

Influenza Monthly Epidemiology Report, NSW

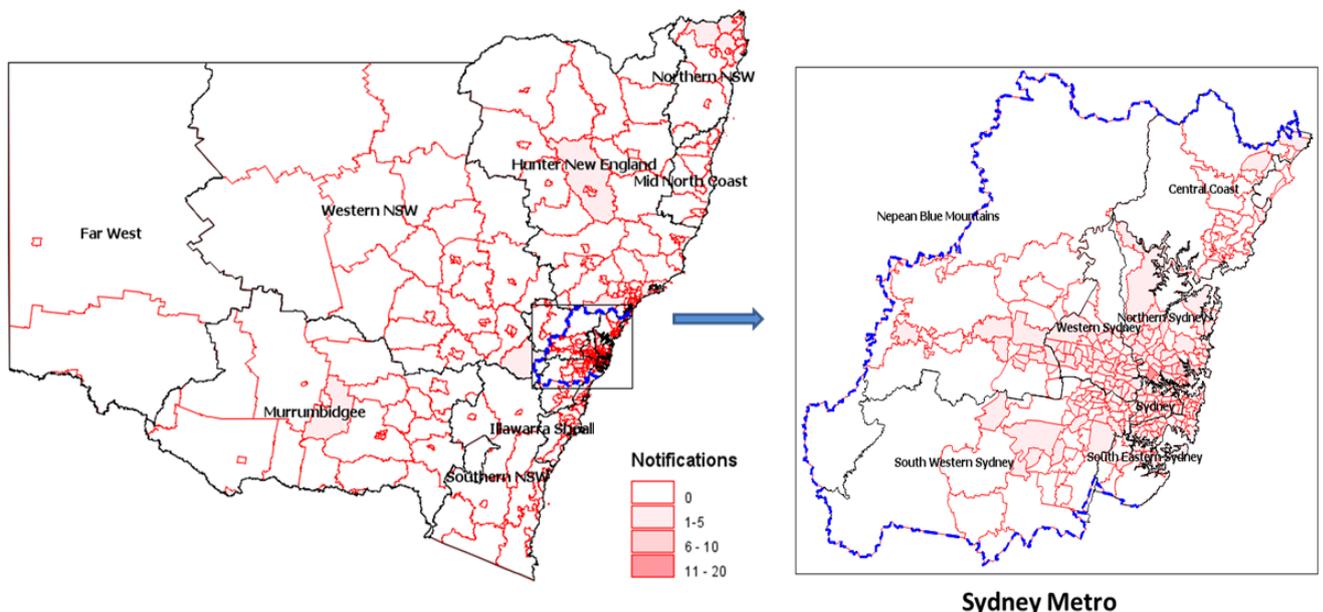
1. January (weeks 1-5)

Key Points

- ▶ Influenza activity in January was elevated for this time of year.
- ▶ Influenza activity was elevated in the majority of NSW local health districts (LHD) but remains low in most western and southern areas; both influenza A strains are circulating at similar levels
- ▶ Respiratory presentations overall to NSW emergency departments were above average for this time of year.

2. Confirmed influenza by NSW local health district and local area (SA2)¹

Notifications for week ending 2 February 2019



3. Summary

- Influenza activity in January was above the usual inter-seasonal levels overall and was higher than the previous month.
- Influenza A strains remain predominant over influenza B strains
- There is no evidence of new influenza strains emerging to explain current influenza activity.
- In the past few years NSW has had increasing influenza notifications in January and February thought to be from northern hemisphere travellers returning with influenza.
- Influenza activity was highest in the Northern Sydney LHD with Northern NSW showing signs of declining activity, following high activity from November to mid-January.
- Presentations to emergency departments for respiratory illnesses and influenza-like illness remained higher than usual for this time of year.

- Six influenza outbreaks were reported from residential aged care facilities, all were caused by influenza A.

4. Hospital Surveillance

NSW emergency department (ED) surveillance for influenza-like illness (ILI) and other respiratory illnesses is conducted through PHREDSS¹.

In January 2019:

- Presentations in the *All respiratory illness, fever and unspecified infections* category increased further and were significantly above the historical range for this time of year (Figure 1).
- ED presentations for ILI remained steady through the month, but were also significantly above the historical range for this time of year (Figure 2).
- ED presentations for *pneumonia*² decreased and were within the historical range for this time of year (Figure 3).
- *ILI and pneumonia* presentations which resulted in admission decreased and were within the historical range for this time of year.
- *Bronchiolitis*³ presentations increased and were above the usual range for this time of year (Figure 4).

Figure 1: Total weekly counts of ED visits for any respiratory illness, fever and unspecified infections, all ages, 2019 (black line) to 3 February, compared with the 5 previous years (coloured lines).

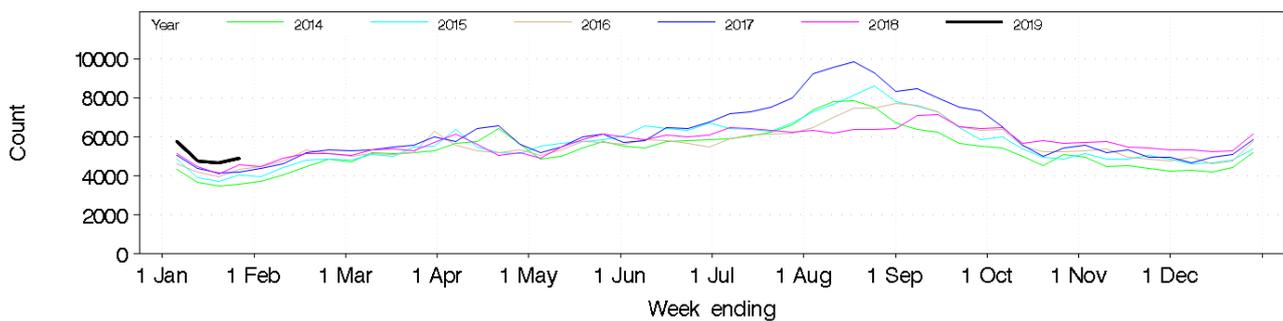
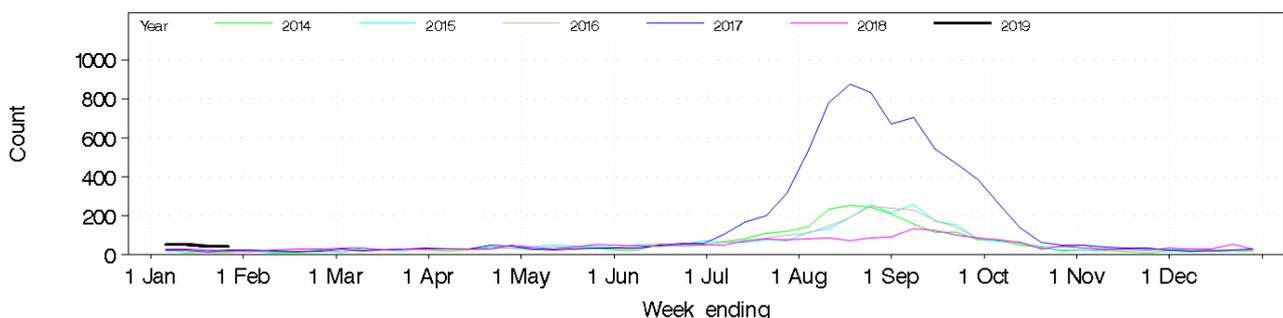


Figure 2: Total weekly counts of ED visits for influenza-like illness, all ages, 2019 (black line) to 3 February, compared with the 5 previous years (coloured lines).



¹ NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system, CEE, NSW Ministry of Health. Comparisons are made with data for the preceding 5 years. Includes unplanned presentations to 60 NSW emergency departments. The coverage is lower in rural EDs.

² The ED 'Pneumonia' syndrome includes provisional diagnoses selected by a clinician of 'viral, bacterial atypical or unspecified pneumonia', 'SARS', or 'legionnaire's disease'. It excludes the diagnosis 'pneumonia with influenza'

³ *Bronchiolitis* is a disease of infants most commonly linked to Respiratory Syncytial virus (RSV) infection.

Figure 3: Total weekly counts of Emergency Department visits for pneumonia, all ages, 2019 (black line) to 3 February, compared with the 5 previous years (coloured lines).

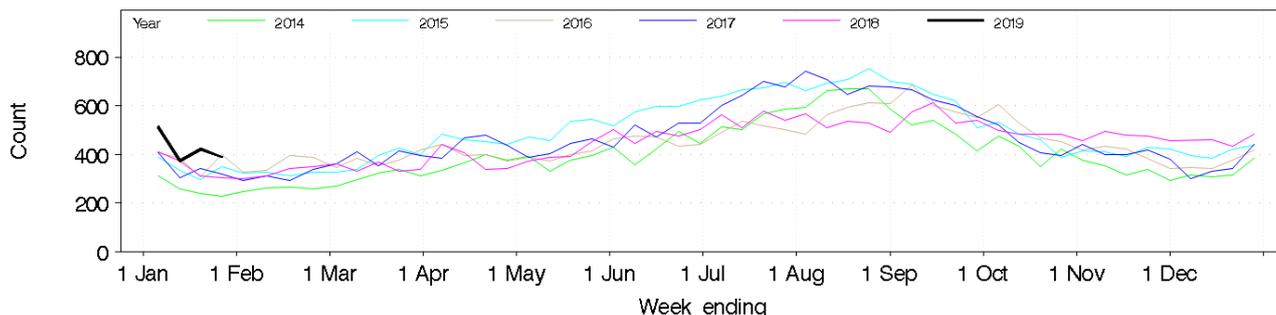
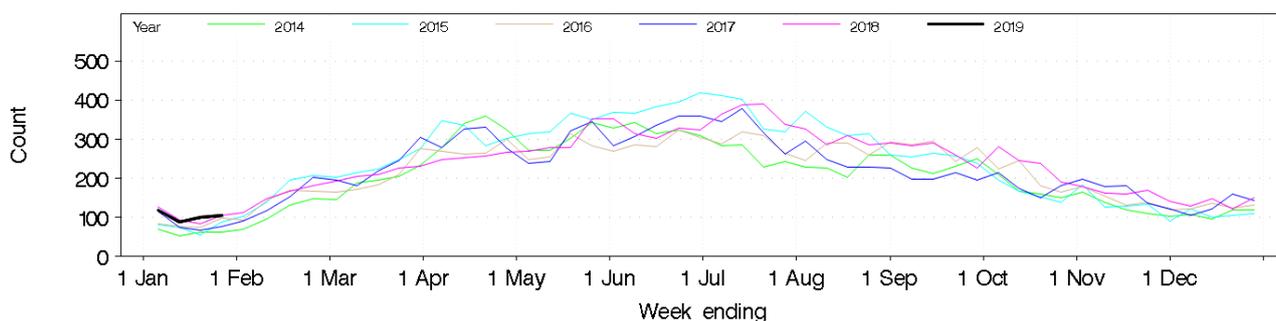


Figure 4: Total weekly counts of Emergency Department visits for influenza-like illness and pneumonia, that were admitted, all ages, 2019 (black line) to 3 February, compared with the 5 previous years (coloured lines).



5. Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year [4]. In the five week period to 3 February 2019:

- A total of 23,496 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1). The influenza percent positive rate overall was 9.3%, higher than the previous month (4.4%).
- Activity steadily increased throughout January and crossed the winter seasonal threshold [5] during the first week of January. Influenza activity is significantly higher than expected for this time of year.
- 2055 specimens tested positive for influenza A – 111 of these tested positive for A(H3N2), 159 tested positive for influenza A(H1N1) and 1779 were not typed further (Table 1, Figures 5 & 6).
- 129 specimens tested positive for influenza B (Table 1, Figures 5 & 6).
- Further characterisation of recent influenza samples from NSW at the WHO Collaborating Centre for Reference and Research on Influenza has found no evidence of new strains emerging.

[4]: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included. Preliminary data are provided by participating sentinel laboratories on a weekly basis and are subject to change.

[5]: The winter seasonal threshold is based on the percent of laboratory tests positive for influenza. A percent positive rate of 5% is an indication that influenza activity has increase above pre-seasonal levels and is an indication that the influenza season has commenced.

Participating sentinel laboratories: Pathology North (Hunter, Royal North Shore Hospital), Pathology West (Nepean, Westmead), South Eastern Area Laboratory Services, Sydney South West Pathology Service (Liverpool, Royal Prince Alfred Hospital), The Children's Hospital at Westmead, Australian Clinical Labs, Douglas Hanly Moir Pathology, Laverty Pathology, Medlab, SydPath.

Rhinovirus detections were the leading respiratory virus identified by laboratories. Detections of other respiratory viruses were within the usual seasonal range for this time of year.

Table 1: Summary of testing for influenza and other respiratory viruses at sentinel NSW laboratories, 1 January to 3 February 2019.

Month ending	Total Tests	TEST RESULTS															
		Influenza A								Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Entero
		Total		H3N2		H1N1 pdm09		A (Not typed)		Total							
		Total	(%)	Total	(%A)	Total	(%A)	Total	(%A)	Total	(%)	Total	Total	Total	Total	Total	Total
3/02/2019*	23496	2055	(8.7%)	111	(5.4%)	159	(7.7%)	1779	(86.6%)	129	(0.5%)	730	902	920	3171	270	485
Week ending																	
6/01/2019	4006	238	(5.9%)	26	(10.9%)	44	(18.5%)	168	(70.6%)	21	(0.5%)	125	200	144	607	48	101
13/01/2019	5200	402	(7.7%)	26	(33.0%)	33	(8.2%)	343	(85.3%)	35	(0.7%)	148	196	170	677	76	76
20/01/2019	4852	479	(9.9%)	26	(5.4%)	32	(6.7%)	421	(87.9%)	27	(0.6%)	164	158	177	643	60	82
27/01/2019	4957	461	(9.3%)	20	(4.3%)	33	(7.2%)	408	(88.5%)	23	(0.5%)	171	186	205	649	43	111
3/02/2019	4481	475	(10.6%)	13	(2.7%)	17	(3.6%)	439	(92.4%)	23	(0.5%)	122	162	224	595	43	115

Notes:

* Five week period; ** HMPV - Human metapneumovirus.

All samples are tested for influenza viruses but not all samples are tested for all of the other viruses listed.

Figure 5: Percent of laboratory tests positive for influenza A and influenza B reported by NSW sentinel laboratories, 1 January 2014 to 3 February 2019.

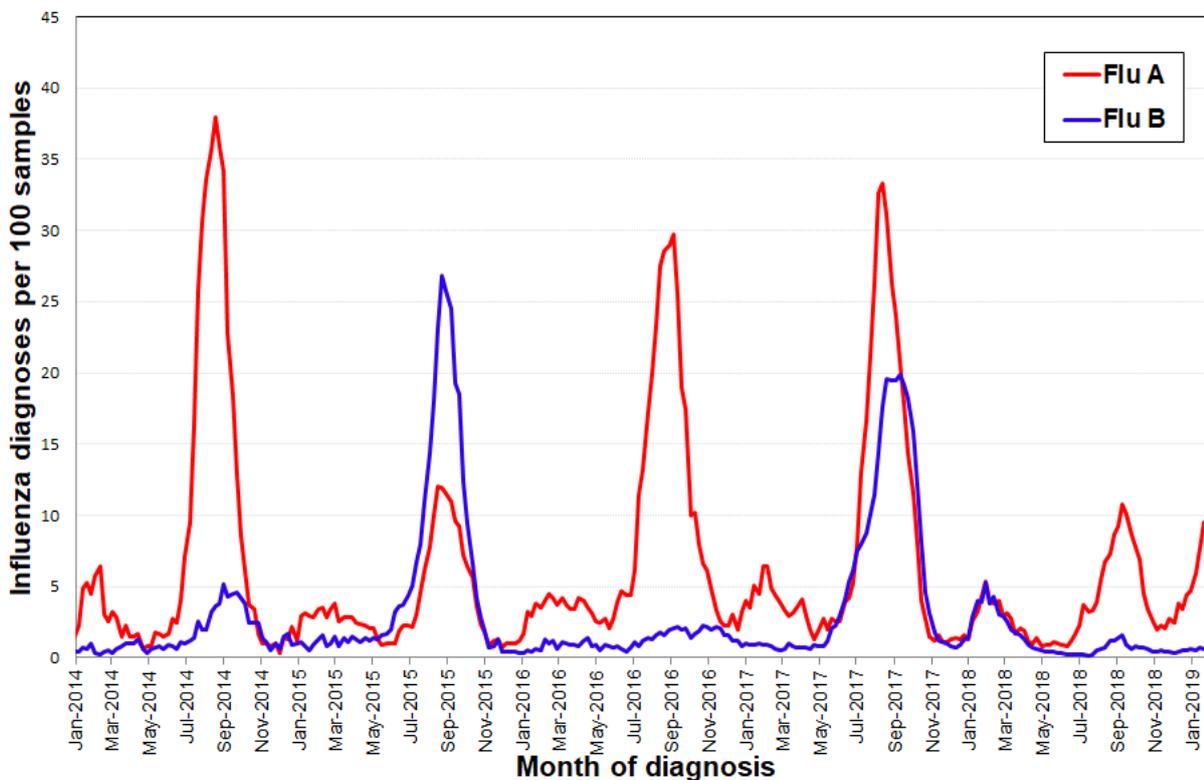
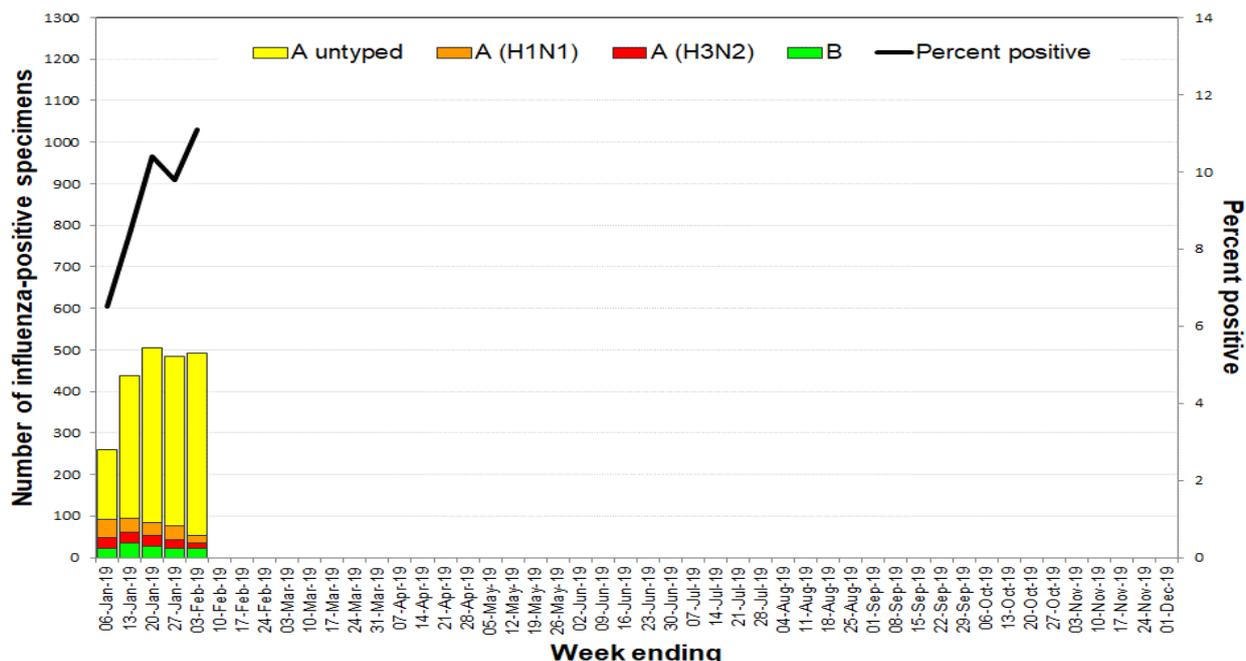


Figure 6: 2019 weekly influenza results by type, sub-type and percent positive reported by NSW sentinel laboratories, 1 January to 3 February 2019



6. Community Surveillance

Influenza notifications by local health district (LHD)

In the five week period to February 3 2019 there were 2065 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, significantly higher than the 1023 influenza notifications reported for January 2018, and higher than the number of notifications reported for December 2018 (820 - four week period).

Influenza notification rates were highest in the Northern Sydney LHD. Notifications were elevated across all metropolitan and some rural LHDs. The notification rates in Northern NSW started to decline after having been significantly elevated throughout December and the beginning of January (Table 2).

Table 2: Weekly notifications of laboratory-confirmed influenza by local health district

Local Health District	Week ending 03 Feb 2019		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly number of notifications	Rate per 100 000 population
Albury Wodonga Health -	6	11.2	10	18.2
Central Coast	11	3.16	10	2.87
Hunter New England	31	3.29	22	2.33
Illawarra Shoalhaven	20	4.81	13	3
Mid North Coast	2	0.9	7	3.25
Murrumbidgee	6	2.47	10	4.01
Nepean Blue Mountains	15	3.89	14	3.5
Northern NSW	30	9.78	40	12.95
Northern Sydney	99	10.47	82	8.67
South Eastern Sydney	77	8.12	65	6.81
South Western Sydney	32	3.14	22	2.11
Southern NSW	0	0	4	1.87
Sydney	32	4.66	40	5.79
Western NSW	4	1.41	5	1.59
Western Sydney	87	8.47	63	6.08

Note: All data are preliminary and may change as more notifications are received. Excludes notifications based on serology.

Influenza outbreaks in institutions

There were nine respiratory outbreaks reported in January. All but two were due to influenza A, of these six were reported in residential aged care facilities and one in a military facility. The remaining two outbreaks were caused by rhinoviruses.

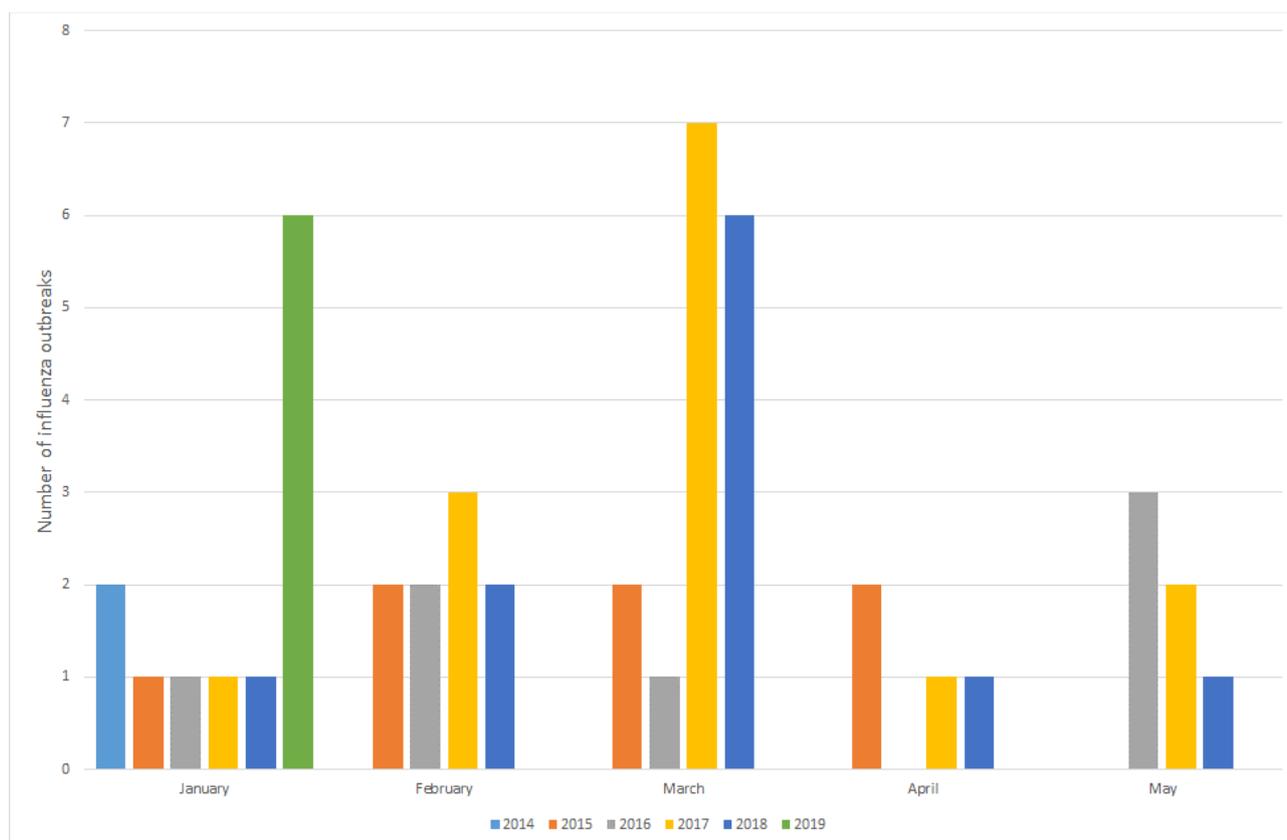
In the year to date there have been seven laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including six in residential care facilities (Table 3, Figure 7). All have been due to influenza A.

In the six influenza outbreaks affecting residential care facilities, at least 31 residents were reported to have had ILI symptoms and nine required hospitalisation. There have been no deaths in residents reported.

Table 3: Reported influenza outbreaks in NSW institutions, January 2012 to January 2019.

Year	2012	2013	2014	2015	2016	2017	2018	2019
No. of outbreaks	39	12	120	103	279	588	46	7

Figure 7: Reported influenza outbreaks in NSW residential care facilities by month, 2014 to 2019.



7. National and International Influenza Surveillance

Although national influenza surveillance reports are not produced at this time of year, most jurisdictions are reporting increased influenza activity, with national notifications in the past quarter (to 1 February) 2.9 times the quarterly rolling five year mean. Total national reports of laboratory-confirmed influenza in January were higher than 2018 and also higher than in earlier years.

For further information on the National Notifiable Disease Surveillance System, which includes laboratory-confirmed influenza reports, see: <http://www9.health.gov.au/cda/source/cda-index.cfm>.

For further information see the [Australian Influenza Surveillance Reports](#).

Global Influenza Update

The latest [WHO global update on 21 January 2019](#) provides data up to 6 January.

In the temperate zone of the northern hemisphere influenza activity continued to increase slowly.

- In North America influenza activity remained elevated overall with influenza A(H1N1)pdm09 predominating.
- In Europe, influenza activity continued to increase, with both A viruses circulating.
- In North Africa, influenza A(H3N2) detections continued to be reported in Egypt.
- In Western Asia, influenza activity continued to increase in some countries and appeared to decrease across countries of the Arabian Peninsula.
- In East Asia, influenza activity continued to increase, with influenza A(H1N1)pdm09 most frequently detected.
- In Southern Asia, influenza detections remained elevated overall. Influenza activity continued to increase in Iran (Islamic Republic of) with influenza A(H3N2) the predominant circulating virus.

In the temperate zones of the southern hemisphere, influenza activity returned to inter-seasonal levels with exception of some parts in Australia. Worldwide, seasonal influenza A viruses accounted for the majority of detections.

Follow the link for the [WHO influenza surveillance reports](#).

Influenza at the human-animal interface

WHO publishes regular updated risk assessments of human infections with avian and other non-seasonal influenza viruses at [Influenza at the human-animal interface](#), with the most recent report published on 13 December 2018. These reports provide information on human cases of infection with non-seasonal influenza viruses, such as H5, H7, and H3N2 variant viruses, and outbreaks among animals.

Since the previous update, new human infections with avian influenza A(H7N2) and A(H9N2) viruses were reported.

The overall public health risk from currently known influenza viruses at the human-animal interface has not changed, and the likelihood of sustained human-to-human transmission of these viruses remains low. Further human infections with viruses of animal origin are expected.

Other sources of information on avian influenza and the risk of human infection include:

- US CDC [Avian influenza](#)
- European CDC (ECDC) [Avian influenza](#)
- Public Health Agency of Canada [Avian influenza H7N9](#).

8. Composition of influenza vaccines in 2019

WHO influenza vaccine strain recommendations for the Southern Hemisphere in 2019

The WHO Consultation on the Composition of Influenza Vaccines for the 2019 Southern Hemisphere was held in Atlanta on 24-26 September 2018.

Following the Consultation, WHO announced its recommendations for the composition of trivalent vaccines for use in the 2019 Southern Hemisphere influenza season, which includes changes in the influenza A(H3N2) component and the influenza B (Victoria lineage), as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus
- an A/Switzerland/8060/2017 (H3N2)-like virus⁶
- a B/Colorado/06/2017-like virus (B/Victoria lineage)⁷

It was recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a second B component as follows:

- a B/Phuket/3073/2013-like virus (B/Yamagata lineage)⁷.

More details about the most recent influenza vaccine recommendations can be found at: http://www.who.int/influenza/vaccines/virus/recommendations/2019_south/en/.

Australian influenza vaccine strain recommendations for the 2019 influenza season

While WHO makes recommendations for the influenza vaccine, it is up to national authorities to decide on the final composition for their individual countries. The Australian Influenza Vaccine Committee (AIVC) met in Canberra in October 2017 made the same recommendations as by WHO for the quadrivalent vaccine.

However, the recommendation for the Australian trivalent vaccine includes a B/Yamagata lineage virus (a B/Phuket/3073/2013-like virus), rather than the B/Victoria lineage virus. This is because in Australia, the vast majority of recently circulating influenza B viruses have been of the B/Yamagata lineage and few B/Victoria lineage viruses have been detected.

The Therapeutic Goods Administration (TGA) has accepted the [AIVC recommendations](#) for 2019.

Information on NSW seasonal influenza vaccination activities, including free vaccine for all children aged 6 months to less than 5 years can be found at:

http://www.health.nsw.gov.au/immunisation/Pages/seasonal_flu_vaccination.aspx .

WHO influenza vaccine strain recommendations for the Northern Hemisphere in 2018-19

The WHO consultation on the composition of influenza vaccines for the Northern Hemisphere 2018-19 influenza season was held in February 2018. WHO announced its recommendations for the composition of quadrivalent vaccines for use in the 2018-19 Northern Hemisphere influenza season, which includes changes in the influenza A(H3N2) and influenza B (Victoria lineage) components, as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus⁸;
- an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus;
- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage)⁹; and
- a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage).

More details about the most recent influenza vaccine recommendations can be found at: <http://www.who.int/influenza/vaccines/virus/en/> .

⁶ This replaces A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus used in the 2018 seasonal influenza vaccines.

⁷ The B/Colorado/06/2017-like virus replaces the B/Brisbane/60/2008-like virus in the B/Victoria lineage. It is also now the preferred B strain component for 2019 Southern Hemisphere trivalent influenza vaccines, replacing the B/Yamagata lineage strain, B/Phuket.

The B/Phuket strain remains the recommended B/Yamagata lineage strain for 2019 quadrivalent vaccines.

⁸ This replaces A/Hong Kong/4801/2014 (H3N2)-like virus used in the 2017-8 seasonal influenza vaccines.

⁹ This replaces B/Brisbane/60/2008-like virus used in the 2017-8 seasonal influenza vaccines. The B/Colorado will make up the B component of the trivalent vaccine.

ⁱ NSW Local Health Districts and SA2: Influenza notification maps use NSW Local Health District Boundaries and Australian Bureau of Statistics (ABS) statistical area level 2 (SA2) of place of residence of cases are shown. Note that place of residence is used as a surrogate for place of acquisition for cases; the infection may have been acquired while the person was in another area.