Alberta Government

Section 1: Summary

Influenza activity continues to increase across the province after higher than usual activity this summer. The predominant subtype so far this season is Influenza A(H3N2) .

Section 2: Outbreaks

Two influenza outbreaks in Calgary Zone were reported in week 42. There have been 5 outbreaks reported to date.
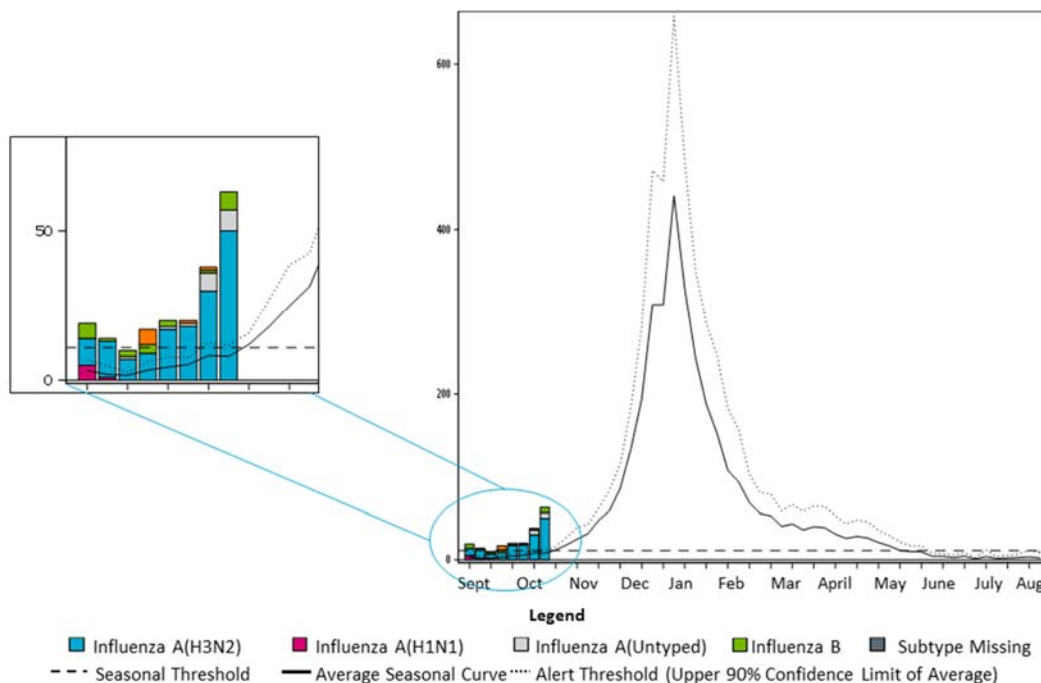
	Outbreaks	
	Current Week	**YTD**
North	0	0
Edmonton	0	0
Central	0	0
Calgary	2	4
South	0	1
Unknown	0	0
Alberta	2	5

Section 3: Laboratory-Confirmed Influenza Surveillance & Peak Prediction

To date in the 2017/18 season, the Provincial Laboratory for Public Health (Provlab) has reported 201 lab-confirmed influenza cases: 174 influenza A, 20 influenza B and 7 where subtype is unavailable. The predominant subtype is influenza A(H3N2) with 75% of all isolates. While more than half of the lab-confirmed cases have been in Calgary Zone, cases have been reported in all zones.

Peak prediction for influenza will commence once there is enough laboratory data to support it. The median peak for an Influenza A(H3N2)-predominant season is week 52. Please see data notes for additional details on the seasonal threshold and peak prediction.


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

Legend
- Influenza A(H3N2)
- Influenza A(H1N1)
- Influenza A(Untyped)
- Influenza B
- Subtype Missing
- Seasonal Threshold
- Average Seasonal Curve
- Alert Threshold (Upper 90% Confidence Limit of Average)

Section 4: Hospitalizations

There have been 67 hospitalized influenza cases to date.

Hospitalized Influenza Cases in 2017/18, by Serotype and Week
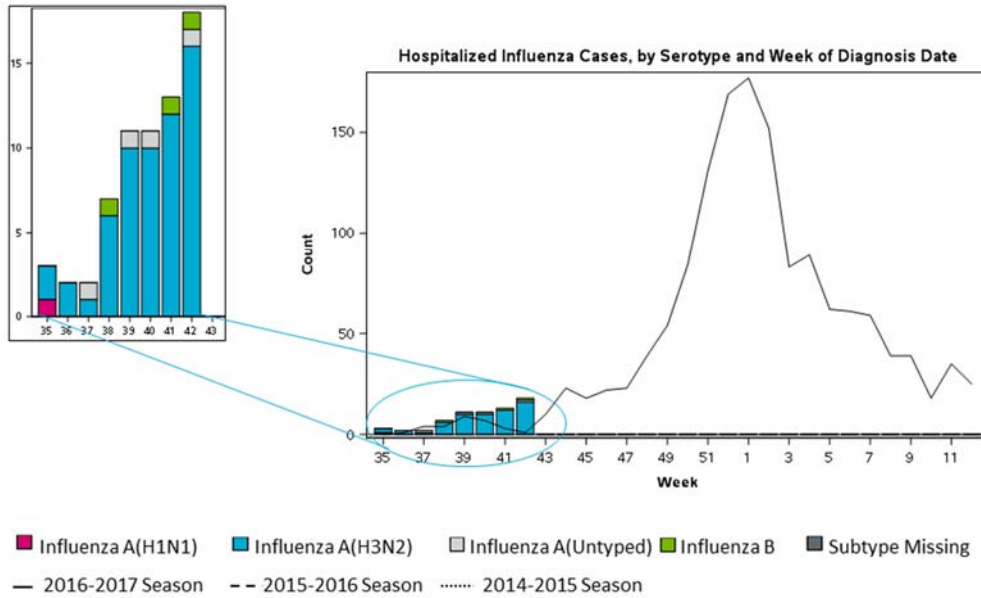
Section 5: Antiviral Prescriptions

The number of antivirals dispensed by community pharmacists provides an indication of the amount of influenza circulating in the community. There were 247 prescriptions dispensed in week 42. There have been 749 prescriptions dispensed to date.

Number of Patients Filling a Prescription for an Antiviral, by Date Dispensed
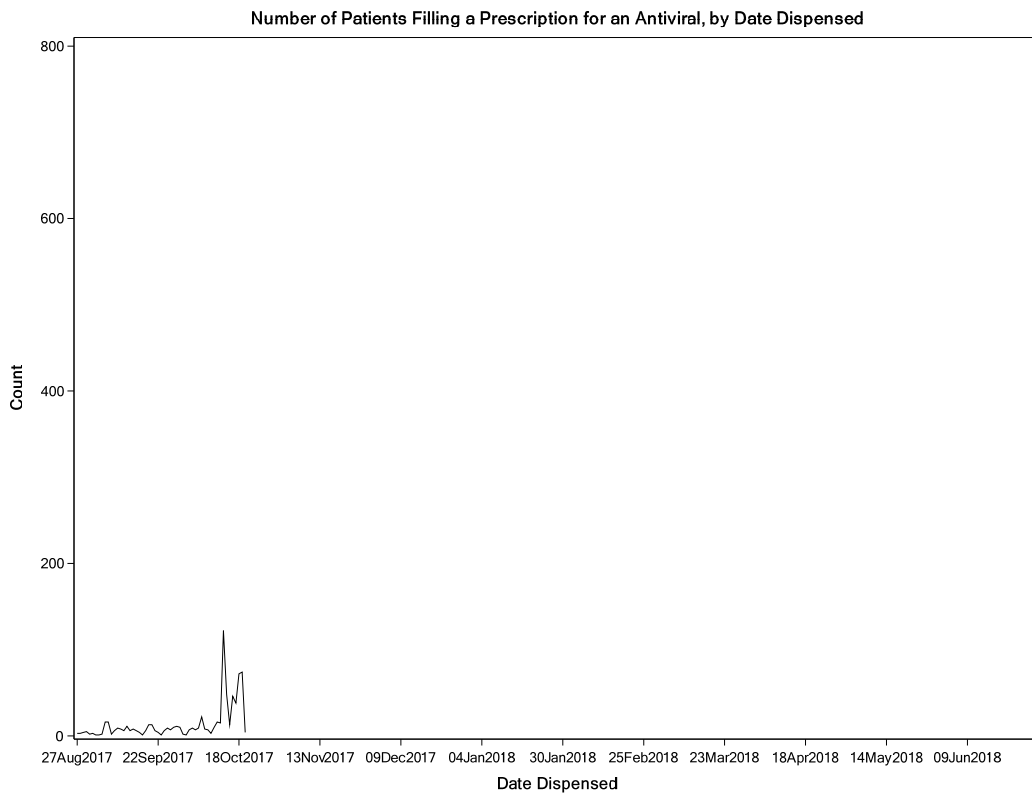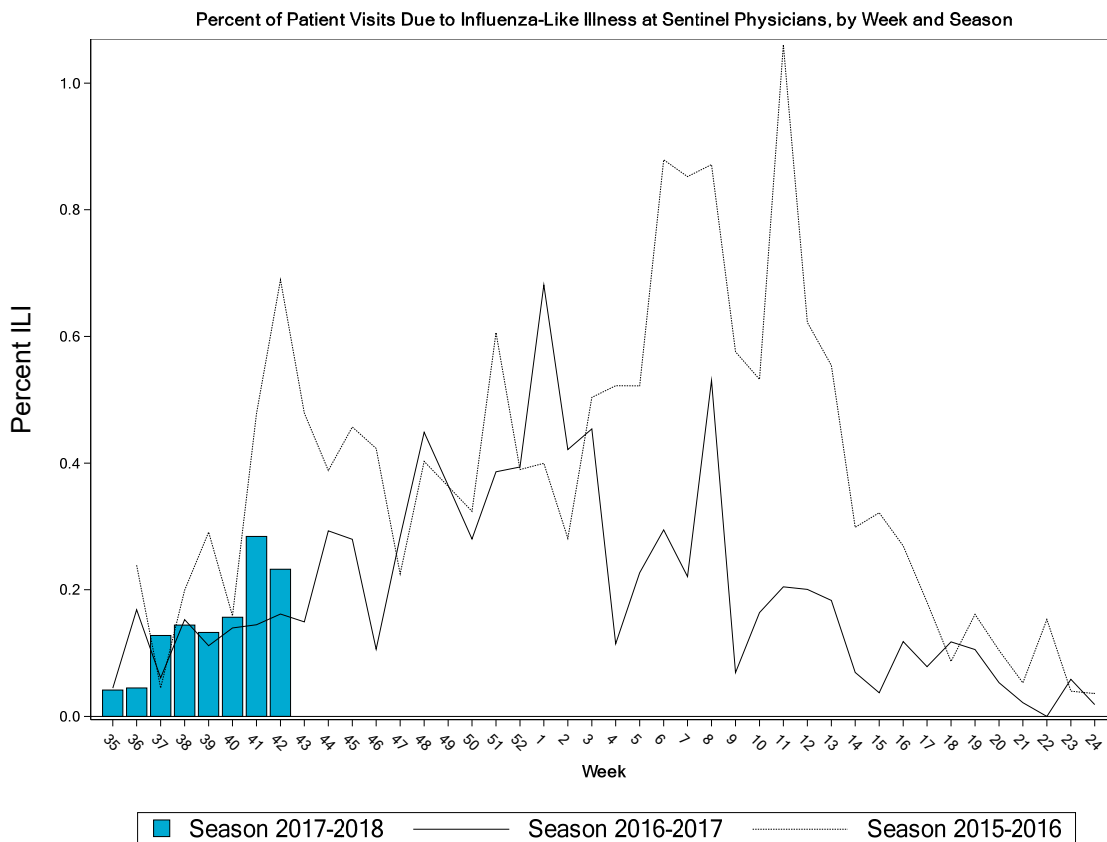
Section 6: Antiviral Resistance

As of Sept. 1, 2017, 43 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 11 cases of influenza-like illness in week 42 (0.2% of all patients seen). There were 13 cases of ILI (0.3%) seen by physicians in week 41.

	Sentinel Doctors (#)	Sentinel Recorders This Week (#)	Patients Seen (#)	ILI Cases (#)	Patients with ILI (%)
Calgary Zone	61	34	2360	5	0.2
Central Zone	13	10	836	0	0.0
Edmonton Zone	10	9	1001	2	0.2
Northern Zone	6	2	147	0	0.0
South Zone	12	3	392	4	1.0
Alberta	102	58	4734	11	0.2

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

For more information, please go to: www.tarrantviralwatch.ca

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, week[2].

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 week[2]. 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 week[2]. 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 season[1], 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 for the peak may vary and the width of the confidence interval will decrease.

Note that the current model assumes that influenza activity is similar across zones, which is not the case this season and is the reason why the confidence intervals around the mean are wide.

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[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