

Influenza Surveillance In Alberta During The COVID-19 Pandemic

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Background

- The TARRANT surveillance program helps monitor influenza activity in Alberta and is part of the Sentinel Practitioner Surveillance Network (SPSN) that quantifies vaccine effectiveness (VE) in Canada each year.
- With the increased public health control measures for COVID-19, the influenza season was drastically affected this year, along with how our surveillance program was structured.
- Because ILI patients were attending COVID assessment centers, we began sampling from 5 centers in addition to community practitioners.

Objective:

To describe the effect of the COVID-19 pandemic on a community-based influenza surveillance system.

Methods

Inclusion criteria for TARRANT Study:

- Cough or fever with one or more of: Arthralgia, myalgia, prostration, or sore throat.
- Samples collected from November 01, 2020 to January 22, 2021

- Nasopharyngeal (NP)/Throat swabs collected by community sentinel clinicians and testers at 5 COVID-19 assessment centers across the province.
- Swab samples and requisition forms sent to the provincial lab analyzed for COVID-19 & Influenza using a PCR nucleic acid test and a multiplex respiratory panel for other respiratory viruses.

Statistical Analysis:

- Prevalence of respiratory viruses (i.e.. COVID-19, Enterovirus/Rhinovirus, Influenza) and distribution of collected samples by age and sex determined using Stata 16 software.

Findings

- This season, NO lab-confirmed influenza samples were collected.**
- Last reporting season, 180 (47%) of the 380 tested samples tested positive for influenza.
- We received 134 samples, compared to 391 samples collected over this same time period last reporting season.
- The median age of the 134 patients was 41. 61.9% were female.

Table 1. Demographic and clinical characteristics of 134 included patients by testing source

Characteristics	Sentinels (n=35)	Assessment Centers (n=99)	Total (n=134)
Age, yr, median (IQR)	41(31-56)	35 (24-47)	37(52-24)
Sex, female, n (%)	21 (60.0)	62 (62.6)	83 (61.9)
Patient Symptoms, n (%)			
Fever	13 (37.1)	96 (97.0)	109 (81.3)
Cough	14 (40.0)	93 (93.9)	107 (79.9)
Sore Throat	16 (45.7)	55 (55.6)	71 (53.0)
Myalgia	11 (31.4)	38 (38.4)	49 (36.6)
Lethargy	10 (28.6)	62 (62.6)	72 (53.7)
Nausea	27 (77.1)	2 (2.0)	29 (21.6)
Vomit	0(0)	15 (15.2)	15 (11.2)
Loss of Smell	1 (2.9)	7 (7.1)	8 (6.0)
Loss of Taste	0(0)	14 (14.1)	14 (11.0)

Table 2. Prevalence of respiratory viruses by testing source

Virus Type	Prevalence by Sample Location, n (%)		
	Sentinel (n=35)	Assessment Center (n=99)	Total (n=134)
COVID-19	2 (5.7)	31 (31.3)	33 (24.6)
Rhino Virus	4 (11.4)	10 (10.1)	14 (10.4)

Table 3. Patient symptoms presented by respiratory virus.

Patient Symptoms, n (%)	COVID Positive (n=33)	Enterovirus/rhinovirus positive (n=14)	P-value
Fever	33 (100.0)	12(92.9)	0.126
Cough	32(97.0)	14(100)	0.504
Sore Throat	18 (54.6)	12(85.7)	0.054
Myalgia	13(39.3)	3(21.4)	0.208
Lethargic	10(30.3)	1(7.1)	0.048
Nausea	10(30.3)	2(14.3)	0.311
Vomit	2(6.1)	1(7.1)	0.911
Loss of Smell	5(15.2)	0(0)	0.117
Loss of Taste	7(21.2)	1(7.1)	0.225

Discussion

- There are no lab-confirmed cases of influenza mid-season, for the first time since initiation of TARRANT Viral Watch.
- There was a higher prevalence of COVID-19 positive patients from assessment centers (31.3%) compared to sentinels (5.7%). This may be due to patients presenting with COVID-19/ influenza-like symptoms going to assessment centers and not their family physician.
- Mid-season VE could not be determined** due to no lab confirmed cases of influenza being detected in Alberta, and very few in other provinces.
- Rhinovirus was still observed** (10.4%) this season but no other common respiratory viruses compared to past seasons.
- There were no differences in presenting symptoms between COVID-19 positive patients and Enterovirus/Rhino virus positive patients. Due to the small sample size, the analysis was underpowered to detect differences.
- We will continue partnering with assessment centers as well as sentinel practitioners to assess changes in the epidemic, once vaccination is widely available. Through this, we hope to calculate vaccine effectiveness for COVID-19 in addition to influenza.

Conclusion

- This season has been unprecedented due to the onset of the COVID-19 pandemic.
- The lack of detected influenza and other respiratory viruses may be due to public health measures.
- Collaboration with both community clinics and assessment centers may be necessary during surveillance programs for COVID-19 immunization.