

Respiratory Syncytial Virus (RSV) is not just a children's disease

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Background

- The TARRANT surveillance program helps monitor influenza and respiratory viral activity in Alberta and is part of the Sentinel Practitioner Surveillance Network (SPSN) that quantifies vaccine effectiveness (VE) in Canada each year.
- Respiratory Syncytial Virus (RSV) is known to cause severe illness that requires hospital care for children, and sometimes the elderly. There is little information about its community epidemiology.
- For the past three years, RSV has been one of the virus panel tests used in our TARRANT Community surveillance or respiratory disease.

Objective

- To describe the epidemiology of RSV that we observed: which patients are infected and when this occurred.

Methods

Inclusion criteria for TARRANT VE Study:

- Cough and fever together with one or more of: Arthralgia, myalgia, prostration, or sore throat.
- Samples collected from November 01, 2020 to February 02, 2023

- Nasopharyngeal (NP)/Throat swabs are collected by community sentinel clinicians and testers at assessment centers across the province
- Swab samples and requisition forms sent to the provincial lab analyzed for RSV using a multiplex respiratory panel

Findings

- In the 2020-21 season, NO lab-confirmed RSV samples were collected from November 2020 to December 2020
- We received 5,294 samples, 2020-2021 season-1,965, 2021-2022 season-2727 and 2022-current-602.
- In the 2020-2023 Seasons, 193 (3.6%) of the 5,294 participants enrolled in the study had RSV detected.

Figure 1: RSV Time Series

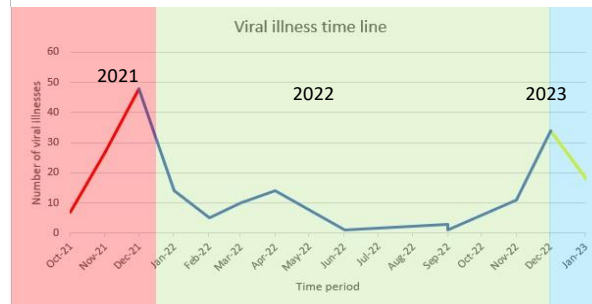
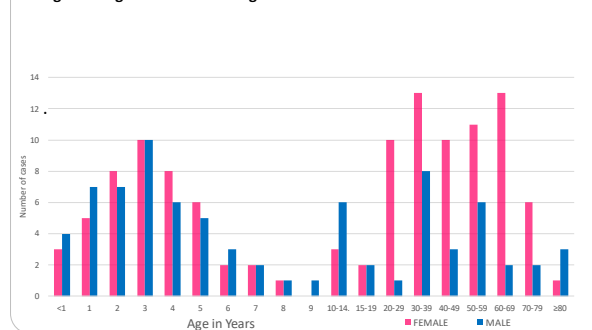


Figure 2: Age distribution and gender difference for RSV cases



Discussion

- In the 2020-21 Season, 7/1965 (0.4%) participants tested positive for RSV (3 children under 5).
- In the 2021-22 Season, 123/2727 (4.5%) participants tested positive for RSV (57 children under 5)
- In the ongoing 2022-23 Season, 63/602 (10.5%) participants tested positive for RSV (20 children under 5).
- RSV was detected in all age groups, half among children (53.8%; n=104/193 RSV positive cases).
- Peak age of presentation was 3 years. Among children there was equal sex distribution, but among adults more females tested positive. (>20 years, n= 64 females and 25 males; Chi square 11.27, p= 0.0008)
- Peak incidence was November & December of 2021 and 2022.

Conclusion

- RSV was uncommon in the winter of 2020-21, when nearly all viral infections were suppressed during the COVID-19 pandemic period. It resurged in 2021-22, and 2022-23, in the early winter: November and December.
- Young children may provide a signal by requiring hospital admission, but RSV is an infection of all ages: while those at older ages mostly suffer and recover at home. It is likely that school aged children provide a mixing opportunity to transfer the virus to other children and to their families, perhaps particularly to their mothers or other female caregivers.
- Any plans for prevention and treatment must recognise this wider epidemiology