Respiratory Syncytial Virus (RSV)

Case definition

Nova Scotia's RSV surveillance guidelines, including case definitions, are found here.

Causative agent

RSV is an enveloped RNA virus of the *Pneumoviridae* family. There are two distinct antigenic subgroups, A and B, based on variations in the G protein.

RSV follows a seasonal pattern in temperate regions, though timing and peak vary year-to-year. In Nova Scotia, RSV is most common from early winter to early spring; however, seasonality was disrupted during the COVID-19 pandemic. While one of the antigenic subgroups (A or B) typically predominates each season, both subgroups can cocirculate and reinfection can occur during the same season.

Source

Humans are the only source of infection.

Incubation

The incubation period ranges from 2 to 8 days, with 4 to 6 days being the most common.

Transmission

RSV is transmitted through direct contact with infected secretions or close contact (within two metres) via respiratory droplets. Indirect transmission can also occur after touching fomites then touching the nose, mouth, or eyes. RSV can remain viable on surfaces for several hours and on hands for 30 minutes or more.

Communicability

Viral shedding begins one to two days before symptom onset and persists for three to eight days. However, it may last three to four weeks or longer in young infants and immunocompromised children.

Clinical Presentation and Severity

RSV is a common cause of respiratory tract infection. Almost all children are infected by age two, but immunity wanes and reinfections can occur throughout life. In healthy individuals, it typically is a mild, self-limiting, upper respiratory tract infection. Signs and symptoms can include cough, fatigue, headache, rhinorrhea, and fever. However, severe disease can occur especially among infants, older adults (particularly over 80 years), and those with cardiopulmonary comorbidities or immunocompromise. Severe disease can result in hospitalization, intensive care admission, and death.

Infants within the first few weeks of life, especially if premature, may present with non-specific signs such as decreased appetite, irritability, and lethargy. Twenty to thirty percent of infected infants will develop lower respiratory tract infection (LRTI) with the first infection. Bronchiolitis is the most common RSV-associated LRTI in infants and is characterized by wheezing and increased respiratory effort. Pneumonia, otitis media, bronchitis, and croup can also occur. Approximately 1 to 3% of all children will be hospitalized because of severe RSV LRTI with the highest rate of hospitalizations in the first 6 months of life. Premature infants, infants with specific cardiopulmonary, neurological, or neuromuscular conditions, and immunocompromised infants are at increased risk of severe RSV-associated LRTI.

In older adults, the risk of severe RSV disease increases with medical risk factors and advanced age, especially over 80 years. Severe disease in older adults presents as LRTI, with nonspecific signs and symptoms similar to other common respiratory infections, such as cough, shortness of breath, and abnormal lung sounds. Those living in long-term care facilities are also at increased risk of severe disease.

Some studies have found that RSV subgroup A may cause more severe disease, and higher proportions of hospital admission requiring intensive care; however, a consistent association between RSV subgroup and disease severity is unclear.

Diagnostic Testing

Currently, the most sensitive and specific test for rapid RSV detection is reverse transcriptase polymerase chain reaction (RT-PCR) for the detection of virus-specific ribonucleic acid (RNA) sequences. Nasopharyngeal swab is the preferred sample type, though other sample types (e.g., tracheal aspirates, bronchoalveolar lavage) are acceptable. Other types of tests may be used, but RT-PCR is most common in Nova Scotia.

Treatment

There is no definitive treatment for RSV; most cases are self-limiting and require no intervention. For severe cases, management is supportive and focused on maintaining respiratory and hemodynamic status. Antibiotics are not indicated for RSV treatment. Treatment should be overseen by an appropriate care provider.

PUBLIC HEALTH MANAGEMENT & CONTROL

Public health management and follow-up is limited to high-risk settings, as outlined below, and is focused on non-pharmacological measures. Routine individual follow-up of community cases is not expected.

Long-term care facilities:
The purpose of public health management in long-term care facilities is to limit RSV harms, while balancing disruptions to quality of life. For cases and contacts in long-term care facilities please refer to the *Guide to Prevention of Respiratory Virus Infection and Outbreak Management for Long-Term Care Facilities*.

Acute care settings:
The purpose of public health follow-up in acute care settings is surveillance (i.e., to enhance the understanding of severe disease outcomes).

- Public health follow-up is limited to reporting outcomes of laboratory-confirmed cases for those admitted to acute care settings. Outcomes should be entered into Panorama. Refer to DHW Surveillance Guidelines for more information.
- Case and contact management within acute care settings is overseen by Infection Prevention and Control (IPAC), while case and contact management of acute care staff is overseen by Occupational Health Safety and Wellness (OHSW).

Community settings:
Routine identification and follow-up of cases and contacts in is not required.

- Public Health may provide support and outbreak management as indicated. Consult with the Regional Medical Officer of Health when needed to determine further public health follow-up in the event of an outbreak.
- If contacted by a community member or setting, Public Health may provide education about RSV and prevention measures, including immunization. For congregate living settings, refer and provide link to the *Nova Scotia Guidance for Respiratory Pathogens in Congregate Living Settings*.

Immunization and Prevention

Routine immunization is an effective strategy to reduce the burden of RSV disease in individuals at highest risk of severe disease.

Other prevention measures include hand hygiene, respiratory etiquette (including masking), and limiting exposure, when feasible, to settings where RSV can spread easily among vulnerable people (e.g., childcare, long-term care). There is no post-exposure prophylaxis for RSV.

For further details regarding Nova Scotia's RSV immunization program and eligibility, see: *Publicly Funded Vaccine/Immunoglobulin Eligibility Policy*

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