

Influenza Monthly Epidemiology Report, NSW

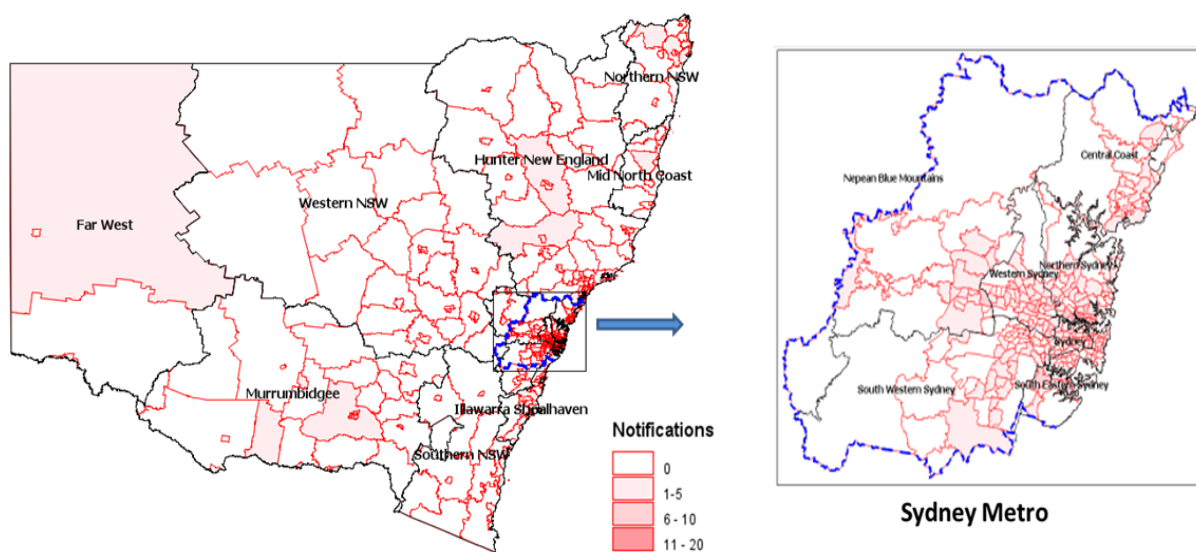
March 2019 (weeks 10-13)

Key Points

- ▶ Influenza activity in March was again higher than usual for this time of year.
- ▶ Influenza activity was elevated across all NSW local health districts (LHD).
- ▶ Influenza A strains are predominant with two strains circulating at similar levels.
- ▶ Respiratory presentations to NSW emergency departments were 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 31 March 2019



2. Summary

- The higher than usually influenza activity seen in January and February continued in March.
- Two influenza A strains are circulating with influenza B strains less common.
- Influenza activity was highest in Murrumbidgee, Western Sydney and Northern Sydney LHDs.
- NSW emergency departments continued to report higher than usual numbers of presentations for respiratory illnesses and influenza-like illness.
- Four 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.

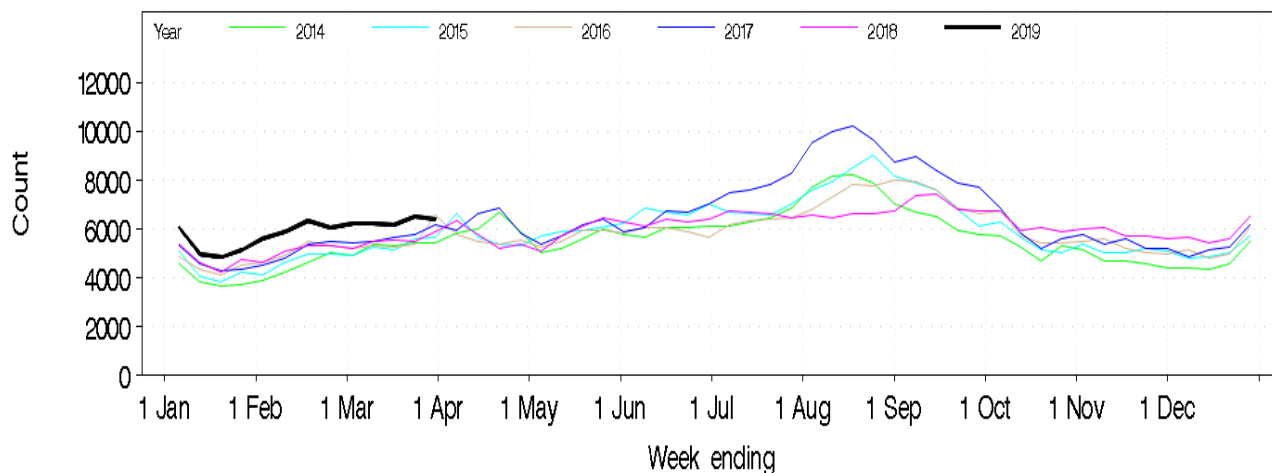
3. Hospital Surveillance

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

In March 2019:

- Presentations in the *All respiratory illness, fever and unspecified infections* category decreased slightly but remained at the upper end of the usual range for this time of year (Figure 1).
- ED presentations for ILI increased through the month and were significantly above the usual range for this time of year (Figure 2).
- ED presentations for *pneumonia*³ remained steady throughout the month but were above the historical range for this time of year (Figure 3).
- *ILI* presentations which resulted in admission increased but *pneumonia* admissions decreased; both were also above the usual range for this time of year.
- *ILI* and *pneumonia* presentations which resulted in admission to a critical care unit decreased and were within the usual range for this time of year.
- *Bronchiolitis*⁴ 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 31 March, 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 31 March, compared with the 5 previous years (coloured lines).

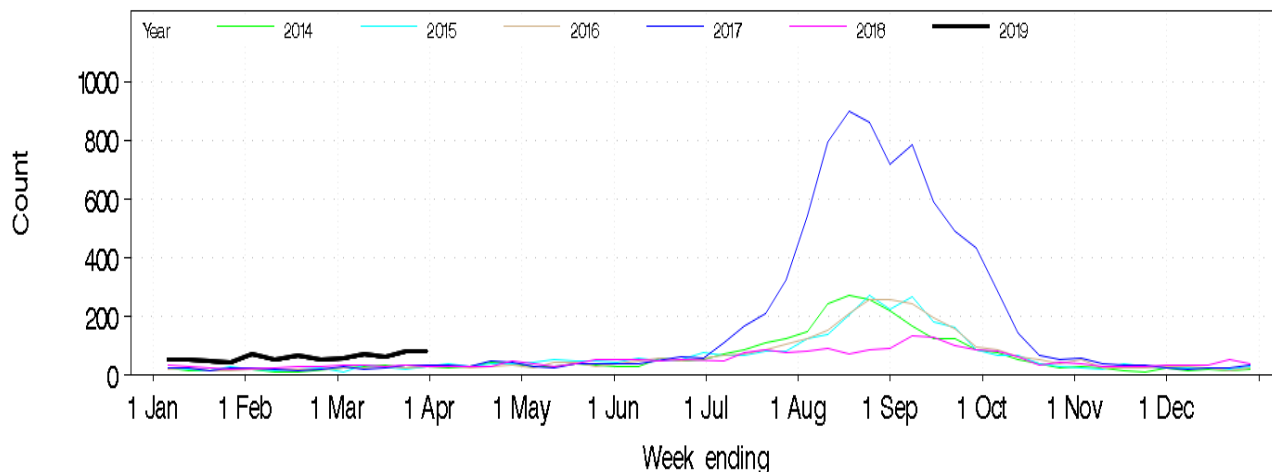


Figure 3: Total weekly counts of Emergency Department visits for pneumonia, all ages, 2019 (black line) to 31 March, compared with the 5 previous years (coloured lines).

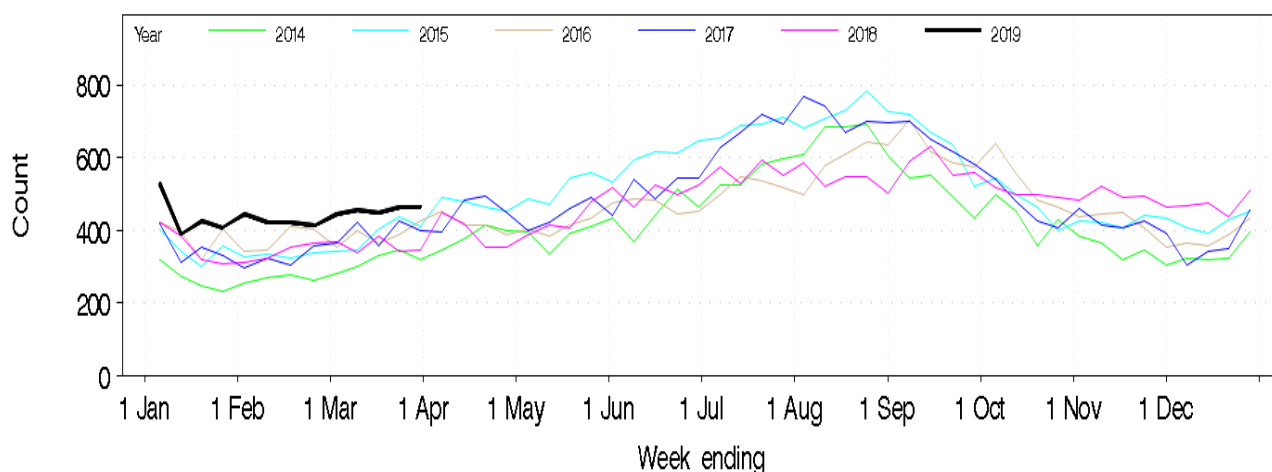
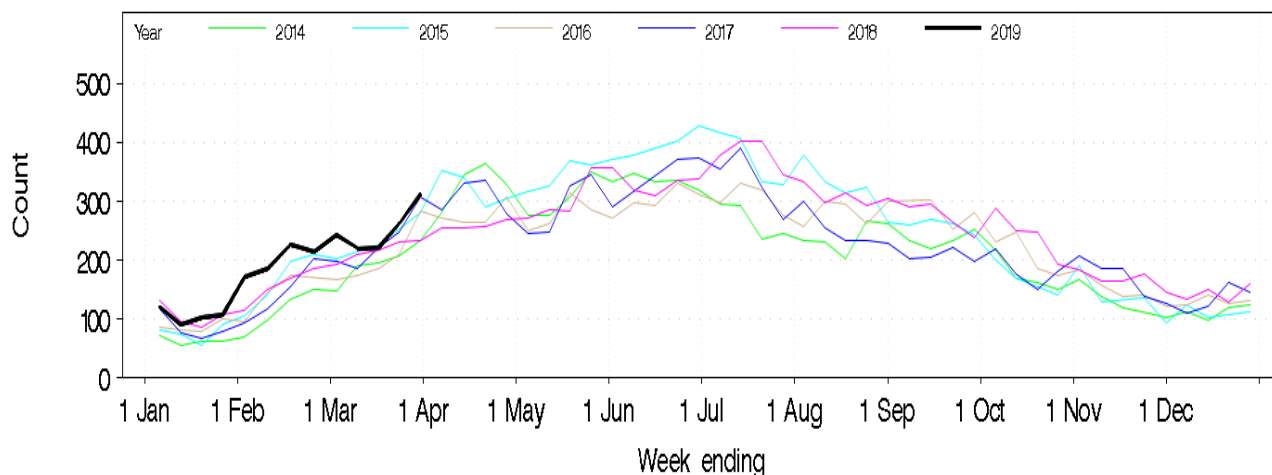


Figure 4: Total weekly counts of Emergency Department visits for bronchiolitis, all ages, 2019 (black line) to 3 March, compared with the 5 previous years (coloured lines).



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 31 March 2019:

- A total of 31,863 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1). The influenza percent positive rate overall was 9.3%, similar to the previous month (9.4%).
- Activity decreased slightly towards the end of the month but remains higher than expected for this time of year.
- 2664 specimens tested positive for influenza A – 132 of these tested positive for A(H3N2), 198 tested positive for influenza A(H1N1) and 2334 were not typed further (Table 1, Figures 5 & 6).
- 302 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 was the leading respiratory virus identified by laboratories. Detections of RSV were notably increased compared to February, 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 31 March 2019.

Month ending	Total Tests	TEST RESULTS															
		Influenza A								Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Enterovirus
		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
Week ending																	
10/03/2019	7211	603	(8.4%)	29	(4.8%)	37	(6.1%)	537	(89.1%)	52	(0.7%)	194	353	493	1438	40	187
17/03/2019	7853	730	(9.3%)	39	(33.0%)	53	(7.3%)	638	(87.4%)	71	(0.9%)	255	344	602	1421	52	185
24/03/2019	7989	679	(8.5%)	35	(5.2%)	57	(8.4%)	587	(86.5%)	91	(1.1%)	253	320	630	1379	37	191
31/03/2019	8810	652	(7.4%)	29	(4.4%)	51	(7.8%)	572	(87.7%)	88	(1.0%)	265	391	858	1628	43	280

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 31 March 2019.

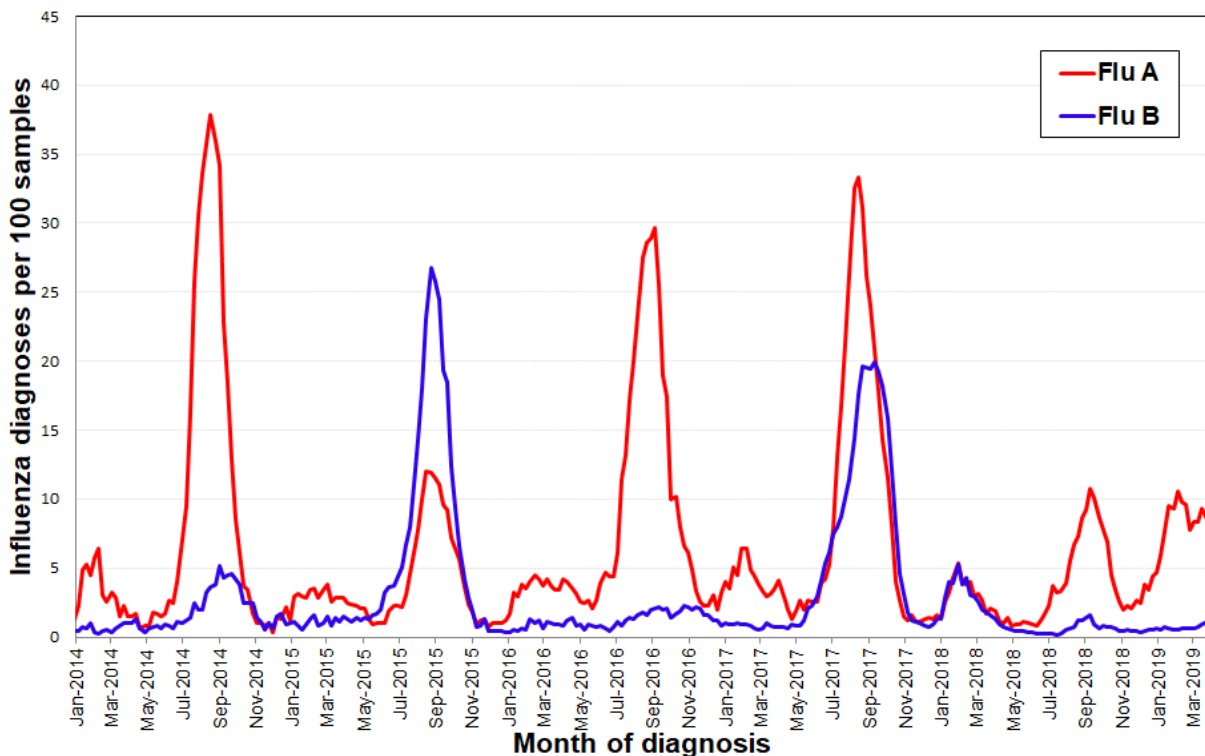
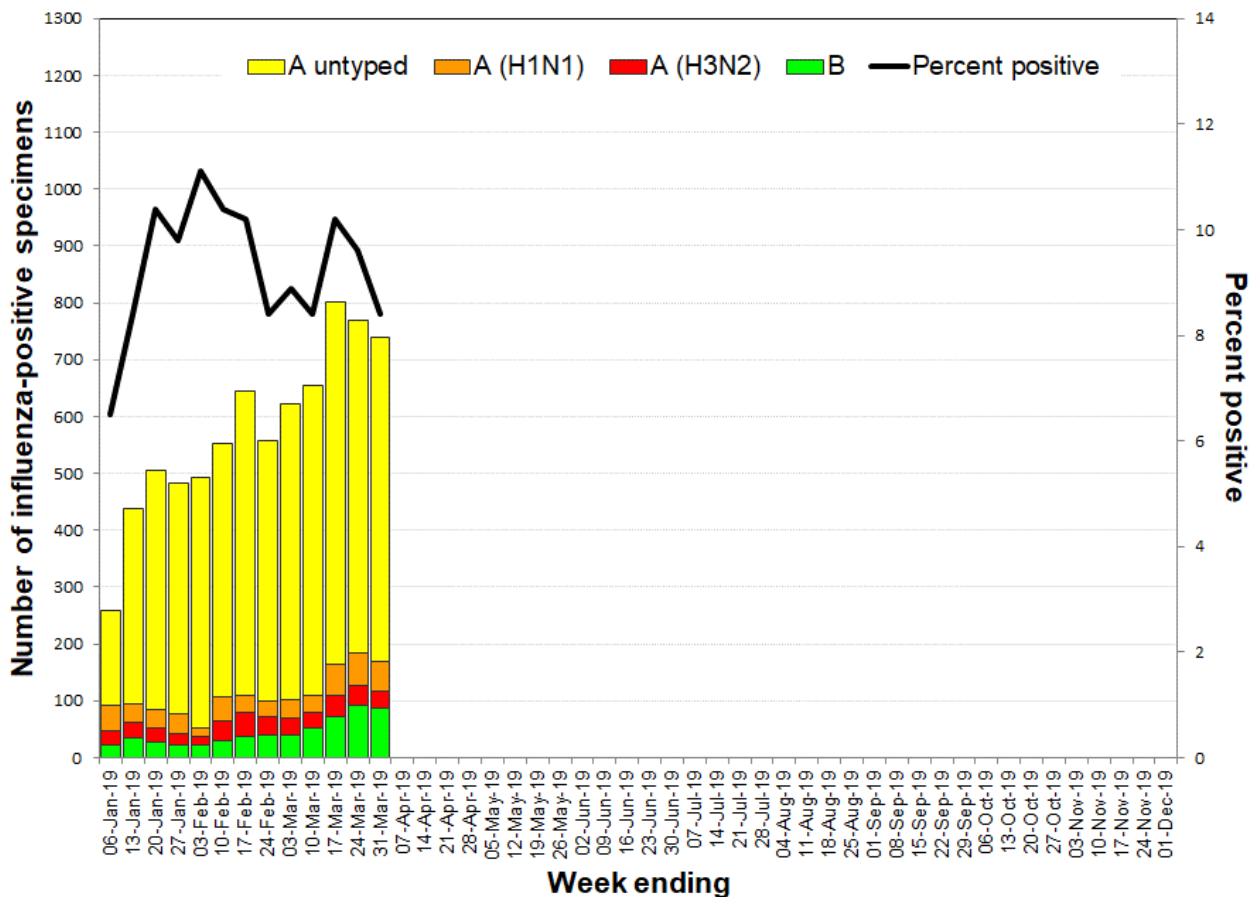


Figure 6: 2019 weekly influenza results by type, sub-type and percent positive reported by NSW sentinel laboratories, 1 January to 31 March 2019



5. Community Surveillance

Influenza notifications by local health district (LHD)

In the four week period to 31 March there were 2481 confirmed influenza notifications, markedly higher than the 972 influenza notifications reported for March 2018, and slightly higher than the number of notifications reported for February 2019 (2244).

Influenza notifications were elevated across all LHDs for this time of year, although notification rates appear to be declining in some jurisdictions. Notification rates were highest in Murrumbidgee, Western Sydney and Northern Sydney LHDs (Table 2).

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

Local Health District	Week ending 31 Mar 2019		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly number of notifications	Rate per 100 000 population
Central Coast	29	8.32	15	4.16
Far West	1	3.33	1	3.33
Hunter New England	38	4.03	44	4.62
Illawarra Shoalhaven	21	5.05	23	5.47
Mid North Coast	12	5.37	8	3.69
Murrumbidgee	29	11.92	15	5.96
Nepean Blue	39	10.13	41	10.71
Northern NSW	15	4.89	27	8.88
Northern Sydney	108	11.42	94	9.97
South Eastern Sydney	93	9.81	104	10.97
South Western	18	1.76	53	5.2
Southern NSW	8	3.74	7	3.15
Sydney	40	5.83	56	8.19
Western NSW	9	3.17	8	2.64
Western Sydney	119	11.58	112	10.88

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

Influenza outbreaks in institutions

There were eight influenza outbreaks reported in March, fewer than for February (13) but still more than expected for this time of year. All were due to influenza A, including one where influenza B was also identified. Of these, four were reported in residential aged care facilities, three were in medical facilities and one was in a military facility.

In the year to date there have been 27 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including 17 in residential aged care facilities (Table 3, Figure 7). All were due to influenza A, including the one reported this week due to both influenza A and B.

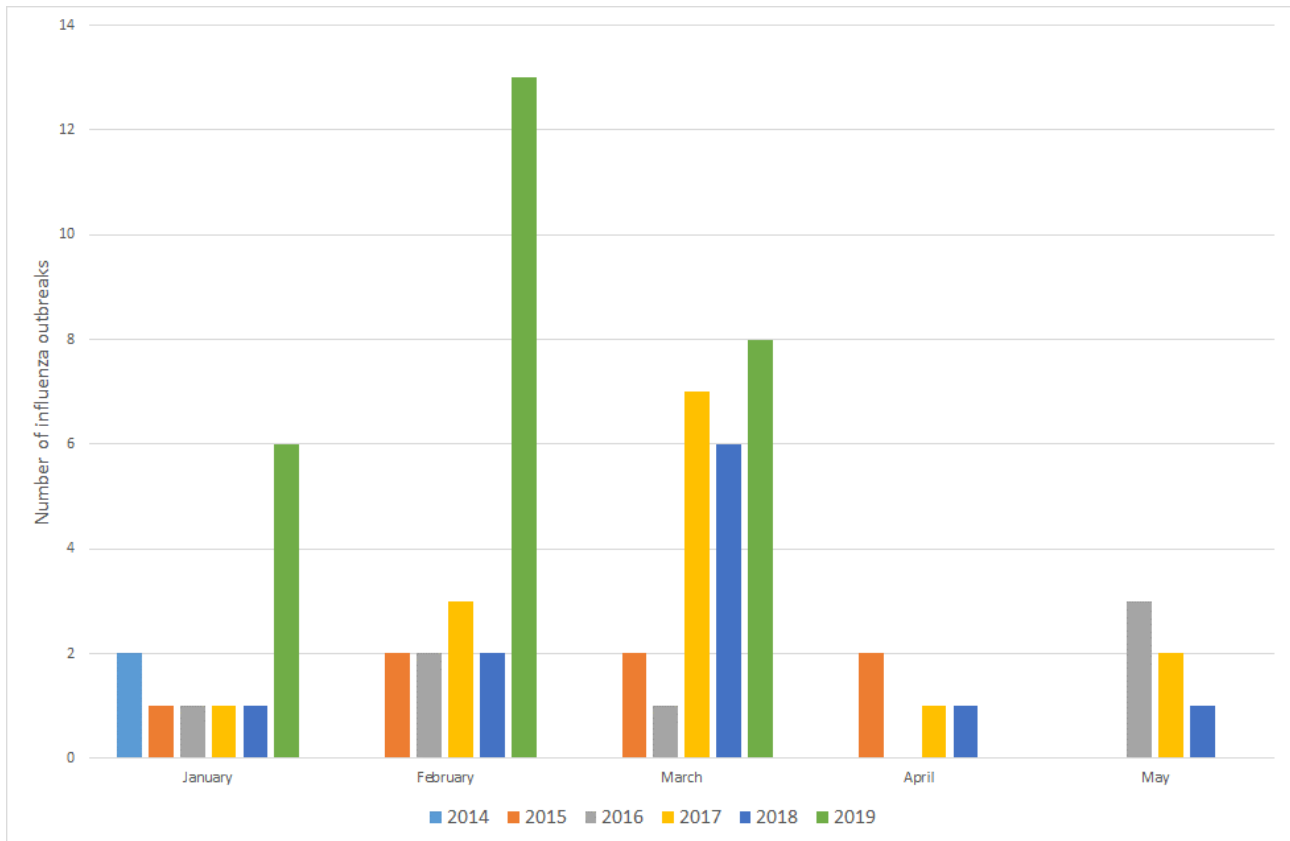
In the 17 influenza outbreaks affecting residential aged care facilities, at least 174 residents were reported to have had ILI symptoms and 17 required hospitalisation. There were also seven deaths in residents linked to these outbreaks, all of whom were noted to have significant co-morbidities.

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

Year	2012	2013	2014	2015	2016	2017	2018	2019
Number of outbreaks	39	12	120	103	279	588	46	27*

*Incomplete year.

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



6. 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 31 March) 2.9 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 1 April 2019](#) provides data up to 17 March 2019.

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

- In North America, influenza activity appeared to decrease with influenza A(H3N2) the dominant virus, followed by influenza A(H1N1)pdm09.
- In Europe, influenza activity was decreased. Both influenza A viruses co-circulated.
- In North Africa, influenza activity was still reported in some countries.
- In Western Asia, influenza activity appeared to decrease overall, with exception of some countries where activity remained elevated.
- In East Asia, influenza activity continued to be reported but was decreased. There were increasing detections of influenza A(H3N2) and B (Victoria-lineage) viruses in recent weeks.
- In Southern Asia, influenza appeared to decrease with influenza A(H1N1)pdm09 virus predominating.
- In the Caribbean, Central American countries, and the tropical countries of South America, influenza and RSV activity were low in general.

In the temperate zones of the southern hemisphere, influenza activity remained at inter-seasonal levels, with the exception of some parts of Australia where influenza activity remained above 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](#).

7. 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/.

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.

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;
- 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/> .

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.