

Influenza Surveillance Report 2018–2019

Week 15–16 (Apr. 7–20, 2019)

Data extracted Apr. 26, 2019 at 11:00 am
Next report date: May. 10, 2019

Low and Sustained Activity

Provincial Update: There has been a sustained and low-level influenza A(H3N2) activity in Manitoba. This week, influenza accounted for 12% of laboratory detections in respiratory viruses. There have been 905 laboratory-confirmed influenza cases since September, mostly with influenza A(H1N1). However, from mid-February, influenza A(H3N2) virus became the most detected influenza virus. Older adults and residents of long-term care facilities are at higher risk of influenza A(H3N2) infection that may result in serious outcomes.

National Update: As of Week 15, a second smaller wave of sustained influenza activity continued to be observed in Canada. Detections of influenza A (H3N2) accounted for 83% of subtyped influenza A detections in week 15. There are currently fewer influenza B viruses circulating compared to previous seasons.

International Update: As of Week 15, Influenza activity decreased but remained elevated in the United States. Influenza A(H1N1) viruses predominated from October to mid-February, and influenza A(H3N2) has been more commonly identified since late February. A small number of influenza B viruses have also been reported.

Laboratory

Laboratory-confirmed influenza cases in Week 15–16:

- Influenza A cases: **35**
- Influenza B cases: **12**

Since Sept. 1, 2018:

- Influenza A cases: **878**
- Influenza B cases: **27**

Severity

Severe outcomes associated with laboratory-confirmed diagnosis of influenza in Week 15–16:

- Hospitalizations: **<5**
- ICU* admissions: **<5**
- Deaths: **0**

Since Sept. 1, 2018:

- Hospitalizations: **194**
- ICU* admissions: **39**
- Deaths: **15**

Outbreak

Laboratory-confirmed influenza outbreaks in Week 15–16:

- Influenza A outbreaks: **<5**
- Influenza B outbreaks: **0**
- Influenza A & B outbreaks: **0**

Since Sept. 1, 2018:

- Influenza A outbreaks: **15**
- Influenza B outbreaks: **0**
- Influenza A & B outbreaks: **0**

Syndromic in Community

Calls to Influenza Service at Health Links–Info Santé:

- Week 15: **29**
- Week 16: **18**

Syndromic in Care

Visits to sentinel physicians due to ILI :

- Week 15: **0%**
- Week 16: **0.8%**

Units of antiviral dispensed from pharmacies:

- Week 15: **8**
- Week 16: **12**

Syndromic in ED

Respiratory visits to Emergency Department (ED):

- Week 15: **158/day**
- Week 16: **176/day**

Immunization

As of Apr 26, 2019:

- Percentage of Manitoba residents immunized with the seasonal influenza vaccine: **23.6%**

Antiviral Susceptibility

Isolates resistant to antiviral since Sept. 1, 2018 in Canada:

- Oseltamivir: **4 (out of 1183 tests)**
- Zanamivir: **0 (out of 1182 tests)**

Regional Health Authority

Influenza cases (cases/100,000 population) since Sept. 1, 2018:

- Winnipeg: **310 (39.8)**
- Southern: **132 (64.6)**
- Interlake-Eastern: **102 (78.3)**
- Prairie Mountain: **184 (107.7)**
- Northern: **177(230.3)**

Note. * ICU admissions were also included in hospitalizations.

Time trends in this report were analyzed by [epidemiology week](#).

Numbers are subject to change. Missed events in the current report due to a delay of submission to MHSAL will be included in later reports when data become available.

Figure 1. Weekly Cases of Laboratory-Confirmed Influenza, Manitoba

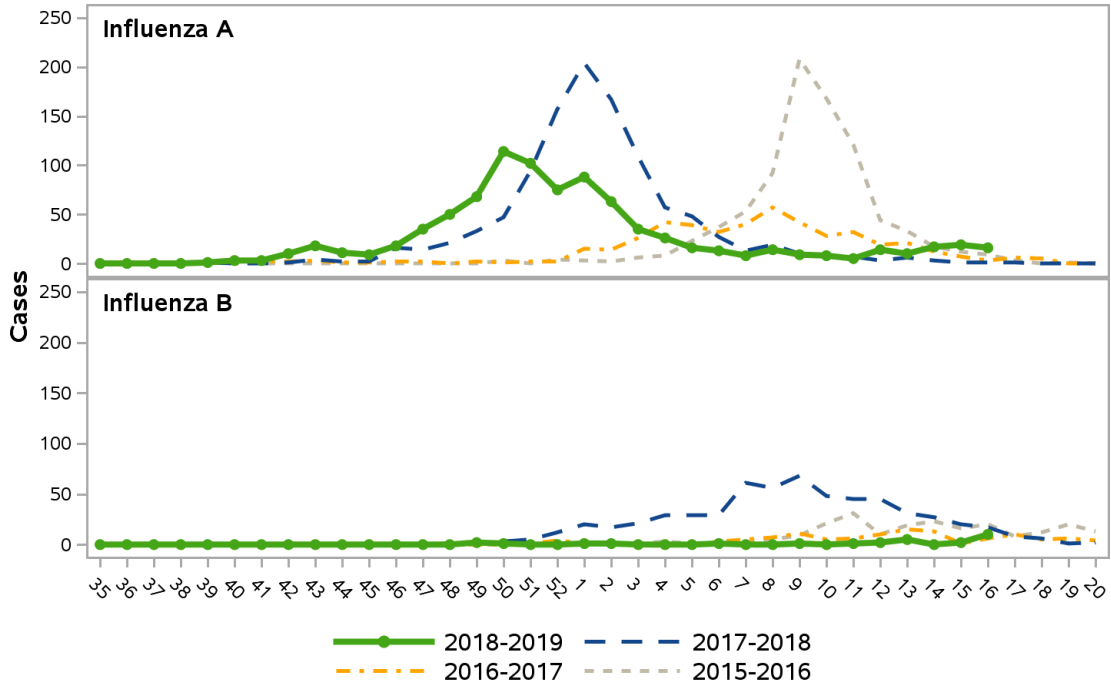


Figure 2. Distribution of Influenza Cases since September 1, 2018 by Age Group, Manitoba, 2018–2019

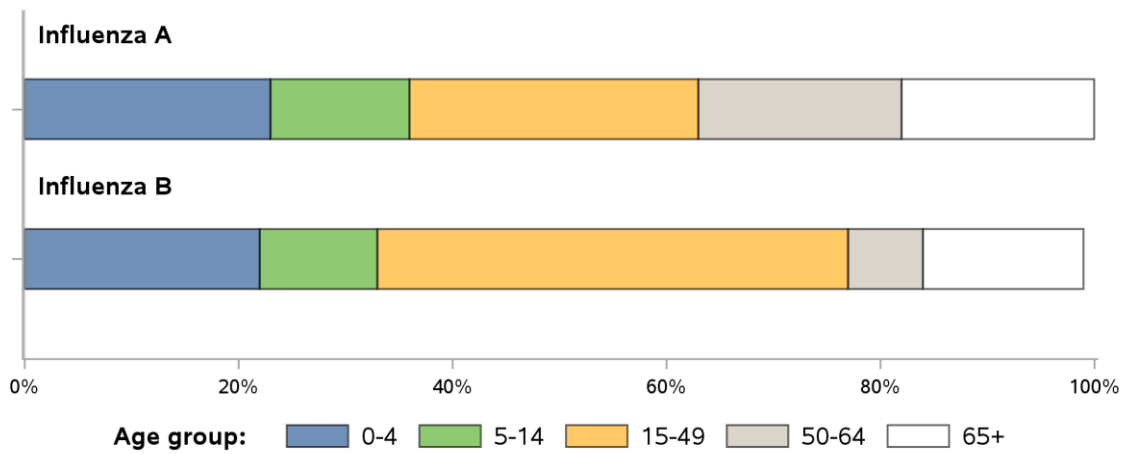


Figure 3 Weekly Influenza and ILI Outbreaks, Manitoba

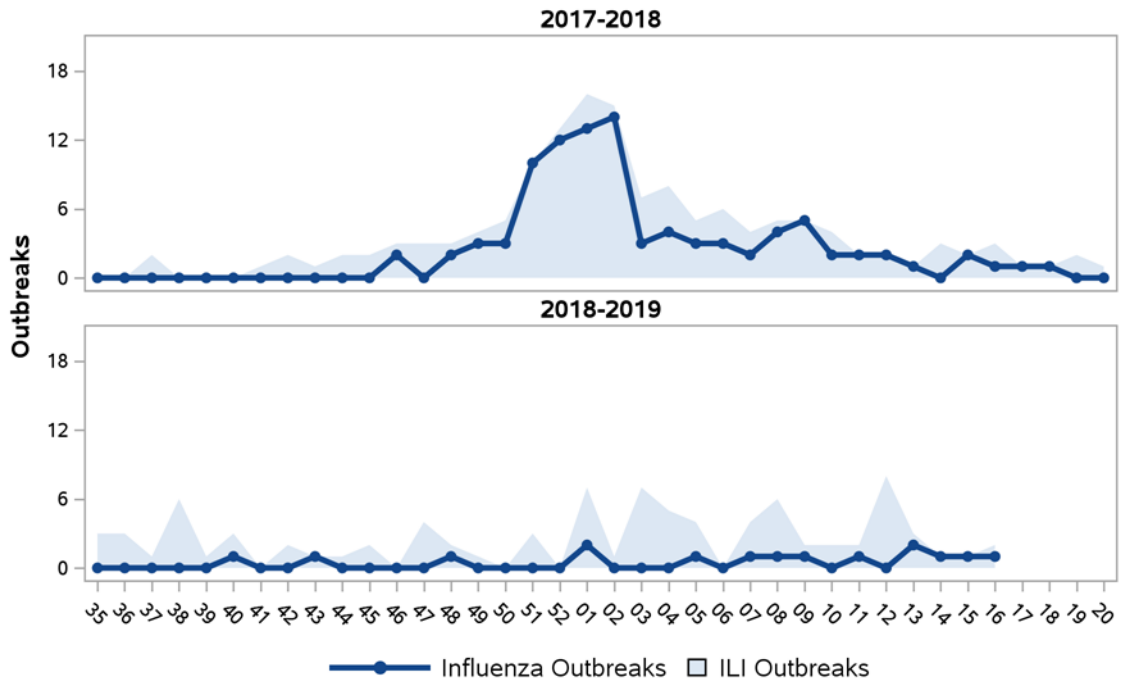


Figure 4 Weekly Influenza Related Calls to Health Links - Info Santé, Manitoba

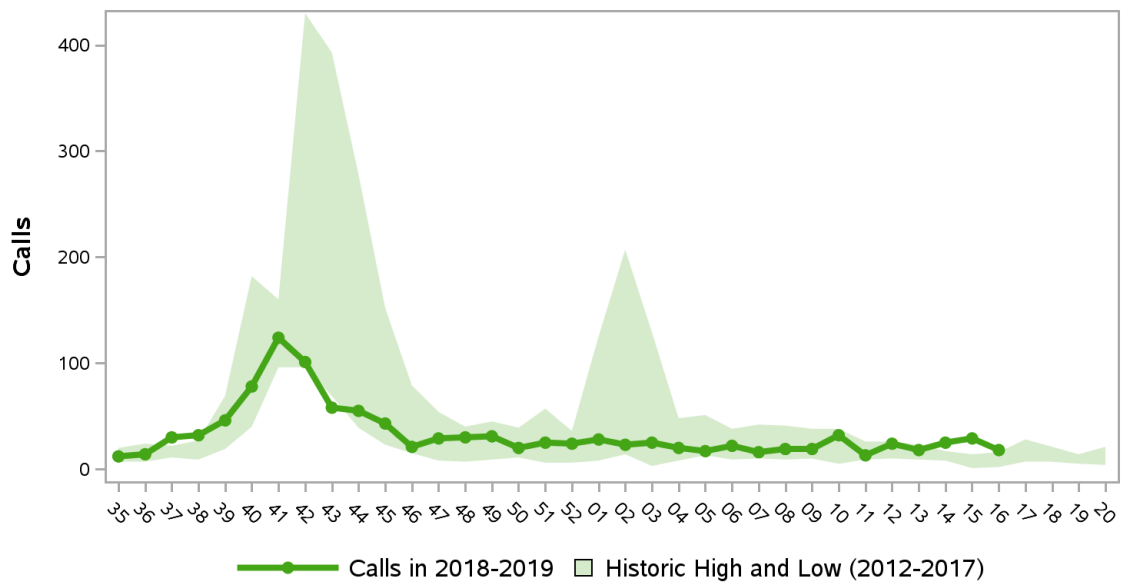


Figure 5 Weekly % of ILI Related Visits to Sentinel Physicians, Manitoba

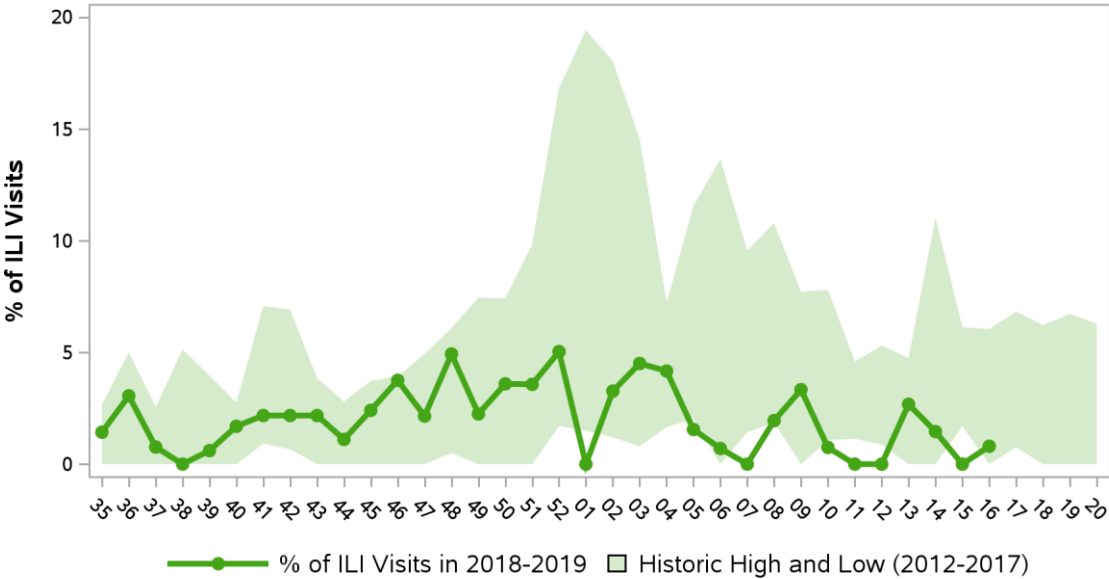


Figure 6 Weekly Units of Antiviral Dispensed from Pharmacies, Manitoba

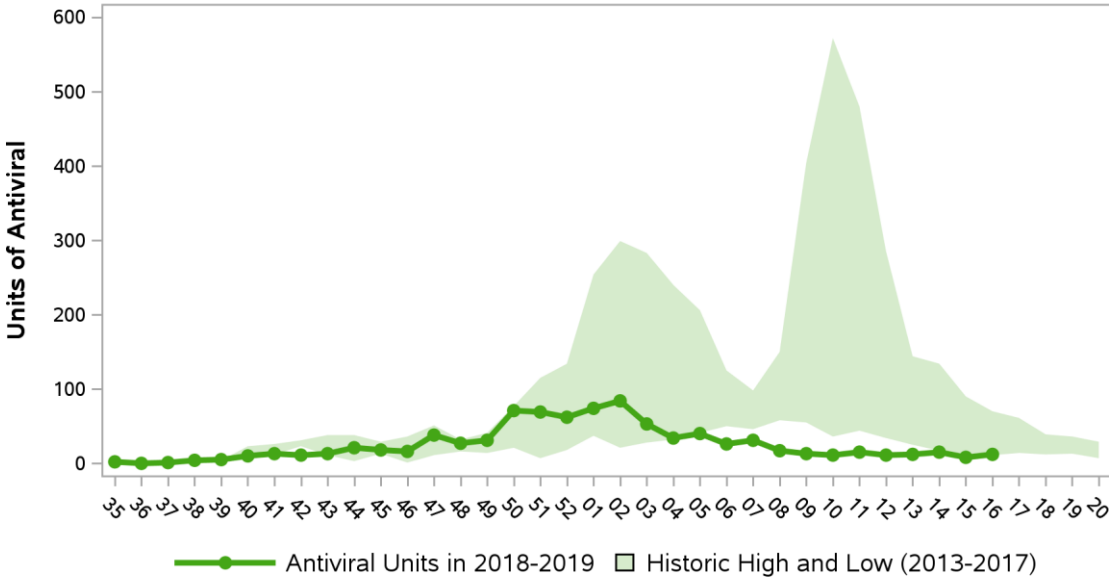


Figure 7 Weekly Respiratory Visits to Emergency Department and % of Total, Winnipeg Regional Health Authority, Manitoba

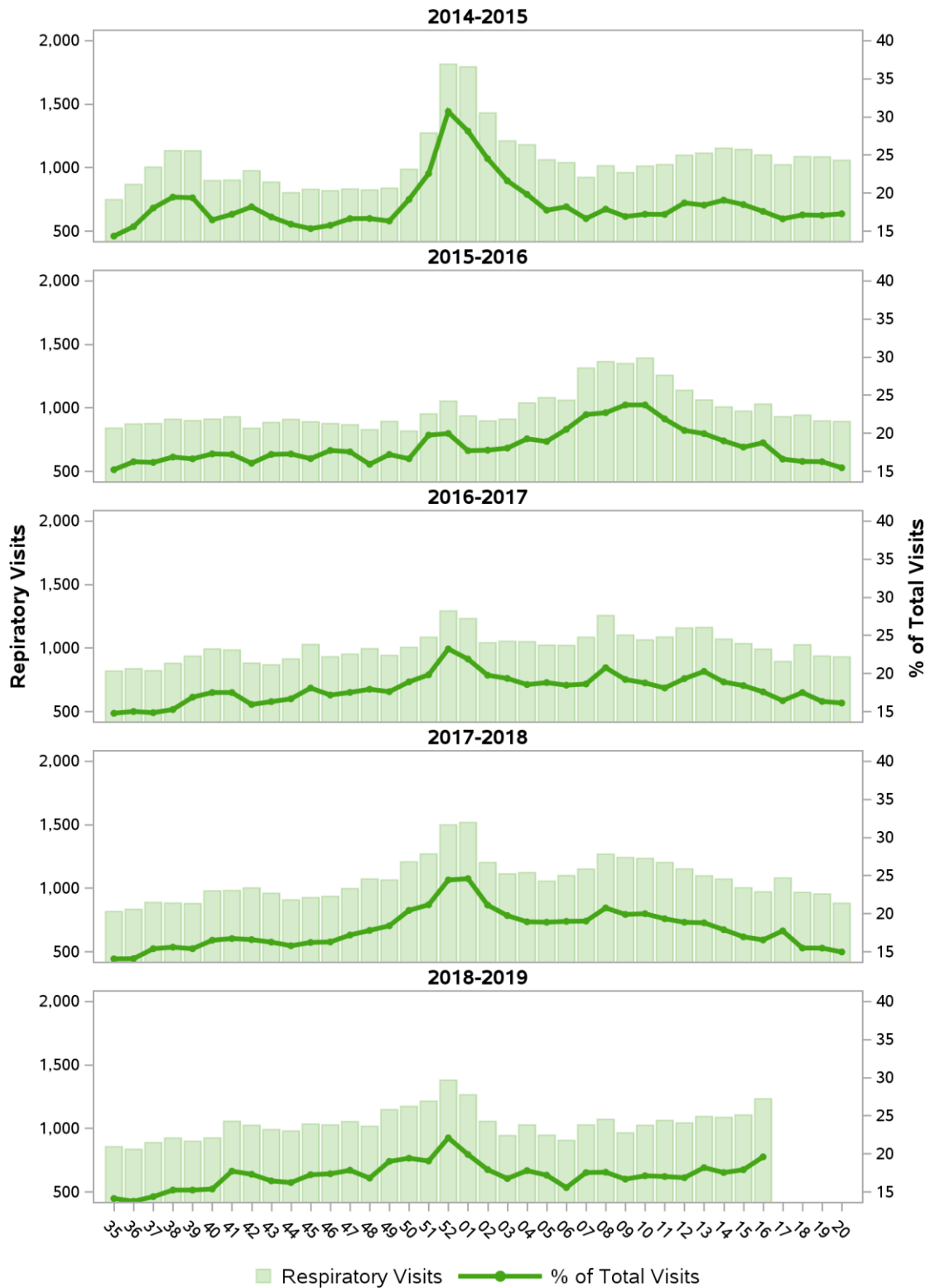


Table 1. Antiviral Resistance of Isolates by Influenza Type and Subtype since September 1, 2018, 2018–2019

		Oseltamivir		Zanamivir		Amantadine	
		Resistant	Sensitive	Resistant	Sensitive	Resistant	Sensitive
Canada	A(H3N2)	0	134	0	134	77	0
	A(H1N1)	4	985	0	988	351	0
	B	0	60	0	60	N/A	N/A
Manitoba	A(H3N2)	0	1	0	1	6	0
	A(H1N1)	0	73	0	73	27	0
	B	0	5	0	5	N/A	N/A

- N/A = Not applicable

Table 2. Influenza Strain Characterization reported by National Microbiology Laboratory since September 1, 2018, 2018–2019

Strain	Number of viruses	
	Canada	Manitoba
A/Singapore/INFIMH-16-0019/2016 (H3N2)-like	189	3
A/Michigan/45/2015 (H1N1)-like	1553	92
B/Colorado/06/2017-like	77	5
B/Phuket/3073/2013-like	23	1

- As per World Health Organization (WHO), all seasonal quadrivalent influenza vaccines for 2018–2019 in the northern hemisphere contain those strains.

Since September 1, 2018, National Microbiology Laboratory (NML) has characterized:

1. 353 influenza A(H3N2) viruses
 - 111 influenza A (H3N2) viruses were antigenically characterized as A/Singapore/INFIMH-16-0019/2016-like by HI testing using antiserum raised against egg-propagated A/Singapore/INFIMH-16-0019/2016. A/Singapore/INFIMH-16-0019/2016 is the influenza A/H3N2 component of the 2018-19 Northern Hemisphere influenza vaccine. 71 influenza A (H3N2) viruses characterized belonged to genetic group 3C.2a1. 18 viruses belonged to genetic group 3C.2a and 77 to 3C.3a. Sequencing is pending for the remaining isolates.
 - 78 viruses showed reduced titer with ferret antisera raised against egg-propagated A/Singapore/INFIMH-16-0019/2016.
 - 164 influenza A(H3N2) viruses did not grow to sufficient hemagglutination titer for antigenic characterization by hemagglutination inhibition (HI) assay. Therefore, NML has performed genetic characterization to determine the genetic group identity of these viruses. Sequence analysis of the HA gene of the viruses showed that 20 viruses belonged to genetic group 3C.2a, 139 viruses belonged to subclade 3C.2a1, and four viruses belonged to 3C.3a. One isolate could not be sequenced. A/Singapore/INFIMH-16-0019/2016-like virus belongs to genetic group 3C.2a1 and is the influenza A/H3N2 component of the 2018-19 Northern Hemisphere influenza vaccine.
2. 1553 influenza A(H1N1) viruses
 - 1510 H1N1 viruses characterized were antigenically similar to A/Michigan/45/2015, which is the influenza A/H1N1 component of the 2018-19 Northern Hemisphere influenza vaccine.
 - 43 viruses showed reduced titer with ferret antisera raised against cell culture-propagated A/Michigan/45/2015.

3. 100 influenza B viruses:

- 23 influenza B viruses were characterized as B/Phuket/3073/2013-like, which belongs to the Yamagata lineage and is included as an influenza B component of the 2018-19 Northern Hemisphere quadrivalent influenza vaccine.
- 16 influenza B viruses were characterized as B/Colorado/06/2017, which belongs to the Victoria lineage and is included as an influenza B component of the 2018-19 Northern Hemisphere influenza vaccine.
- 61 viruses showed reduced titer with ferret antisera raised against cell culture-propagated B/Colorado/06/2017. Sequence analysis showed that 60 viruses that showed reduced titer had a three amino acid deletion (162-164) in the HA gene.

Appendix

Data Sources

Laboratory Surveillance

Detections of influenza nucleic acid detection, culture isolation, and enzyme immunoassay (EIA) are reported from Cadham Provincial Laboratory (CPL) and occasionally other laboratories. These reports are forwarded to Epidemiology and Surveillance (E&S) within 24 hours of confirmation. CPL also performs testing for other respiratory viruses including parainfluenza, RSV, adenovirus, rhinovirus, coronavirus, enterovirus, and bocavirus, which are reported to E&S on a weekly basis.

Influenza Associated Hospitalizations, ICU Admissions and Deaths

Each influenza season on a weekly basis, the Public Health Office in each Regional Health Authority (RHA) is requested to submit a line list of hospitalizations, Intensive Care Unit (ICU) admissions and deaths for laboratory-confirmed influenza patients that were admitted in hospitals in the reporting RHA or deceased as the registered residents of the reporting RHA.

The reason for the hospitalizations, ICU admissions or the cause of deaths does not have to be attributable to influenza. Instead, a temporal association with a positive influenza laboratory result is sufficient due to the requirement for timely reporting. Submissions are cleaned by E&S to remove duplicate submissions for the same patient within the same illness episode. In this report, only Manitoba residents are included.

Outbreak

Outbreaks are reported to E&S by a phone call or email from public health staff within RHAs or from CPL advising the assignment of an outbreak code. CPL submits both positive and negative laboratory results related to outbreaks to E&S. Outbreak investigations are reported from RHAs to E&S by completing an outbreak summary report form electronically through the Canadian Network for Public Health Intelligence (CNPHI) or on paper.

Health Links – Info Santé

Health Links–Info Santé is a 24-hour, 7-days a week telephone information service. It is staffed by registered nurses with the knowledge to provide answers to health care questions and guidance to appropriate care over the phone. When a caller phones Health Links–Info Santé and selects Influenza Service, they are given an option to select information on (1) the groups of individuals who are at an increased risk of serious illness, (2) how to arrange an influenza vaccine, (3) the annual influenza immunization campaign, or (4) the management of influenza and its potential complications.

ILI Visits to Sentinel Physicians

Manitoba participates in *FluWatch*, the Canada's national surveillance system co-ordinated by Public Health Agency of Canada (PHAC), which monitors the spread of influenza and ILI on a year-round basis. *FluWatch* consists of a network of laboratories, hospitals, doctor's offices and provincial and territorial ministries of health. In 2018–2019, there are 19 sentinel physicians recruited throughout Manitoba reporting to *FluWatch* weekly. E&S receives weekly reports from *FluWatch* which present the ILI rate for Manitoba and for each participating sentinel physician. The reporting sentinel physicians are different by week and their reports may not be representative of ILI activity across the province.

Antiviral Dispensing

The units of antiviral drugs, Oseltamivir and Zanamivir, dispensed from community retail pharmacies to Manitoba residents are reported to E&S from Drug Programs Information Network (DPIN) on a weekly basis. Antiviral drugs dispensed to in-patients or through nursing stations could not be included in this report due to lack of data.

Respiratory Visits to Emergency Department

Daily statistics of visits to Emergency Department (ED) that are related to respiratory illness in Winnipeg Regional Health Authority (WRHA) are submitted to E&S weekly. ILL cases are defined as patients whose triage chief complaints contain either of these symptoms: weakness, shortness of breath, cough, headache, fever, cardiac/respiratory arrest, sore throat, and upper respiratory tract infection complaints.

Immunization

Immunization data were extracted from Panorama, the provincial immunization registry. The report includes clients who have received one or more valid doses of the influenza vaccine and who have active registration with Manitoba Health, Seniors and Active Living (MHSAL) at the time that the report is generated (i.e. it is not based on the number of doses in the registry divided by the population of Manitoba). This report coverage does not include the following:

- clients who have moved or passed away and are now inactive in the client registry;
- clients who receive services from public health in Manitoba, but have been entered in the Immunization Registry as inactive clients;
- clients who are not in the registry, such as immigrants and refugees, visiting students, and visitors who are not registered for health services in Manitoba;
- doses that have not been reported to MHSAL.

Antiviral Resistance

Influenza and Respiratory Viruses Section of National Microbiology Laboratory (NML) undertakes enhanced surveillance, investigations, and research on influenza and other respiratory pathogens. A sample of positive influenza specimens isolated by culture is referred from each provincial laboratory to NML for strain characterization and antiviral resistance testing. The aggregate level information is then shared with provinces and territories on a weekly basis.

Circulating Strain

NML antigenically characterizes influenza viruses received from Canadian laboratories year-round. In Manitoba, representative samples of influenza viruses isolated by culture, from different regions, time periods and outbreaks, is referred from CPL to NML for strain characterization.

Immunization Program

As per World Health Organization (WHO), all seasonal quadrivalent influenza vaccines for 2018-2019 in the northern hemisphere contain:

- A/Michigan/45/2015 (H1N1)pdm09-like virus
- A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus
- B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage)
- B/Phuket/3073/2013-like virus (not included in the trivalent high dose influenza vaccine)

For the 2018–2019 influenza season, MHSAL has been allotted the quadrivalent inactivated vaccines (QIV), Fluzone® Quadrivalent (Sanofi Pasteur) and FluLaval Tetra® (GlaxoSmithKline), and the quadrivalent live attenuated influenza vaccine (QLAIV), FluMist® Quadrivalent (AstraZeneca), as part of the province's Publicly-Funded Seasonal Influenza Immunization Program.

Fluzone® High-Dose (Sanofi Pasteur), is being offered again to people 65 years of age or older that are living in long-term care facilities (LTCF) in Manitoba, including chronic care residents. Clients in interim/transitional care beds, respite care clients, and new or unimmunized residents admitted to a LTCF during the flu season are also eligible. This vaccine is a trivalent inactivated vaccine (TIV) and contains four times the amount of influenza virus antigen per strain compared to the standard-dose influenza vaccine. Therefore, this vaccine is expected to provide better protection against seasonal influenza than the standard-dose vaccine.

Abbreviations

CPL	Cadham Provincial Laboratory
CNPHI	Canadian Network for Public Health Intelligence
E&S	Epidemiology and Surveillance
ED	Emergency Department
ICU	Intensive Care Unit
ILI	Influenza-Like-Illness
LTCF	Long Term Care Facility
MHSAL	Manitoba Health, Seniors and Active Living
NML	National Microbiology Laboratory
PHAC	Public Health Agency of Canada
RHA	Regional Health Authority
RSV	Respiratory Syncytial Virus
WRHA	Winnipeg Regional Health Authority

Explanatory Notes and Definitions

Cumulative Data

Cumulative data include updates to previous weeks; due to reporting delays or amendments, the sum of weekly report totals may not add up to cumulative totals.

Data Extraction Date

Manitoba-specific information contained within this report is based on data confirmed at 11:00 am on the date of data extraction.

Epidemiology Week

Time trends in this report are presented by [epidemiology week](#), a schedule used by the national FluWatch program coordinated by PHAC.

Incidence Rate

Incidence rate measures the frequency that influenza occurs in a population. It is calculated as the total number of new cases this influenza season multiplied by 100,000 and divided by the total population in each region. Regional populations are based on the Manitoba Health Population Report 2016.

ILI in General Population

Acute onset of respiratory illness with fever and cough and with one or more of the following – sore throat, arthralgia, myalgia, or prostration, which is likely due to influenza. In children under 5,

gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI Outbreak

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI.

Hospitals and residential institutions: Two or more cases of ILI within a seven-day period.

Other settings: Two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Specimen Collection Date

The date the laboratory specimen was taken is used to assign cases to the epidemiology week in this report. Occasionally, if the specimen collection date is not available, the laboratory report date will be used.

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Other Epidemiology and Surveillance reports

<http://www.gov.mb.ca/health/publichealth/surveillance/index.html>

National Influenza Surveillance

<http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>