care Professionals

- Confirmed severe cases of respiratory viruses are to be reported to the Office of the Chief Public Health Officer (OCPHO) **immediately** after diagnosis is made or opinion is formed by medical confidential fax (867) 873-0442 or secure file transfer (SFT) to outbreak@gov.nt.ca using the Respiratory Virus Severe Outcomes Surveillance Report Form to the OCPHO within **24 hours** for the following cases:
  - A severe case or outcome from a respiratory illness is defined as any hospitalization, ICU admission, transfer to another medical facility or death
- Immediately report all outbreaks or suspect outbreaks in hospital, long-term care facility (LTCF) or congregate living by telephone (867) 920-8646 to the OCPHO

Laboratories

- Report all positive results within **24 hours** to the OCPHO by telephone (867) 920-8646 and fax the laboratory report to (867) 873-0442 within **24 hours**

4. OVERVIEW

For more information about Respiratory Syncytial Virus (RSV):

- Centers for Disease Control and Prevention: CDC/RSV
- World Health Organization: WHO/RSV

Causative Agent

- RSV is a member of the genus *Pneumovirus* in the family *Paramyxoviridae*
- It is an enveloped ribonucleic acid (RNA) virus with two strains, subgroups A and B

Clinical Presentation

- In children symptoms include cold-like illness:
  - Lower respiratory infection with runny nose, sometimes low-grade fever, cough, sneezing and wheezing may occur
  - May also have decreased appetite and poor feeding, irritability, decreased activity, dehydration and apnea
- In adults symptoms are consistent with an upper respiratory infection and may include:
  - Runny nose, sore throat, cough, headache, fatigue and fever

Major Complications

- In at risk children*, RSV can rapidly cause bronchitis, croup, bronchiolitis, and pneumonia
- Children with these conditions will often require hospitalization with oxygen and may require mechanical ventilation
- In adults with chronic illnesses or immunosuppression, RSV may cause pneumonia

Transmission

- RSV usually occurs in annual epidemics during the winter and early spring; although the NWT may see sporadic cases all year long
- RSV infects most children in their first year of life
- RSV is transmitted from person to person through direct contact with infectious secretions, or indirect contact with fomites and through large particle droplets from the nose and mouth
- A person is infectious from just before onset of symptoms and for as long as they are ill
- Children are known to shed virus for long periods (up to weeks) even after clinical recovery
- Re-infection can occur because long term immunity does not develop with initial or subsequent infections

Incubation Period

- Ranges from 2-8 days with an average of 5 days

Clinical Guidance

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

5. PUBLIC HEALTH MEASURES

Management of Cases

- Clients in hospital should be placed on contact and droplet precautions for the duration of the illness and placed in a private room
- If a private room is not available, cohort with other patients diagnosed with RSV and maintain at least 2 meters between cribs/beds
- Please refer to the NWT Infection Prevention and Control Manual

Management of Contacts

- Public health follow-up and contact tracing is not required in the management of individual cases of RSV however a significant increase in RSV cases in a hospital or community should be immediately reported to the OCPHO

Prevention

- Emphasize to the care givers, the importance of proper and frequent hand hygiene and cough etiquette to prevent the spread of disease

- The following are common risk factors for becoming infected with RSV:
  - Living in crowded living conditions
  - Attending daycare
  - Older sibling in daycare, preschool or school
  - Being a multiple birth set (twins or triplets)
  - Exposure to smoke in the home
- Discourage exposure to individuals with colds or Influenza like illness
- Don't share food and drinks with individuals who are ill
- Promote smoke free homes
- Promote breastfeeding as it has been associated with lower risk of RSV hospitalizations
- Keep high-risk infants* away from large gatherings and encourage people to wash hands prior to holding the baby and discourage kissing
- There is no active immunization for RSV, however, passive immunity can be obtained through monthly use of Palivizumab or SYNAGIS® during RSV season

NWT RSV Prophylaxis Program

- The RSV prophylaxis program in the NWT is coordinated through the OCPHO
- RSV season is determined by the OCPHO each year
- The program and eligibility criteria are updated yearly and the current program guidelines and risk assessment forms can be found on the HSS professional website: Seasonal RSV Prophylaxis (SYNAGIS®) Program Package
- RSV prophylaxis must be approved for use by the territorial pediatrician
- RSV prophylaxis can be given to those high-risk infants and children* who meet the NWT eligibility criteria
- SYNAGIS® is a humanized monoclonal antibody which provides passive immunity to RSV
- SYNAGIS® has been shown to reduce hospitalization due to RSV infection in high risk children*
- SYNAGIS® is given on a monthly basis during RSV season as part of the infant or child's routine immunization schedule

*High-risk infants and children include those with:

- Prematurity
- Congenital heart disease
- Chronic lung disease or cystic fibrosis
- Certain congenital or genetic defects
- Immunocompromised
- Small for gestational age
- Male (males are at higher risk than females)

6. PATIENT & HEALTH CARE PROFESSIONAL EDUCATION

- Canadian Pediatric Society Caring for Kids: Caring for Kids/RSV

7. EPIDEMIOLOGY

- For more information on the epidemiology of Respiratory Syncytial Virus in the Northwest Territories (NWT) see: Epidemiological Summary of Communicable Diseases

8. REFERENCES

1. Alberta Health Services Public Health Notifiable Disease Management Guidelines Respiratory Syncytial Virus: https://www.alberta.ca/notifiable-disease-guidelines.aspx
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3. Canadian Immunization Guide: https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-5-passive-immunization.html

4. Canadian Pediatric Society, Caring for kids information on Respiratory Syncytial Virus: https://www.caringforkids.cps.ca/handouts/respiratory_syncytial_virus
5. Centers for Disease Control and Prevention Respiratory Syncytial Virus: https://www.cdc.gov/rsv/
6. NWT Communicable Disease Form: https://www.hss.gov.nt.ca/professionals/tools/forms/communicable-disease
7. NWT Epidemiology on RSV: https://www.hss.gov.nt.ca/professionals/tools/policies-and-guidelines-standards-and-manuals/epi-summary-communicable-diseases
8. NWT Infection Prevention and Control Manual: https://www.hss.gov.nt.ca/professionals/sites/default/files/infection-control-manual.pdf
9. *NWT Public Health Act:* https://www.hss.gov.nt.ca/en/about/legislation-and-policies
10. NWT RSV prophylaxis program guidelines: https://www.hss.gov.nt.ca/professionals/content/seasonal-rsv-prophylaxis-synagisr-program-package
11. Public Health Agency of Canada Pathogen Safety Data Sheets: https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/respiratory-syncytial-virus.html
12. World Health Organization/RSV: http://www.who.int/influenza/rsv/en/