

Section 1: Summary

Influenza activity continues with outbreaks in four zones. Influenza activity appears to be nearing its peak in the province and the predominant subtype so far this season is Influenza A (H3N2).

Section 2: Outbreaks

In week 50, 27 influenza outbreaks were declared and there have been 108 outbreaks reported to date.

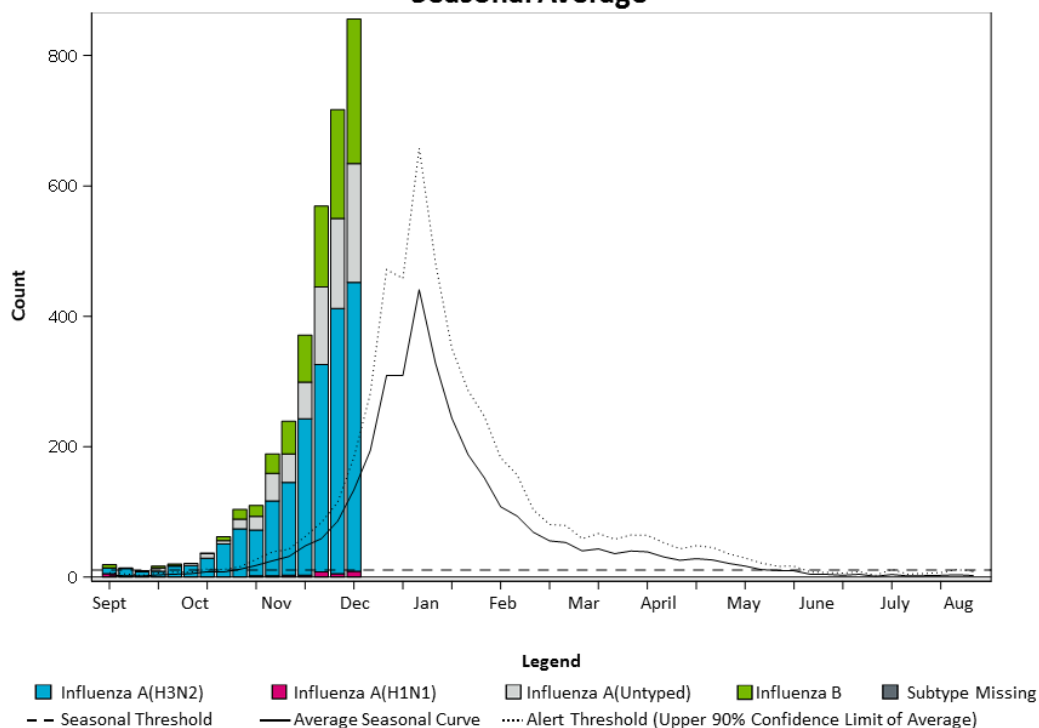
	Outbreaks	
	Current Week	YTD
North	3	7
Edmonton	11	31
Central	0	7
Calgary	10	50
South	3	12
Unknown	0	1
Alberta	27	108

Section 3: Laboratory-Confirmed Influenza Surveillance & Peak Prediction

To date in the 2017/18 season, the Provincial Laboratory for Public Health (ProvLab) has reported 3,355 lab-confirmed influenza cases: 2,638 influenza A and 717 influenza B. The predominant subtype is influenza A (H3N2) with 58% of all isolates.

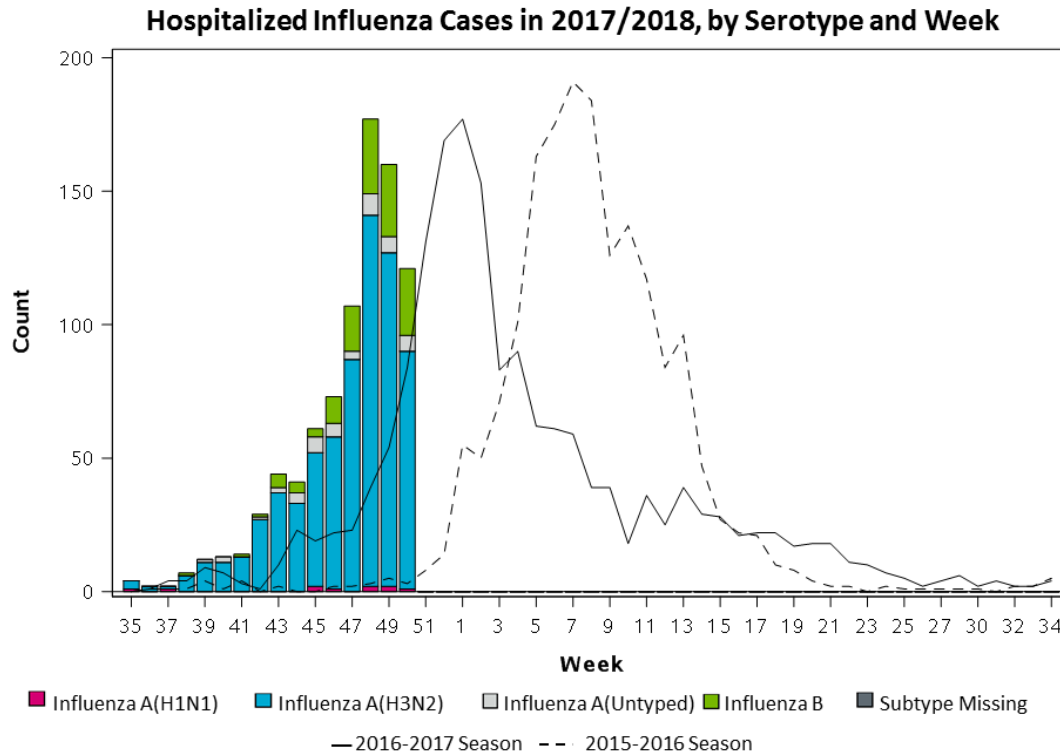
The peak of influenza is currently predicted using a deterministic mathematical model that considers transmission by three age groups (0 to 18, 19-64, and >=65 years old). The model is simulated weekly using up-to-date laboratory confirmed data to determine if the prediction will change. The prediction based on current data is week 51 (December 17, 2017 – December 23, 2017) with a 95% confidence interval (50, 1). The peak of influenza does not appear to be different by zone.

2017/18 Lab-Confirmed Influenza Cases by Serotype and Week, Compared to Seasonal Average



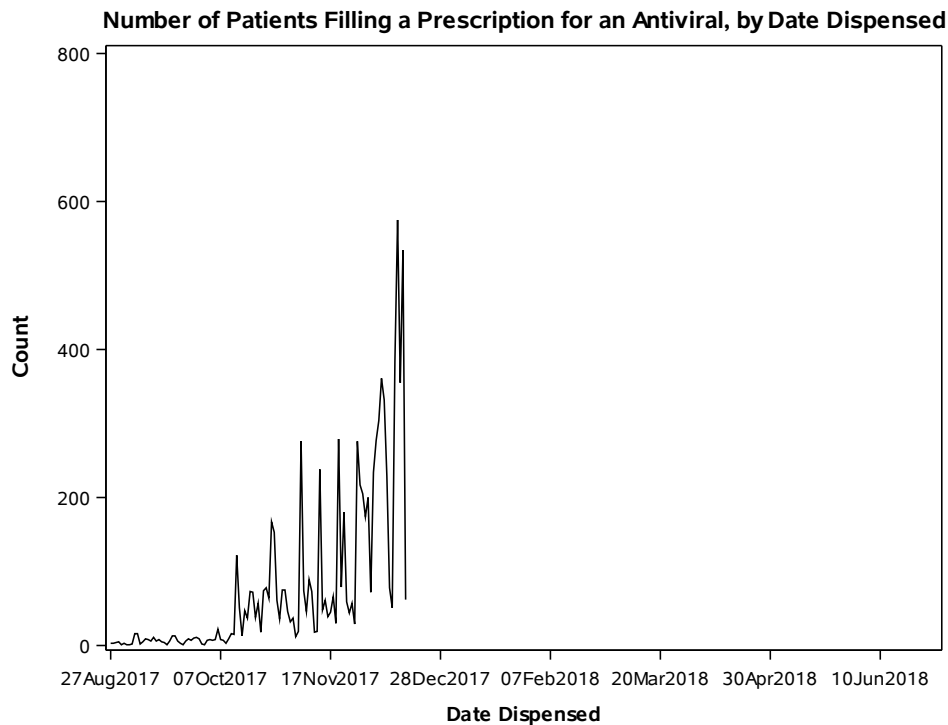
Section 4: Hospitalizations

There have been 867 hospitalized influenza cases and 61 patients admitted to the ICU to date. The predominant subtype in hospitalized patients is Influenza A (H3N2).



Section 5: Antiviral Prescriptions

The number of antivirals dispensed by community pharmacists provides an indication of the amount of influenza circulating in the community. There were 1,912 prescriptions dispensed in week 50. There have been 8,446 prescriptions dispensed to date.



Section 6: Antiviral Resistance

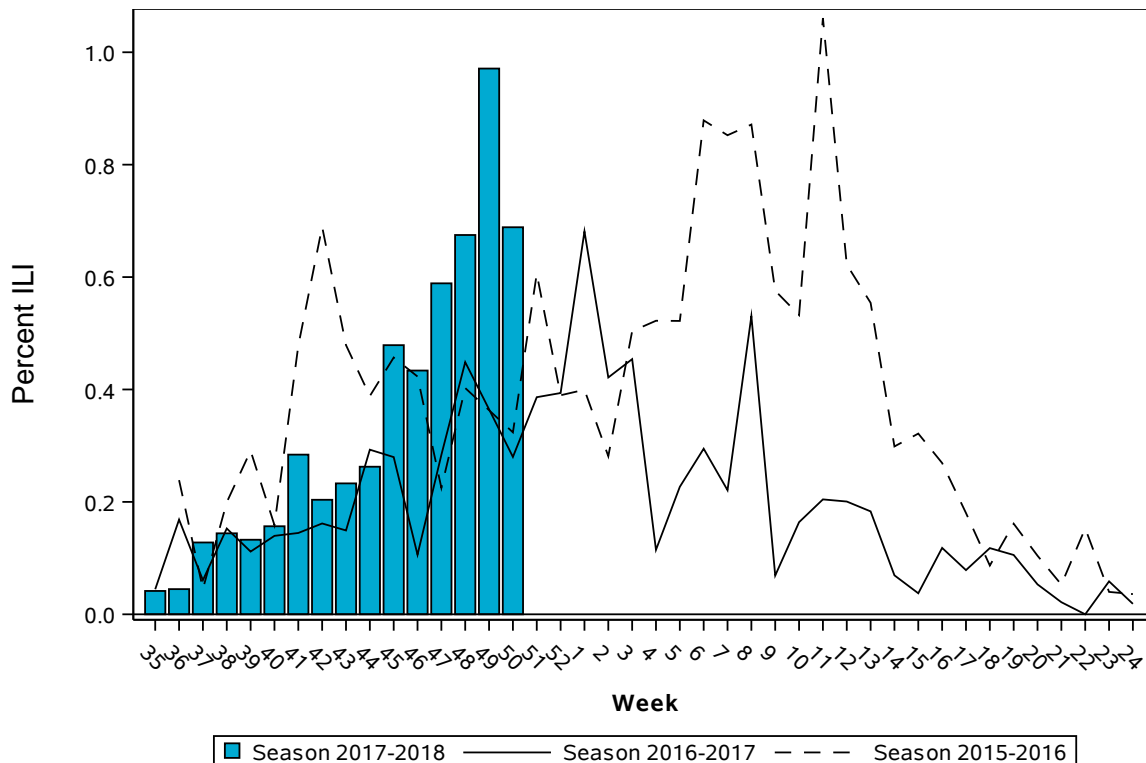
As of Sept. 1, 2017, 220 influenza isolates had been characterized by the National Medical Laboratory (NML). All isolates were sensitive to zanamivir and oseltamivir.

Section 7: Influenza-Like Illness – TARRANT

Sentinel physicians report cases of ILI seen in their practices. Sentinel physicians saw 46 cases of influenza-like illness in week 50 (0.7% of all patients seen). There were 70 cases of ILI (1.0%) seen by physicians in week 49.

	Sentinel Doctors (#)	Sentinel Recorders This Week (#)	Patients Seen (#)	ILI Cases (#)	Patients with ILI (%)
Calgary Zone	64	39	3402	34	1.0
Central Zone	13	10	662	2	0.3
Edmonton Zone	11	10	1116	3	0.3
Northern Zone	6	3	102	1	1.0
South Zone	13	9	1401	6	0.4
Alberta	107	71	6680	46	0.7

Percent of Patient Visits Due to Influenza-Like Illness at Sentinel Physicians, by Week and Season



For more information, please go to: <http://calgaryfamilymedicine.ca/tarrant/>

Section 8: Acknowledgments

Alberta Health would like to thank Alberta Health Services (AHS), First Nations Inuit Health Branch (FNIHB), the Provincial Laboratory for Public Health (ProvLab), the National Microbiology Laboratory (NML), and TARRANT sentinel physician system for their partnership in influenza surveillance in Alberta.

Section 9: Canadian and International Influenza Activity

The following links provide access to other websites related to influenza and ILI.

- Alberta Health (Influenza Reports) <http://www.health.alberta.ca/professionals/influenza-evidence.html>
- Alberta Health (Influenza Forms) <http://www.health.alberta.ca/professionals/notifiable-diseases-guide.html>
- Alberta Health Services <http://www.albertahealthservices.ca/2891.asp>
- Canada – FluWATCH www.phac-aspc.gc.ca/fluwatch/index-eng.php
- World Health Organization www.who.int/topics/influenza/en/
- USA – CDC www.cdc.gov/flu/weekly/

Section 10: Data Notes

This report utilized data from the Provincial Laboratory for Public Health (ProvLab), Alberta's influenza like illness (ILI) sentinel physician system (TARRANT), Supplemental Enhanced Service Event (SESE) physician claims data, the Pharmacy Information Network (PIN), as well as outbreak reports and hospitalized case report forms from Alberta Health's Communicable Disease Reporting System (CDRS).

Defining Baselines and Thresholds for Lab-Confirmed Influenza Surveillance

An important function of influenza surveillance is to determine whether the timing or magnitude of the influenza season is unusual compared to previous seasons. The World Health Organization recommends comparing current-season influenza activity to the average epidemic curve, and to create two thresholds – one to determine when the influenza season has begun (seasonal threshold) and to determine at what point current influenza activity would be unusually high (alert threshold)¹.

The average epidemic curve for lab-confirmed influenza surveillance was estimated using data collected between the 2010/11 and 2014/15 seasons. Lab-confirmed influenza became routinely reported in 2009; however, the 2009/10 pandemic season was excluded. The peaks of each season were aligned, and the average number of cases reported per aligned week was calculated as well as the 90 per cent confidence limit. The 90 per cent confidence limit acts as the Alert Threshold. If the number of cases reported in a week passes this threshold it is considered to be unusually high. Until the current season has peaked, the best estimate of the peak is utilized to align the current season to the average epidemic curve. The first estimate utilized was the median of the previous five seasons, week².

The seasonal threshold was estimated as the average number of cases reported per week, in weeks considered outside of the influenza season (i.e., pre-season weeks). The start of the influenza epidemic was defined as the week in which the percent positivity of influenza A laboratory tests at ProvLab were ≥ 10 per cent of all respiratory laboratory tests ordered that week². The end of the influenza epidemic was defined as the week in which the per cent positivity of influenza B was < 10 per cent of all respiratory laboratory tests ordered that week². All weeks in between these time periods were considered part of the influenza epidemic. Per cent positivity is an accepted method of determining the influenza season¹, however visual inspection was also utilized to ensure face validity.

Predicting the Peak of the Epidemic Curve

The peak of the influenza curve was predicted using a deterministic mathematical model that considered transmission across by three age groups (0–18 years, 19–64 years, and ≥ 65 years old). The data used to estimate the parameters in the model is obtained from PSI, CDRS, physician claims data, PIN, and the population registry. The model is simulated weekly using up-to-date laboratory confirmed data to predict the peak for influenza. As more laboratory confirmed counts become available the point estimate and confidence interval for the peak may vary.

¹ World Health Organization 2013 "Global Epidemiological Surveillance Standards for Influenza". Geneva. http://www.who.int/influenza/resources/documents/influenza_surveillance_manual/en/

² Provincial Laboratory for Public Health (ProvLab) Weekly Respiratory Summary