TARRANT VIRAL WATCH

December 2022 Update

TARRANT News & Updates

Dear Sentinels

Thank you all for participating in the TARRANT program. Our data on patient numbers and virus samples has played a valuable role in understanding the epidemics currently afflicting us. By being consistent with our approach, we help to provide stability when changes occur to other parts of the public health recording system. In latest news: because of the large numbers of specimens early in the season, our 4-province SPSN collaboration is trying to calculate vaccine effectiveness against the current AH3N2 influenza earlier than usual. With any luck we may have an estimate by Christmas. Not necessarily the Christmas present you wanted, but you can take pride in helping to make it.

''Prediction is very difficult, especially about the future.'' Nils Bohr.

I was interviewed by the Calgary Herald in mid-November and stuck my neck out that I expected the influenza epidemic to recede after a couple of weeks. It looks like that has started: https://www.alberta.ca/stats/influenza/influenza-statistics.htm the question is whether it will drop precipitously or continue at lower level. The Christmas party season, and the lack of masking means plenty of opportunity for further transmission to those who have escaped infection so far. Likely the AH3N2 epidemic will continue, *and* other viruses including RSV and COVID-19 will rise.

Unfortunately, the second part of my prediction is that there is enough AH1N1 around that we are likely to get a second wave of influenza later – possibly in late January or February. I hope I am wrong. Being right about epidemics is to be Cassandra in this province, since so many are "over the epidemic" and unwilling to take protective measures. I wrote an opinion piece in the Calgary Herald encouraging more people to do so, but I fear this is baling water in a storm. https://calgaryherald.com/opinion/columnists/opinion-masks-work-so-lets-use-them-to-reduce-viral-illness

Who should we swab?

With the addition of COVID-19 data gathering, the initial clear Influenza-Like Illness (ILI) definition has become blurred. It is always difficult to define early illness, and early viral illness particularly, since it advances rapidly, and clinical features of all respiratory virus infections are so similar and overlapping. From the protocol that we follow:

For influenza VE evaluation: *acute onset of respiratory illness with fever AND cough AND one or more of the following: sore throat, myalgia, arthralgia, or prostration (extreme fatigue).*

ARI case definition for COVID-19 VE evaluation: *acute onset of respiratory illness with new or worsening cough.*

We remind you that in children under 5, gastrointestinal symptoms may also be present and that in patients 65 and older, fever may not be prominent. Since elderly patients may not exhibit a febrile response to influenza, and to enhance contribution from elderly participants as an important public health goal, elderly patients presenting with acute respiratory illness without fever are eligible for participation if influenza is suspected. In that case, the elderly patient can be considered to meet the ILI case definition.

We cannot hope for perfection, and there will be variation, but do your best!

Getting details right

There is always confusion as we change the forms each season to accord with the new vaccines, since we need that information to assess vaccine effectiveness. But we do need the information on both COVID and influenza vaccine status, so do complete that section. Please note that we can only use data from the 2022-23 forms: BLUE. Also, we must have consent for participation, so cannot use data from a form where the consent box was not ticked. Sorry to bother you with this but details matter!

I hope that you have a healthy and joyous Holiday Season

Jim Dickinson and the TARRANT team

Data analysis 2022-2023 Season

- During reporting weeks 1 (Nov 1, 2022) to week 6 (Dec 11, 2022), sentinels submitted 280 specimens of which 21 (7.5%) tested positive for Covid-19 and 113 (40%) tested positive for Influenza A.
- H3N2 was the predominant subtype seen in 104 (92%) of those who tested positive for Influenza A while H1N1 was seen in 9(8%).
- A rise in a variety of viruses- Influenza A, Parainfluenza, Entero/Rhino virus, Corona 043, and RSV- is noted this season with influenza A being the commonest virus in Alberta (***See Figure 1***)
- An upsurge in number of participants who tested positive for Influenza A, COVID-19, Entero/Rhino virus, and Parainfluenza 4 across Alberta were noted in week 2. By week 5 Entero/Rhino virus had a second peak (***See Figure 1***)

- The majority (55%) of participants who tested positive for Influenza A had not received the flu vaccine in the current season.
- The majority (80.7%) of participants tested positive for one virus. 6.4% tested positive for more than one virus.
- Calgary, Drumheller, and Edmonton continue to identify more Influenza A and respiratory virus cases than other locations. ***(See Table 1).***
- Patients who tested positive for respiratory viruses had age distribution across all ages, with a peak among children, and few over age 70. ***(See Table 2)***
- In keeping with previous findings, Respiratory Syncytial Virus, usually thought of as a young children's disease, showed a peak of cases between 0 and 9 years, but we see some in adults.
- Cough, fever, and myalgia were defining features for choosing to swab. These are the commonest symptoms amongst participants, but sore throat was the commonest non-defining symptom ***(See Table 3)***
- While originally loss of smell and loss of taste were thought to be specific features of COVID-19, in our sample they were no more or less common than in other viral infections
- Majority of participants who tested positive for COVID-19 (86%) were female. About equal numbers were positive for Influenza A (57.1% female and 42.8% male)

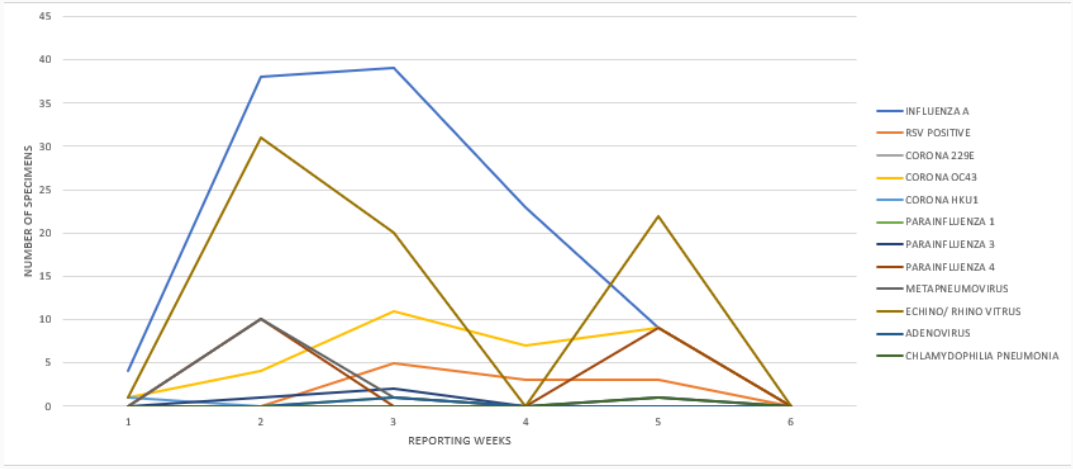


Figure 1: Trends of Covid-19 and Influenza cases from Week 1 (Nov 1, 2022) to Week 6 (Dec 11, 2022)

Table 1: Cases in different locations

	COVID-19	Influenza		RSV	Coronavirus				Parainfluenza				Metapneumo-virus	Enterovirus / Rhinovirus	Adeno-virus	Chlamydophila Pneumonia	TOTAL
		A	B		229E	OC43	NL63	HKU1	1	2	3	4					
Fort McMurray	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	4
Wabasca	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Stony Plain	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Edmonton	7	13	0	1	0	12	0	1	0	0	2	9	9	29	0	0	83
Leduc	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Sundre	1	7	0	1	0	5	0	0	0	0	0	1	1	11	1	0	28
Drumheller	5	33	0	1	0	10	0	0	0	0	0	9	0	12	0	0	70
Calgary	5	51	0	4	0	4	0	0	1	0	0	0	1	19	0	0	85
Carstairs	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Chestermere	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Strathmore	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
High River	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Siksika	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Brooks	0	0	0	1	0	0	0	0	0	0	2	0	0	1	0	1	5
Medicine Hat	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
TOTAL	21	113	0	11	0	32	0	1	1	0	4	19	11	74	1	1	289

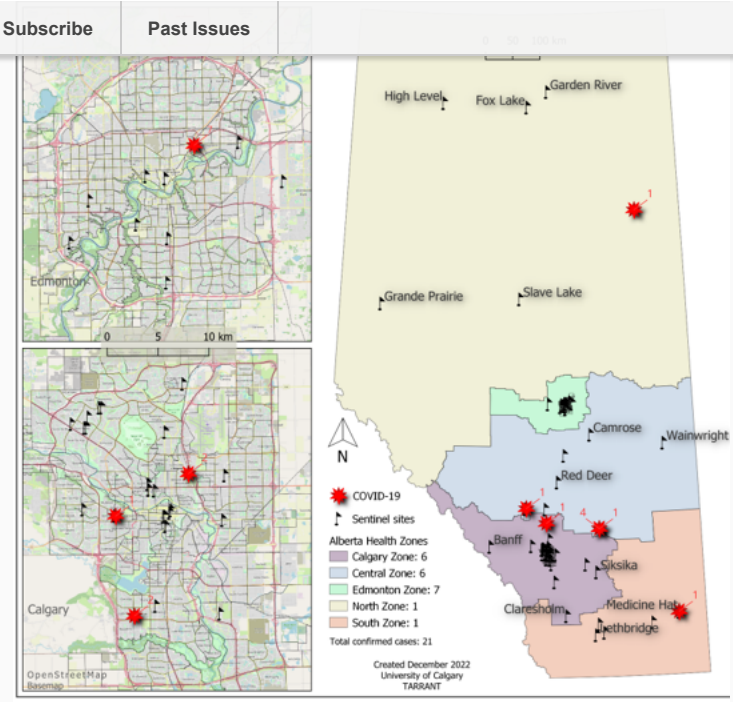


Figure 2: Alberta map showing positive COVID-19 cases from Week 1 to Week 6

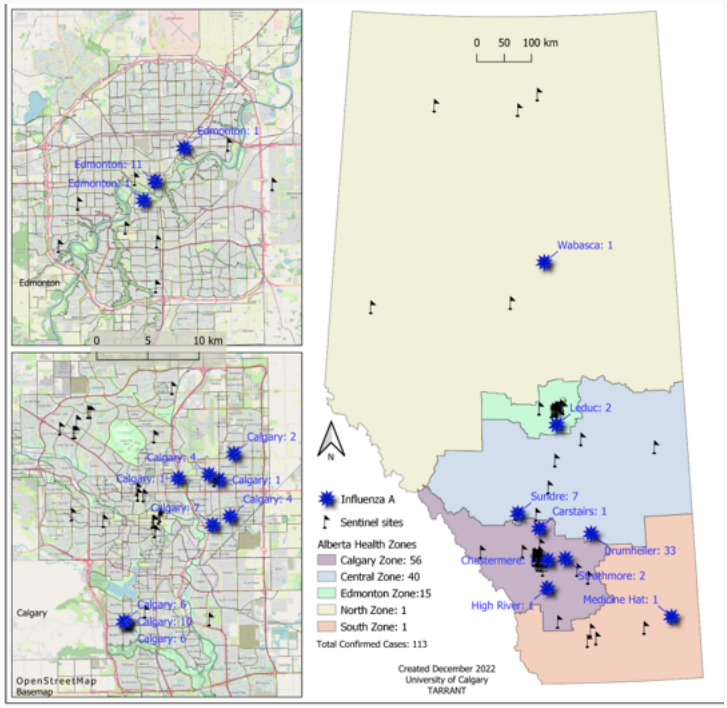


Figure 3: Alberta map showing positive cases of Influenza A from Week 1 to Week 6

Table 2: Cases arranged according to age distribution

0-9	1	27	0	7	0	17	0	0	0	0	0	1	1	23	1	0	78
10-19	2	27	0	1	0	3	0	0	0	0	0	0	0	1	0	1	35
20-29	2	11	0	1	0	1	0	0	0	0	0	0	0	13	0	0	28
30-39	5	19	0	0	0	4	0	0	0	0	1	9	0	13	0	0	51
40-49	2	7	0	1	0	1	0	0	1	0	0	9	9	13	0	0	43
50-59	3	9	0	0	0	1	0	1	0	0	1	0	1	2	0	0	18
60-69	3	11	0	1	0	3	0	0	0	0	2	0	0	9	0	0	29
70-79	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7
≥80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	21	113	0	11	0	32	0	1	1	0	4	19	11	74	1	2	

Table 3: Symptoms recorded for positive virus cases.
**Indicates defining symptoms*

	COVID-19	Influenza		RSV	Coronavirus				Parainfluenza				Metapneumovirus	Enterovirus / Rhinovirus	Adenovirus	Chlamydophilia Pneumonia	No virus found
		A	B		229E	OC43	NL63	HKU1	1	2	3	4					
*Cough	20/21 (95%)	101/113 (89.3%)	0/0 (0%)	11/11 (100%)	0/0 (0%)	28/32 (86%)	0/0 (0%)	1/1 (100%)	1/1 (100%)	0/0 (0%)	4/4 (100%)	19/19 (100%)	11/11 (100%)	72/74 (97%)	1/1 (100%)	1/1 (100%)	76/280 (27%)
*Fever	11/21 (52%)	95/113 (84%)	0/0 (0%)	6/11 (55%)	0/0 (0%)	23/32 (72%)	0/0 (0%)	0/1 (0%)	0/1 (0%)	0/0 (0%)	2/4 (50%)	10/19 (53%)	2/11 (18%)	39/74 (53%)	1/1 (100%)	0/1 (0%)	55/280 (20%)
Chills	12/21 (57%)	49/113 (43%)	0/0 (0%)	4/11 (36%)	0/0 (0%)	7/32 (22%)	0/0 (0%)	0/1 (0%)	0/1 (0%)	0/0 (0%)	1/4 (25%)	0/19 (0%)	1/11 (9%)	22/74 (30%)	1/1 (100%)	1/1 (100%)	47/280 (17%)
Sore throat	16/21 (76%)	56/113 (46%)	0/0 (0%)	5/11 (45%)	0/0 (0%)	12/32 (36%)	0/0 (0%)	1/1 (100%)	0/1 (0%)	0/0 (0%)	3/4 (75%)	10/19 (53%)	10/11 (91%)	34/74 (46%)	0/1 (0%)	0/1 (0%)	69/280 (25%)
*Myalgia	5/21 (24%)	53/113 (47%)	0/0 (0%)	3/11 (27%)	0/0 (0%)	5/32 (16%)	0/0 (0%)	1/1 (100%)	1/1 (100%)	0/0 (0%)	0/4 (0%)	9/19 (47%)	1/11 (9%)	16/74 (22%)	0/1 (0%)	1/1 (100%)	38/280 (14%)
Arthralgia	2/21 (10%)	24/113 (21%)	0/0 (0%)	1/11 (9%)	0/0 (0%)	3/32 (9%)	0/0 (0%)	0/1 (0%)	1/1 (100%)	0/0 (0%)	0/4 (0%)	0/19 (0%)	0/11 (0%)	4/74 (5%)	1/1 (100%)	0/1 (0%)	20/ 280 (7%)
Prostration	3/21 (14%)	49/113 (43%)	0/0 (0%)	5/11 (45%)	0/0 (0%)	6/32 (19%)	0/0 (0%)	0/1 (0%)	1/1 (100%)	0/0 (0%)	0/4 (0%)	1/19 (5%)	1/11 (9%)	16/74 (22%)	0/1 (0%)	0/1 (0%)	36/280 (13%)
Headache	6/21 (29%)	49/113 (43%)	0/0 (0%)	3/11 (27%)	0/0 (0%)	7/32 (22%)	0/0 (0%)	0/1 (0%)	1/1 (100%)	0/0 (0%)	1/4 (25%)	1/19 (5%)	0/11 (0%)	14/74 (19%)	0/1 (0%)	0/1 (0%)	43/280 (15%)
Runny nose	7/21 (33%)	77/113 (65%)	0/0 (0%)	8/11 (73%)	0/0 (0%)	27/32 (84%)	0/0 (0%)	1/1 (100%)	1/1 (100%)	0/0 (0%)	0/4 (0%)	10/19 (53%)	2/11 (18%)	60/74 (81%)	0/1 (0%)	0/1 (0%)	57/280 (20%)
Congestion	9/21 (43%)	61/113 (54%)	0/0 (0%)	9/11 (82%)	0/0 (0%)	16/32 (50%)	0/0 (0%)	0/1 (0%)	1/1 (100%)	0/0 (0%)	1/4 (25%)	10/19 (53%)	2/11 (18%)	42/74 (57%)	0/1 (0%)	1/1 (100%)	61/280 (22%)
Dyspnea	3/21 (14%)	23/113 (20%)	0/0 (0%)	4/11 (36%)	0/0 (0%)	4/32 (13%)	0/0 (0%)	0/1 (0%)	0/1 (0%)	0/0 (0%)	0/4 (0%)	0/19 (0%)	0/11 (0%)	6/74 (8%)	0/1 (0%)	0/1 (0%)	23/ 280 (8%)
Loss of smell/taste	2/21 (10%)	7/113 (6%)	0/0 (0%)	0/11 (0%)	0/0 (0%)	3/32 (9%)	0/0 (0%)	0/1 (0%)	1/1 (100%)	0/0 (0%)	1/4 (25%)	0/19 (0%)	0/11 (0%)	0/74 (0%)	0/1 (0%)	0/1 (0%)	9/280 (3%)

Influenza Updates

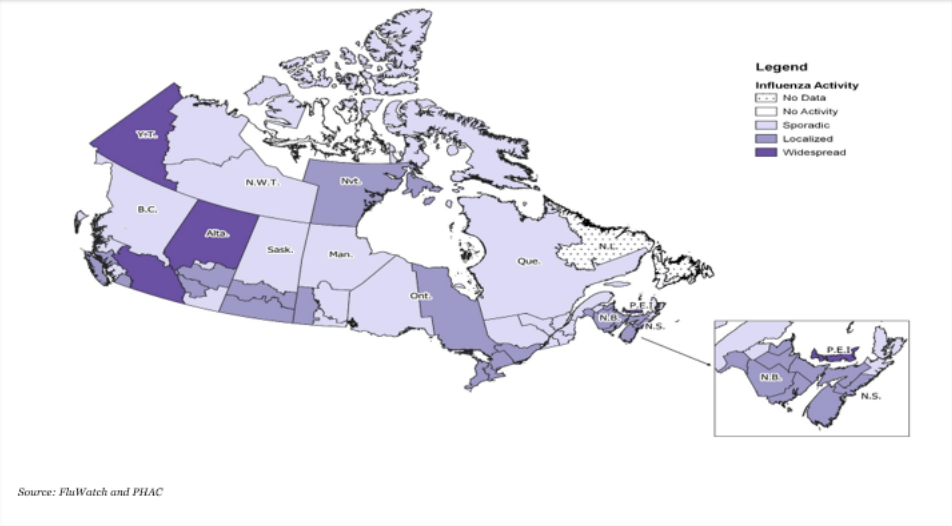
Canada Update

Between August 28, 2022, and December 10, 2022, there were 44,354 influenza detections reported in Canada, of which 99% (44,225) were influenza A. H3N2 was the predominant subtype noted in 96% of participants (15,472). Influenza-like-illness symptoms were nonspecific for any one respiratory pathogen and was noted be due to influenza, or other respiratory viruses, including respiratory syncytial virus and COVID-19.

Children and teenagers aged 0-19 years represented nearly half (45%) of those detected with Influenza A.

The percentage of visits to health care professionals for Influenza-Like Illnesses remains above expected levels for this time of year.

Children aged between 2-4 years and 5-9 years represent more than 55% of the reported pediatric hospitalizations in Canada.

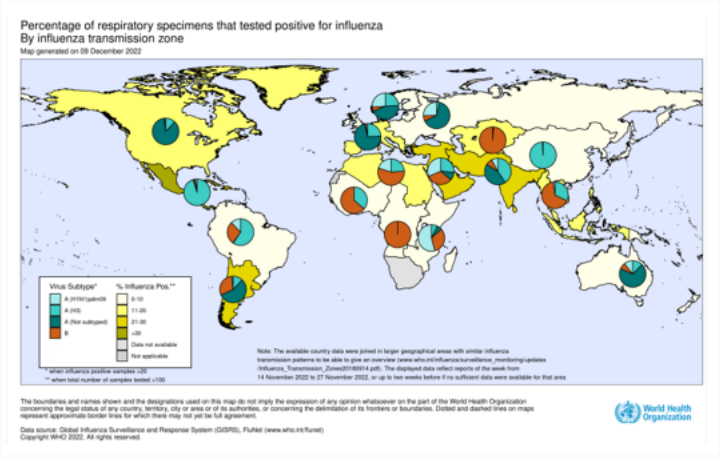


Source: FluWatch and PHAC

WHO Influenza Update

Globally, influenza activity increased with influenza A(H3N2) viruses being the predominant subtype.
Many indicators in North American countries were above levels typically observed at this time of year and some are near or above levels observed at the peak of previous epidemics.
Similar increasing positivity of Influenza A is seen in Europe, Caribbean, Central American countries (Mexico), and some temperate South American countries (Argentina and Chile).
In central Asia, influenza B virus activity continued to be reported from Kazakhstan, while other countries report a few Influenza A and B virus detections.
Generally, Influenza detections were low in Northern Africa, Western Asia, East Asia, tropical countries of Southern America, tropical Africa, and Southern Asia,

Overall recommendation: Countries are recommended to monitor the co-circulation of influenza and SARS-CoV-2 viruses. They are encouraged to enhance integrated surveillance and step-up their influenza vaccination campaign to prevent severe disease and hospitalizations associated with influenza. Clinicians should consider influenza in differential diagnosis, especially for high-risk groups for influenza, and test and treat according to national guidance.



Source: WHO