

Influenza Monthly Epidemiology Report, NSW

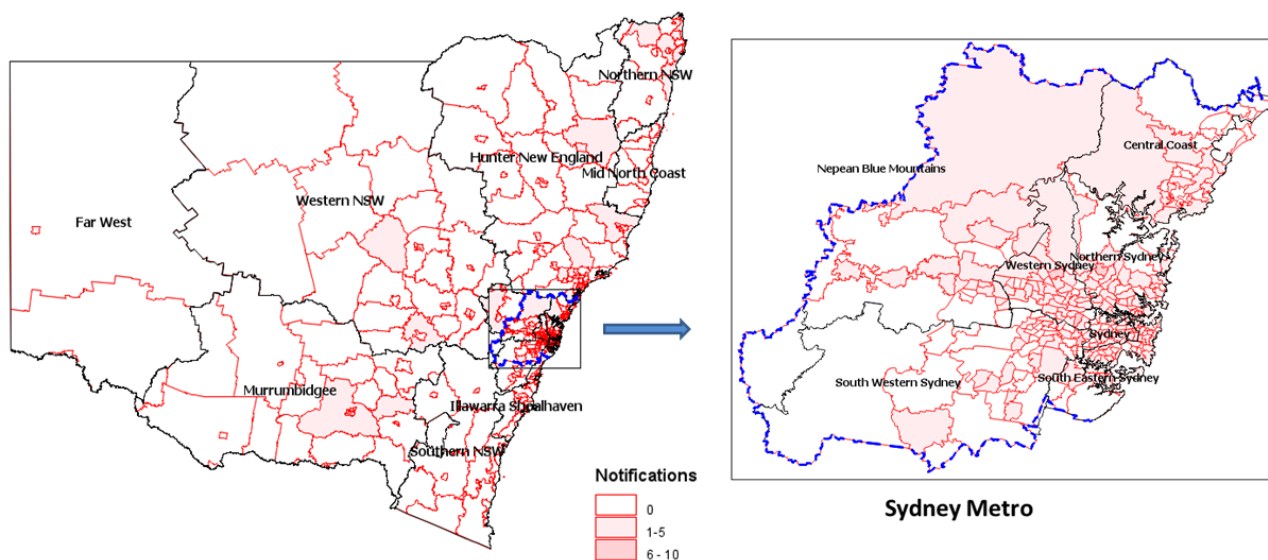
April 2019 (weeks 14-17)

Key Points

- ▶ Influenza activity in April remained higher than usual but trended lower compared to March.
- ▶ Influenza activity was higher than usual across most NSW local health districts (LHD).
- ▶ Influenza A strains are predominant with two strains circulating at similar levels.
- ▶ Respiratory presentations to NSW emergency departments remained at the upper end of the usual range for this time of year.

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

Notifications for week ending 28 April 2019



2. Summary

- Influenza activity remained higher than usual but trended down through April.
- Two influenza A strains are circulating with influenza B strains less common.
- Influenza activity was highest in Western Sydney, Central Coast and Murrumbidgee LHDs.
- NSW emergency departments continued to report higher than usual numbers of presentations for respiratory illnesses and influenza-like illness.
- Ten influenza A outbreaks were reported from residential aged care facilities.

¹ 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.

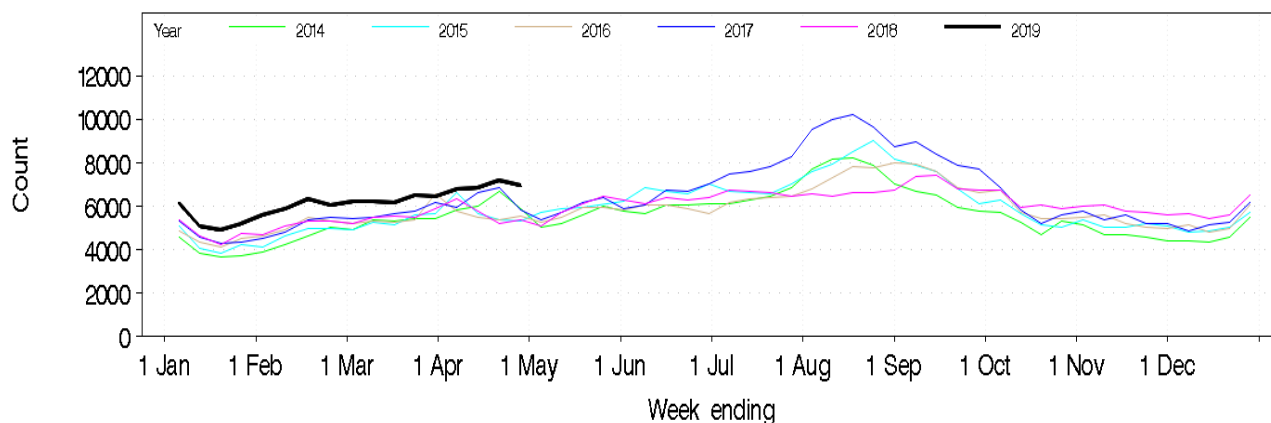
3. Hospital Surveillance

NSW emergency department (ED) surveillance for influenza-like illness (ILI) and other respiratory illnesses is conducted through PHREDSS².

In April 2019:

- Presentations in the *All respiratory illness, fever and unspecified infections* category decreased but remained high for this time of year (Figure 1). Presentations were elevated for some age groups and in some LHDs.
- ED presentations for ILI increased through the month and were high for this time of year (Figure 2).
- ED presentations for *pneumonia*³ increased throughout the month and were high for this time of year (Figure 3).
- *ILI* presentations which resulted in admission remained steady but *pneumonia* admissions increased; both were high for this time of year.
- *ILI and pneumonia* presentations which resulted in admission to a critical care unit increased and were above the usual range for this time of year.
- *Bronchiolitis*⁴ presentations decreased and were within 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 28 April, compared with the 5 previous years (coloured lines).



² 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.

³ 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'

⁴ *Bronchiolitis* is a disease of infants most commonly linked to Respiratory Syncytial virus (RSV) infection.

Figure 2: Total weekly counts of ED visits for influenza-like illness, all ages, 2019 (black line) to 28 April, compared with the 5 previous years (coloured lines).

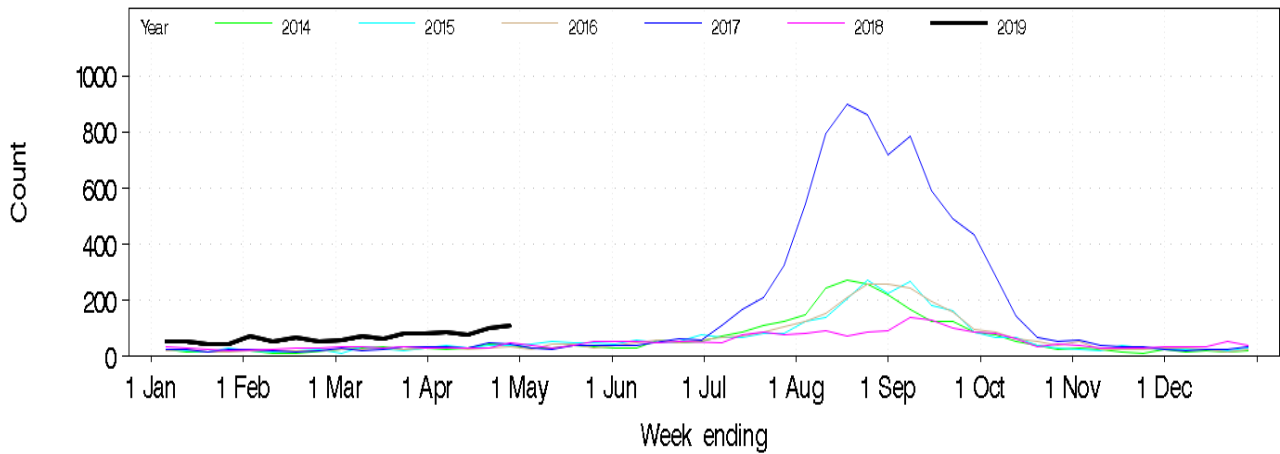


Figure 3: Total weekly counts of Emergency Department visits for pneumonia, all ages, 2019 (black line) to 28 April, compared with the 5 previous years (coloured lines).

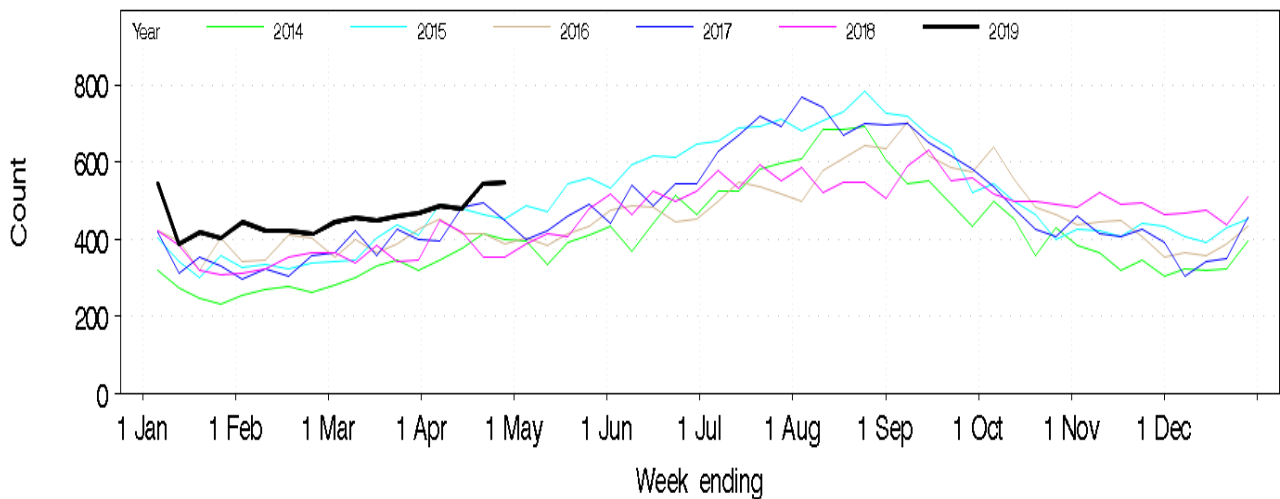
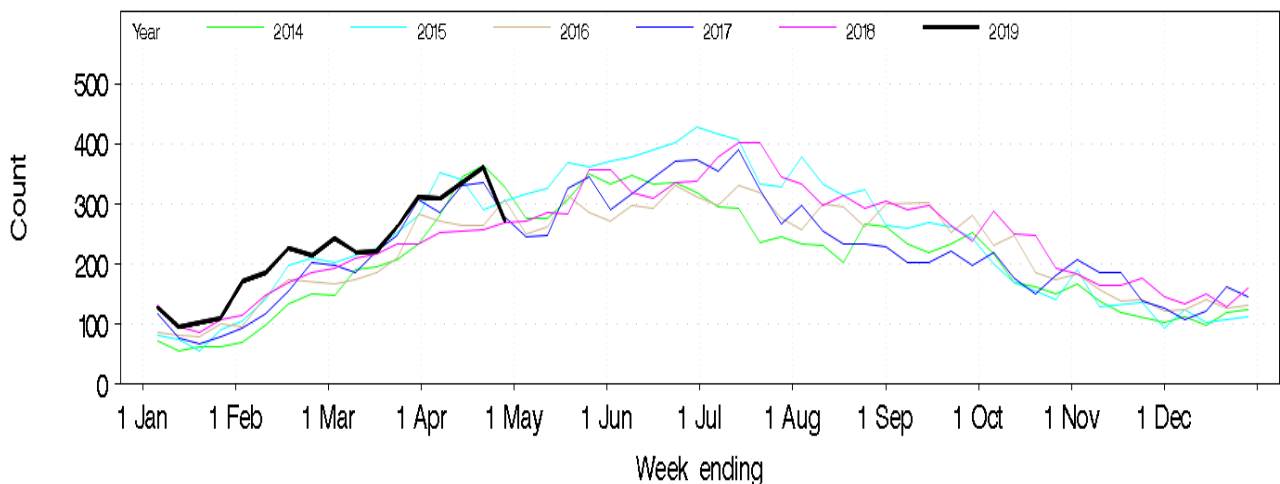


Figure 4: Total weekly counts of Emergency Department visits for bronchiolitis, all ages, 2019 (black line) to 28 April, compared with the 5 previous years (coloured lines).



4. Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year [5]. In the period to 28 April 2019:

- A total of 33,870 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1). The overall influenza percent positive rate overall was high at 9.7%, but it fell to 8.6% in the week ending 28 April (Table 1, Figures 5 & 6).
- 2862 specimens tested positive for influenza A – 120 of these tested positive for A(H3N2), 134 for influenza A(H1N1) and 2608 were not typed further (Table 1, Figures 5 & 6).
- 468 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.

Rhinovirus remained the most common respiratory virus identified by laboratories. Detections of RSV were notably increased compared to March, while other respiratory viruses were within their usual seasonal ranges for this time of year.

Table 1: Summary of testing for influenza and other respiratory viruses at sentinel NSW laboratories, 1 January to 28 April 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%)	161	(7.8%)	1777	(86.5%)	129	(0.5%)	730	902	920	3171	270	485
3/03/2019*	25351	2232	(8.8%)	144	(6.5%)	134	(6.0%)	1954	(87.5%)	145	(0.6%)	710	926	1448	5053	162	693
31/03/2019	31863	2664	(8.4%)	132	(5.0%)	198	(7.4%)	2334	(87.6%)	302	(0.9%)	967	1408	2583	5866	172	843
28/04/2019	33870	2664	(7.9%)	120	(4.5%)	134	(5.0%)	2608	(97.9%)	468	(1.4%)	994	1399	3790	6957	200	1089
Week ending																	
7/04/2019	9238	813	(8.8%)	31	(3.8%)	51	(6.3%)	731	(89.9%)	119	(1.3%)	268	444	937	1960	64	314
14/04/2019	9599	912	(9.5%)	27	(33.0%)	31	(3.4%)	854	(93.6%)	114	(1.2%)	300	438	1157	2278	57	346
21/04/2019	8627	687	(8.0%)	41	(6.0%)	31	(4.5%)	615	(89.5%)	132	(1.5%)	243	319	956	1686	41	272
28/04/2019	6406	450	(7.0%)	21	(4.7%)	21	(4.7%)	408	(90.7%)	103	(1.6%)	183	198	740	1033	38	157

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.

[5]: 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.

Figure 5: Percent of laboratory tests positive for influenza A and influenza B reported by NSW sentinel laboratories, 1 January 2014 to 28 April 2019.

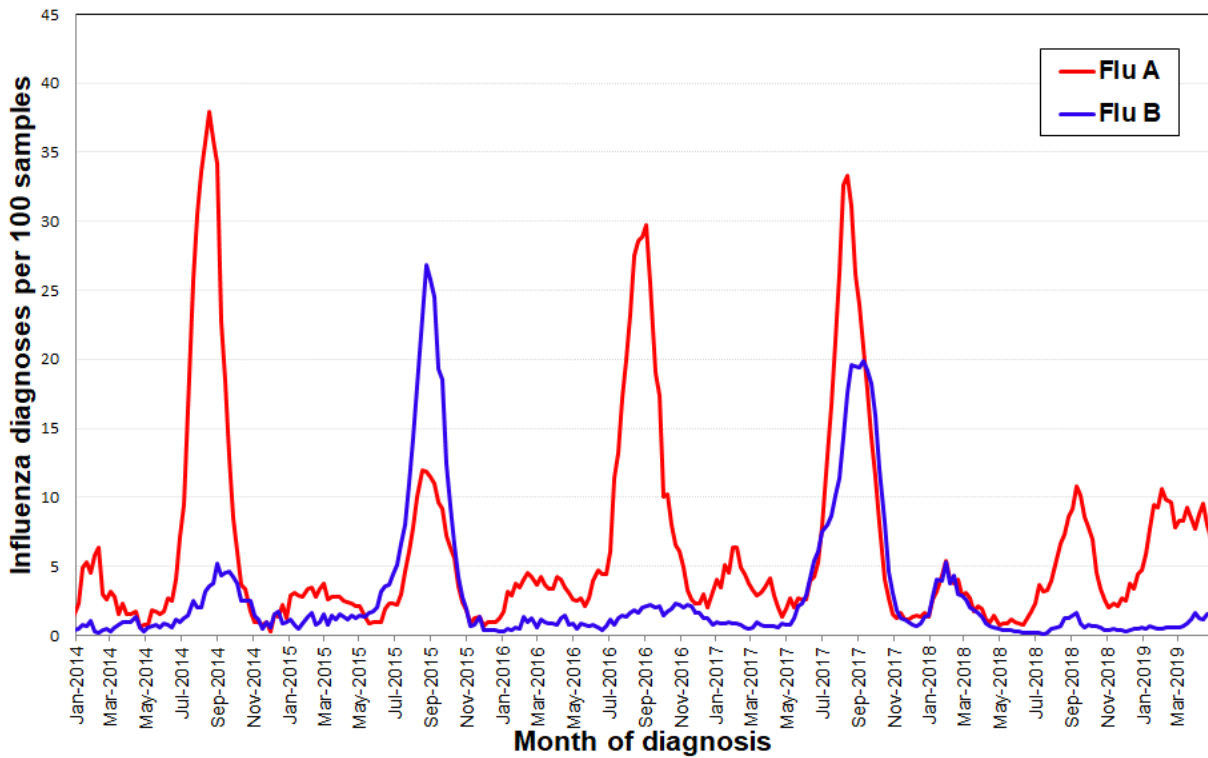
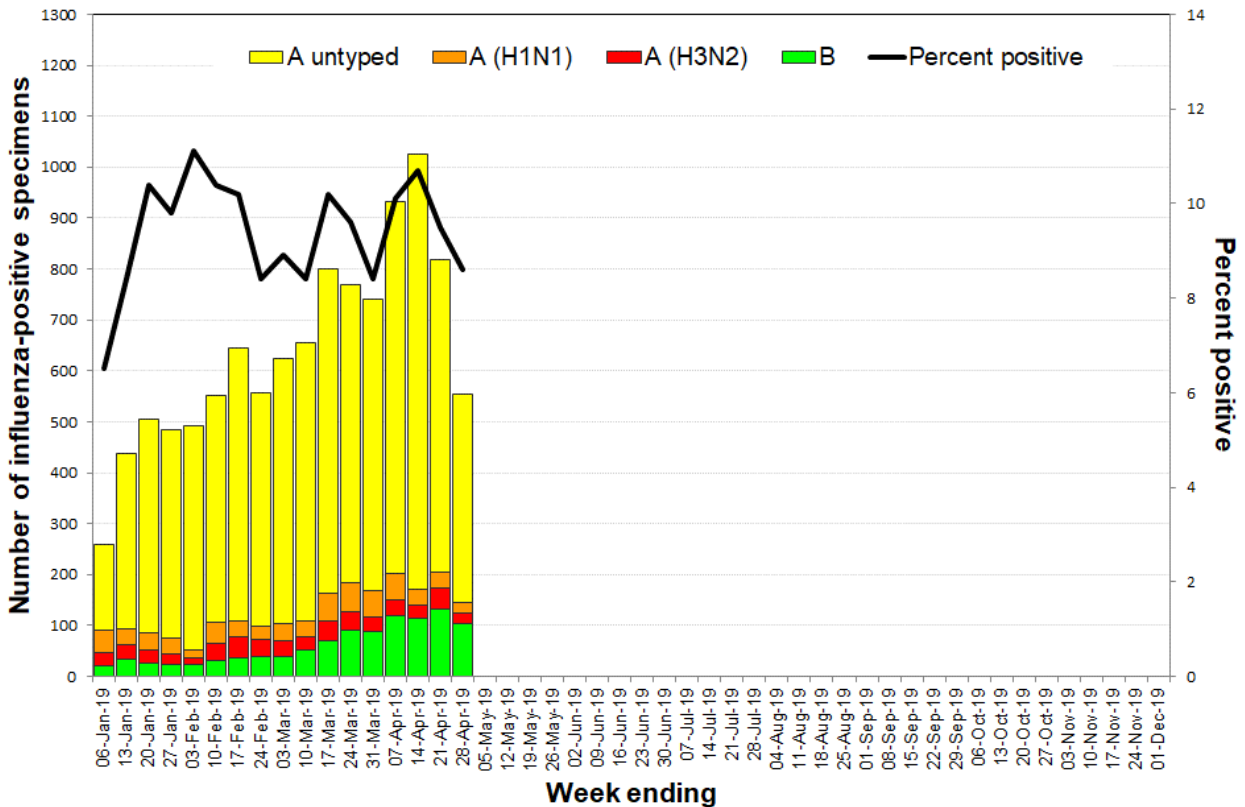


Figure 6: 2019 weekly influenza results by type, sub-type and percent positive reported by NSW sentinel laboratories, 1 January to 28 April 2019



5. Community Surveillance

Influenza notifications by local health district (LHD)

There were 2777 influenza notifications in April, markedly higher than the 451 notifications in April 2018 but lower than the 3029 notification in March 2019.

Influenza notifications across all LHDs were higher than usual for this time of year but notification rates trended lower through the month in most areas. Notification rates in the week ending 28 April were highest in Western Sydney, Central Coast and Murrumbidgee LHDs (Table 2).

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

Local Health District	Week ending 28 Apr 2019		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly number of	Rate per 100 000 population
Central Coast	33	9.47	25	7.03
Far West	1	3.33	2	6.65
Hunter New England	39	4.14	44	4.64
Illawarra Shoalhaven	14	3.36	28	6.79
Mid North Coast	3	1.34	7	3.25
Murrumbidgee	22	9.04	20	8.01
Nepean Blue Mountains	22	5.71	39	10.19
Northern NSW	24	7.82	28	9.12
Northern Sydney	73	7.72	112	11.87
South Eastern Sydney	70	7.39	110	11.61
South Western Sydney	25	2.45	56	5.49
Southern NSW	1	0.47	7	3.39
Sydney	34	4.95	75	10.92
Western NSW	7	2.47	12	4.05
Western Sydney	123	11.97	125	12.14

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

Influenza outbreaks in institutions

There were ten influenza outbreaks reported in April, two more than in the previous month and more than expected for this time of year. All were due to influenza A and all were reported in residential aged care facilities.

In the year to date there have been 37 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including 27 in residential aged care facilities (Table 3, Figure 7). All were due to influenza A, including one where influenza B was also detected.

In the 27 influenza outbreaks affecting residential aged care facilities, at least 139 residents were reported to have had ILI symptoms and 25 required hospitalisation. There were also nine deaths in residents linked to these outbreaks, all of whom were noted to have significant co-morbidities.

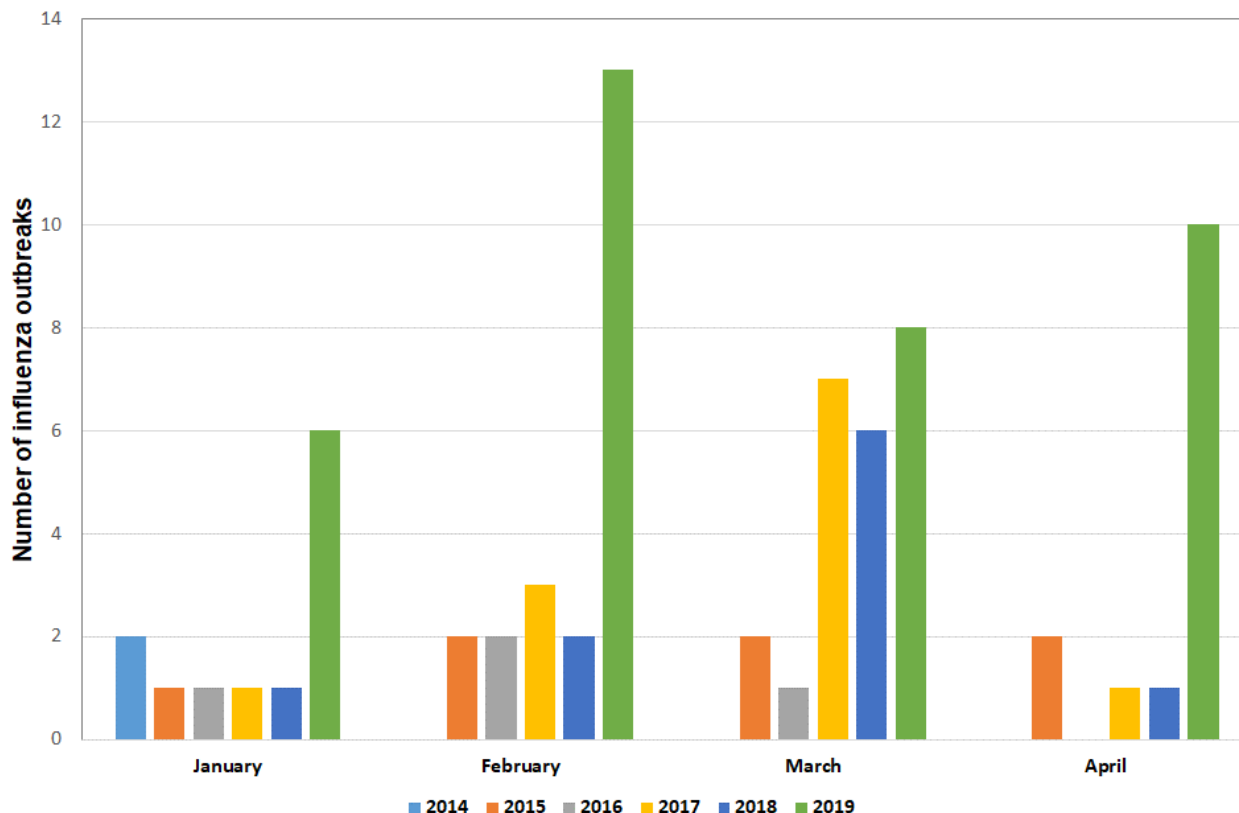
NSW public health units advise institutions on how to manage their influenza outbreaks. NSW Health also provides influenza antivirals to help control outbreaks when requested and appropriate. In April, NSW Health provided 359 courses of oseltamivir to six institutions with outbreaks.

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

Year	2012	2013	2014	2015	2016	2017	2018	2019
Number of outbreaks	39	12	120	103	279	588	46	37*

*Incomplete year.

Figure 7: Reported influenza outbreaks in NSW institutions by month, January to April, 2014 to 2019.



6. Government-funded vaccine distribution

NSW Health commenced distributing National Immunisation Program and NSW Government Program influenza vaccines on April 1 2019. National Immunisation Program (NIP) vaccines include vaccines for people aged 65 years and over, pregnant women, Aboriginal people aged 6 months and over, and people 6 months and over with medical conditions pre-disposing them to severe influenza. NSW Government Program vaccines are for health care workers in NSW Health facilities and all children from 6 months to under 5 years of age not covered under the NIP.

As of April 30, 1.3 million doses had been distributed to general practitioners, Aboriginal medical services, hospitals, aged care facilities, and childhood vaccination clinics across NSW.

For more information about the 2019 Influenza Vaccination Program see:

<https://www.health.nsw.gov.au/immunisation/Pages/flu.aspx>

7. National and International Influenza Surveillance

Although national influenza surveillance reports are not produced at this time of year, most jurisdictions are reporting elevated influenza activity, with national notifications in the past quarter (to 26 April) 4.6 times the quarterly rolling five year mean.

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 29 April 2019](#) provides data up to 14 April 2019.

In the temperate zone of the northern hemisphere influenza activity decreased overall.

- In North America, influenza activity continued to decrease with influenza A(H3N2) the dominant virus, followed by influenza B.
- In Europe, influenza activity decreased across the continent. Both influenza A viruses co-circulated; influenza A(H3N2) was the most frequently identified subtype.
- In North Africa, influenza detections were low across reporting countries.
- In Western Asia, influenza activity appeared to decrease overall, with exception of Saudi Arabia where activity remained elevated.
- In East Asia, influenza activity was reported in some countries, with influenza B viruses most frequently detected, followed by influenza A(H3N2). A second wave of influenza activity was reported in the Republic of Korea.
- In Southern Asia, influenza activity was low overall.
- In the Caribbean, Central American countries, and the tropical countries of South America, influenza and RSV activity were low in general.
- In West and Middle Africa, influenza activity was low across reporting countries. Influenza activity continued to be reported from Eastern Africa although in decreasing trend with predominantly influenza A(H3N2) followed by B detections.

In the temperate zones of the southern hemisphere, influenza detections increased in southern Australia and South Africa. The influenza activity in South America remained at inter-seasonal levels.

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 12 February 2019.

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, two human infections with avian influenza A(H9N2) viruses and one human infection with an influenza A(H3N2) variant 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 Influenza Season was held in Atlanta on 24-26 September 2018. The WHO recommendations for the composition of trivalent vaccines included 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 virus ⁶
- a B/Colorado/06/2017-like virus (B/Victoria lineage) ⁷

It was recommended that quadrivalent vaccines also contain a second B component, 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) recommendation for the Australian trivalent vaccine includes a B/Yamagata lineage virus (a B/Phuket/3073/2013-like virus), rather than a 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 in 2019, including free vaccine for all children aged 6 months to less than 5 years can be found at:

<https://www.health.nsw.gov.au/immunisation/Pages/flu.aspx> .

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

The composition of quadrivalent vaccines currently in use for the 2018-19 Northern Hemisphere influenza season includes changes from the influenza A(H3N2) and influenza B (Victoria lineage) components used in the 2018 Southern Hemisphere influenza vaccines. The composition of the Northern Hemisphere vaccines are 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).

WHO influenza vaccine strain recommendations for the Northern Hemisphere in 2019-20

The WHO Consultation on the Composition of Influenza Vaccines for Use in the 2019-20 Northern Hemisphere Influenza Season was held in Beijing on 18-20 February 2019.

From this meeting it was recommended that egg based quadrivalent vaccines for use in the 2019-2020 northern hemisphere influenza season contain the following:

- an A/Brisbane/02/2018 (H1N1)pdm09-like virus;
- an A/Kansas/14/2017 (H3N2)-like virus;

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.

- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage); and
- a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage).

It was also recommended that the influenza B virus component of trivalent vaccines for use in the 2019-2020 northern hemisphere influenza season should be a B/Colorado/06/2017-like virus of the B/Victoria/2/87-lineage.

In light of recent changes in the proportions of genetically and antigenically diverse A(H3N2) viruses, the recommendation for the A(H3N2) component was announced on 21 March.

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