Influenza Surveillance Weekly Report

Week 27: 2 to 8 July 2018

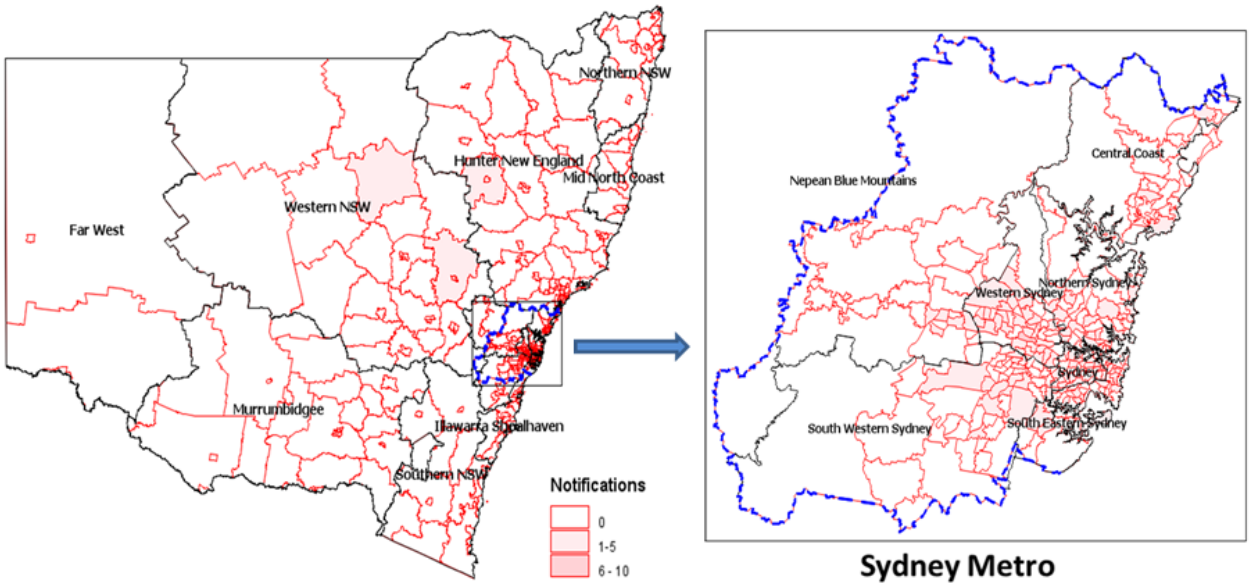
Key Points

- Influenza activity continued to be generally low across NSW local health districts
- Respiratory presentations to NSW emergency departments are trending upwards
- Influenza activity continues to increase but remains below the seasonal threshold; the influenza A(H1N1) strain is predominating

Activity compared to the previous week – NSW local health districts

Local Health District	Confirmed Influenza		NSW Emergency Departments (60) *All Respiratory/Fever/Unspecified infections*		
	Cases	Trend [1]	Presentations	Trend [1]	% of LHD ED presentations [2]
Central Coast	3	►	329	►	13%
Far West	0	►	42	►	10%
Hunter New England	14	►	885	►	14%
Illawarra Shoalhaven	12	►	330	►	13%
Mid North Coast	1	►	288	►	15%
Murrumbidgee	2	►	306	▲	16%
Nepean Blue Mountains	11	►	239	►	13%
Northern NSW	0	►	260	►	12%
Northern Sydney	36	►	479	►	12%
South Eastern Sydney	35	►	831	▲	14%
South Western Sydney	38	►	831	►	15%
Southern NSW	0	►	101	►	15%
Sydney	27	►	375	►	12%
Western NSW	3	►	273	►	16%
Western Sydney	74	►	726	►	15%
New South Wales	256	▲	6295	▲	14%

Confirmed influenza by NSW local health district and local area (SA2)[3]



Summary for this reporting week:

- Hospital surveillance – Respiratory presentations to EDs and admissions are trending upwards; ILI presentations to ED remained below the seasonal threshold
- Laboratory surveillance – the influenza laboratory test positive rate was higher at 3.9% but below the season threshold; influenza A remains more common, especially the A(H1N1) strain
- Community surveillance – influenza activity remained low across all LHDs but was highest in Western Sydney LHD
- National surveillance – influenza activity remained low nationally

Hospital Surveillance

NSW emergency department (ED) presentations for respiratory illness

Source: PHREDSS[4]

For the week ending 8 July 2018:

- The daily index of increase for *influenza-like illness* (ILI)[5] presentations across NSW was 7.6, higher than the previous week (6.9) but it remains below the seasonal threshold of 15.
- Presentations for *All respiratory illness, fever and unspecified infections* increased but were within the usual range for this time of year (Figure 1, Table 1).
- The proportion of *All respiratory illness, fever and unspecified infections* presentations to all unplanned ED presentations was low at 13.9 per 100 presentations and steady (Figure 2).
- There was a slight increase in presentations for *All respiratory illness, fever and unspecified infections* this week in the Murrumbidgee and South Eastern Sydney LHDs. The stable trend in influenza notifications in these areas suggests this is unrelated to influenza activity.
- ILI presentations resulting in admission decreased and were within the usual range for this time of year (Figure 3, Table 1).
- ED presentations and admissions for *pneumonia*[6] both increased but were within their usual ranges for this time of year (Table 1).
- *Pneumonia and ILI* presentations requiring admission to critical care increased but were below the usual range for this time of year (Table 1).
- ED presentations for *bronchiolitis* increased but were within the usual range for this time of year (Figure 4, Table 1).

Figure 1: Total weekly counts of ED visits for *All respiratory illness, fever and unspecified infections*, all ages, from 1 January – 8 July, 2018 (black line), compared with the 5 previous years (coloured lines).

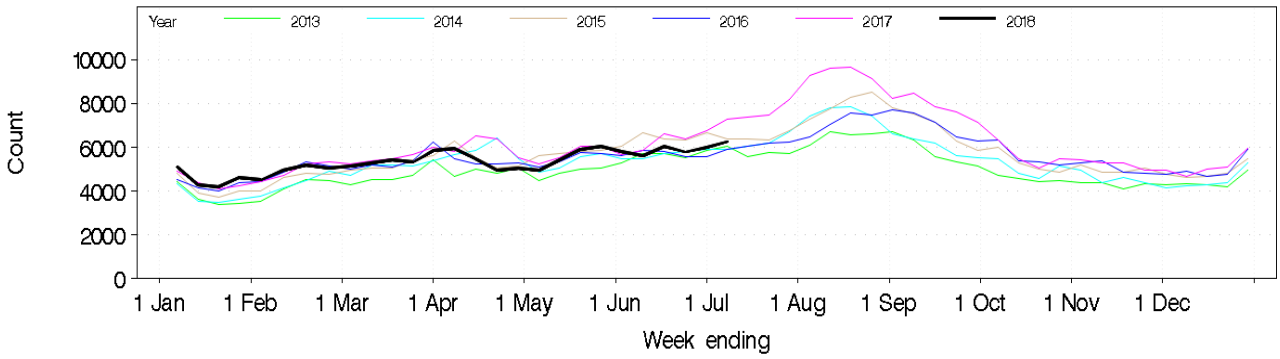


Figure 2: Total weekly counts of ED visits for *All respiratory illness, fever and unspecified infections*, all ages, as a rate per 100 ED visits, from 1 January – 8 July, 2018 (black line), compared with the range of season rate curves for the 5 previous years (white zone) aligned to the PHREDSS season start in 2017 (week 26).

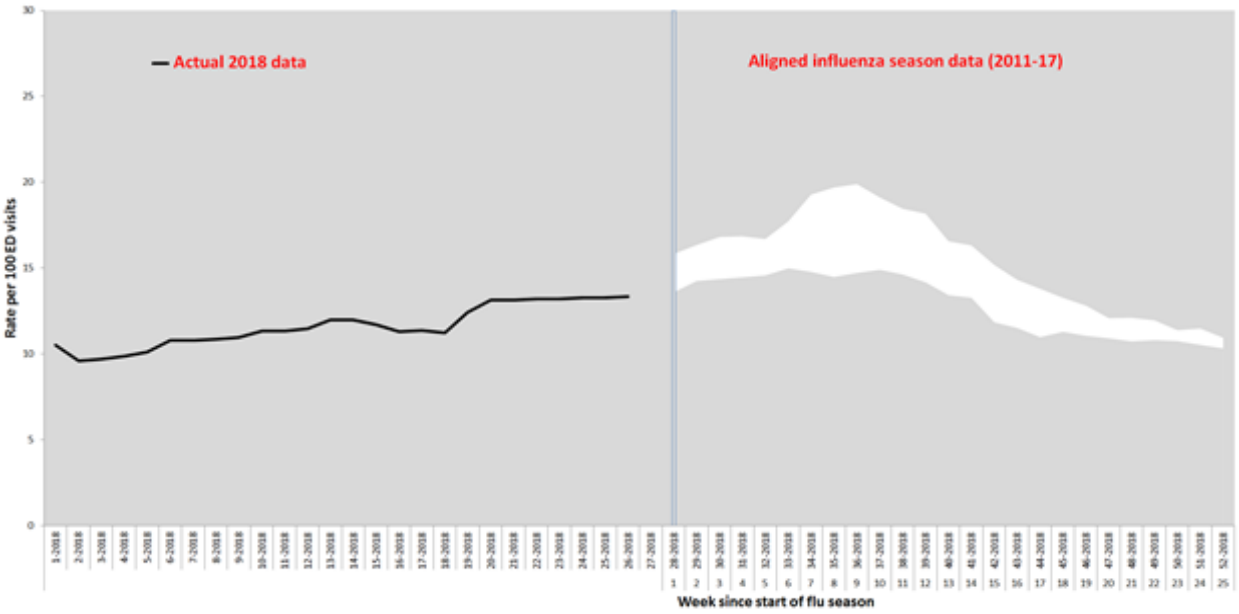


Figure 3: Total weekly counts of ED visits for *influenza-like-illness* that were admitted, all ages, from 1 January – 8 July, 2018 (black line), compared with the 5 previous years (coloured lines).

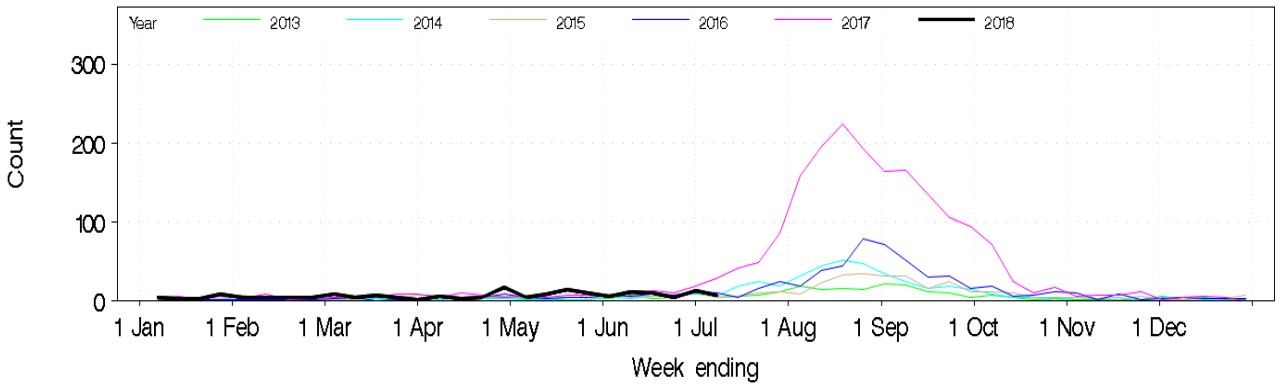


Figure 4: Total weekly counts of ED visits for *bronchiolitis*, all ages, from 1 January – 8 July, 2018 (black line), compared with the 5 previous years (coloured lines).

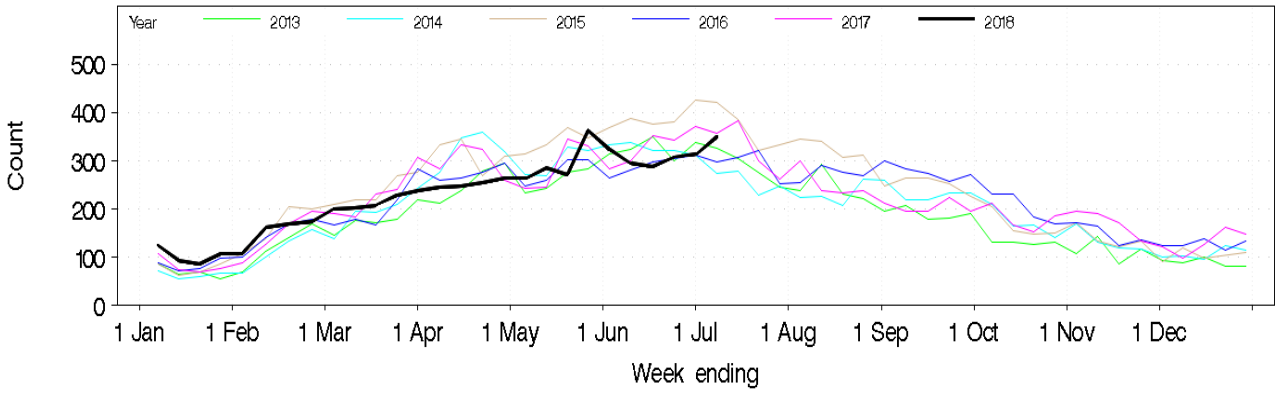


Table 1: Weekly emergency department respiratory illness summary, week ending 8 July 2018.

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range*	Significantly elevated age groups	Significant elevated severity indicators**	Comment
ED presentations 60 NSW hospitals	Influenza-like illness (ILI)	Steady (47)	Below (54-111)			The NSW daily index of increase for ILI presentations was 7.6.
	ILI admissions	Decreased (7)	Within (5-28)			
	Pneumonia	Increased (534)	Within (501-639)			
	Pneumonia admissions	Increased (382)	Within (374–467)			
	Pneumonia and ILI critical care admissions	Increased (25)	Below (36-46)			
	Asthma	Increased (453)	Below (459-519)			
	Bronchiolitis	Increased (350)	Within (270-420)			Bronchiolitis is a disease of infants.
	All respiratory illness, fever and unspecified infections	Increased (6,256)	Within (5,889-7,263)			
Ambulance	Breathing problems	Steady (2,135)	Within (1,880–2,274)			

Notes:*The usual range is the range of weekly counts for the same week in the previous five years for ED presentations and for ambulance Triple (000) calls.
Key for trend since last week: Non-bold and green=decreased or steady; Non-bold and orange=increased
Key for comparison with usual range: Non-bold and green =usual range; Non-bold and orange=above usual range, but not significantly above five-year mean; **Bold and yellow**=within usual range, but significantly above five-year mean; **Bold and red** = above the usual range and significantly above five-year mean (ED).
Counts are statistically significant (shown in bold) if they are at least five standard deviations above the five-year mean. The 'daily index of increase' is statistically significant above a threshold of 15. LHD = Local Health District.
**Severity indicators include: Admission or admission to a critical care ward (CCW); Triage category 1; Ambulance arrival and Death in ED.

FluCAN (The Influenza Complications Alert Network)

In 2009, the FluCAN surveillance system was created to be a rapid alert system for severe respiratory illness requiring hospitalisation. Data is provided on patients admitted with influenza confirmed by polymerase chain reaction (PCR) testing.

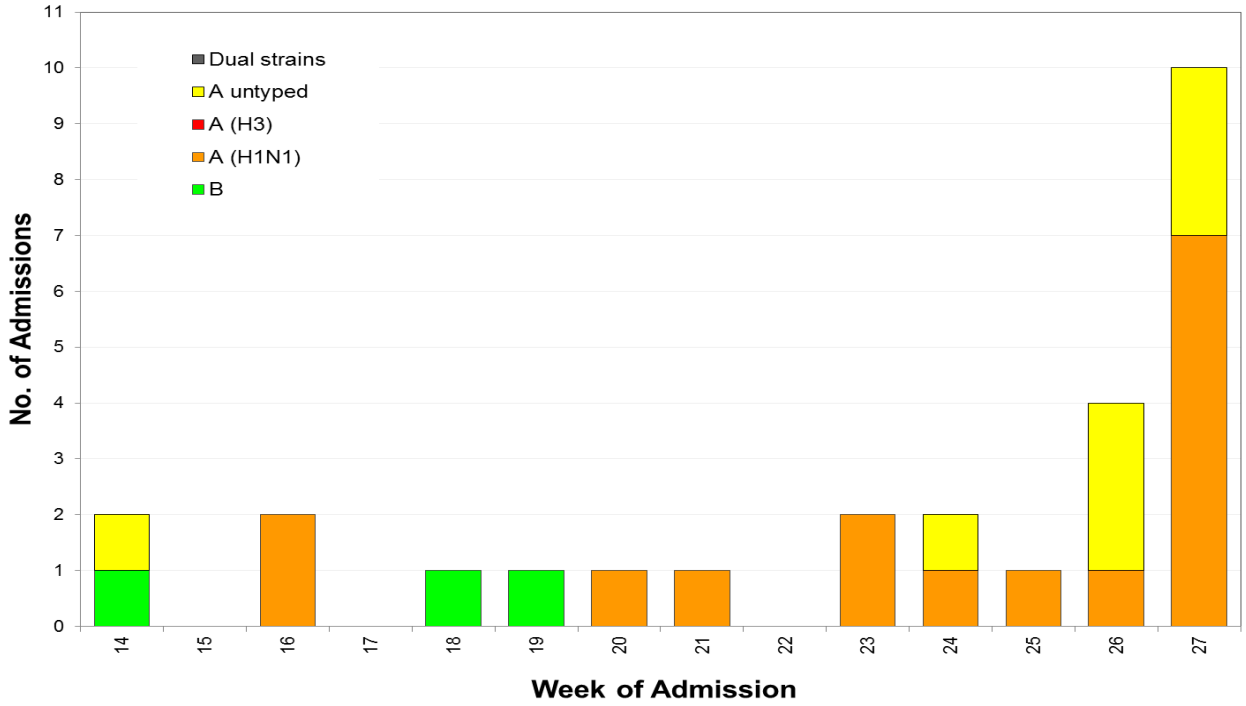
In NSW, three hospitals participate in providing weekly FluCAN data: Westmead Hospital, John Hunter Hospital and the Children's Hospital at Westmead.

During week 27 there were 10 influenza admissions to NSW sentinel hospitals (Figure 5).

Since 1 April 2018, there have been 27 hospital admissions reported for influenza; 24 due to influenza A (including 16 A (H1N1)) and three due to influenza B (Figure 5). Of these admissions, 18 were paediatric cases (<16 years of age) and nine were in adults. Three cases were admitted to a critical care ward.

Sadly, one admitted child, aged under five years and unvaccinated, has died from their influenza A infection. This is the first child reported to die from influenza in NSW this year.

Figure 5: FluCAN – Confirmed influenza hospital admissions in NSW, 1 April – 8 July, 2018.



Laboratory Surveillance

For the week ending 8 July 2018 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [7] which tested positive for influenza were still low, although influenza A activity continues to trend upwards (Table 2, Figure 6).

Overall, 3.9% of tests for respiratory viruses were positive for influenza (Figure 6), higher than the previous week (2.6%) but still below the winter seasonal threshold (5%). The increasing trend is predominantly due to increasing influenza A(H1N1) strain activity (Table 2, Figures 6-7).

Rhinovirus was again the most common respiratory virus identified, followed by respiratory syncytial virus (RSV) which is a common cause of bronchiolitis in infants (Table 2).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 8 July 2018.

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
28/01/2018	12819	483	(3.8%)	26	(5.4%)	38	(7.9%)	414	(85.7%)	507	(4.0%)	404	599	492	1601	325	196
25/02/2018	14540	531	(3.7%)	46	(8.7%)	36	(6.8%)	447	(84.2%)	503	(3.5%)	374	552	846	2498	221	284
01/04/2018*	22518	524	(2.3%)	53	(10.1%)	52	(9.9%)	419	(80.0%)	424	(1.9%)	703	1057	2022	4775	306	485
29/04/2018	19888	247	(1.2%)	22	(8.9%)	36	(14.6%)	189	(76.5%)	147	(0.7%)	640	869	2669	3634	277	415
27/05/2018	24227	232	(1.0%)	20	(8.6%)	32	(13.8%)	180	(77.6%)	89	(0.4%)	696	843	3030	5389	262	445
01/07/2018*	33785	482	(1.4%)	9	(1.9%)	43	(8.9%)	430	(89.2%)	72	(0.2%)	1157	971	3789	8809	574	647
Week ending																	
08/07/2018	7844	289	(3.7%)	2	(0.7%)	55	(19.0%)	232	(80.3%)	14	(0.2%)	305	230	937	1668	185	151

Notes:
* Five-week reporting period. ** Human metapneumovirus

Figure 6: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 8 July 2018.

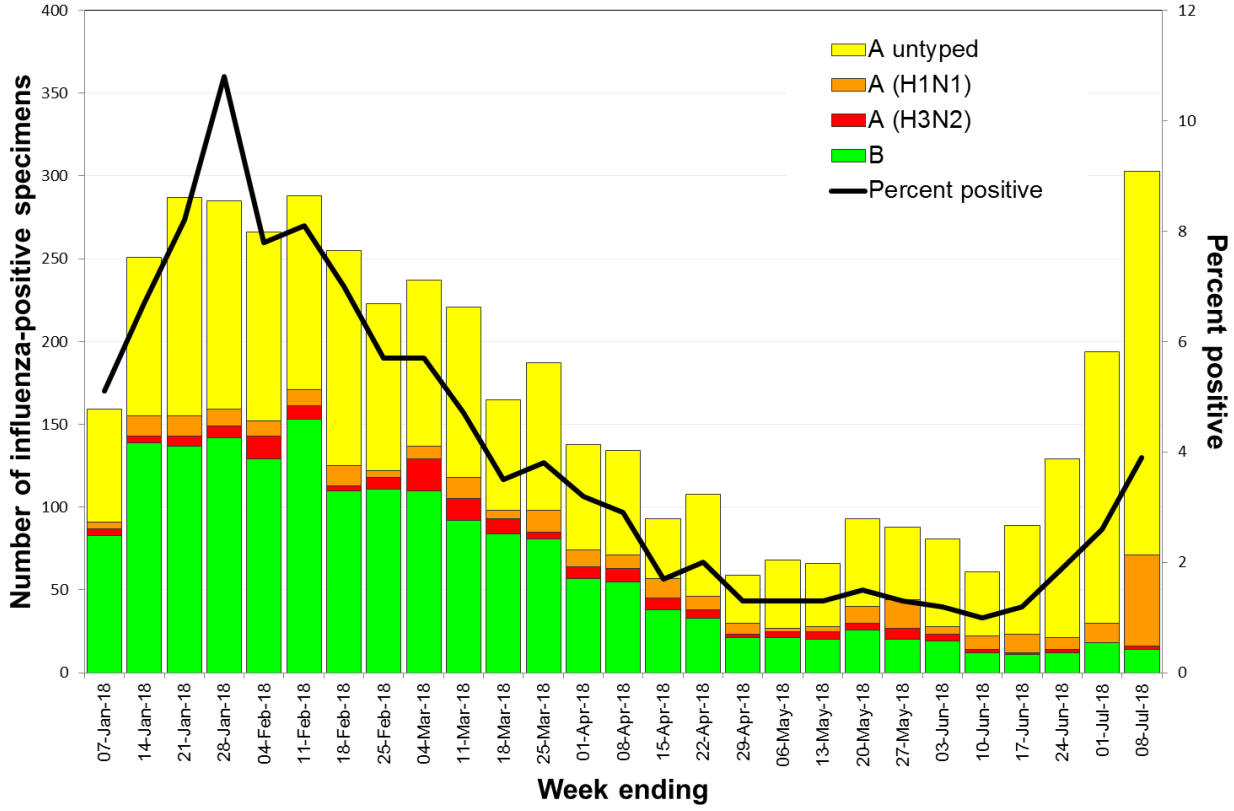
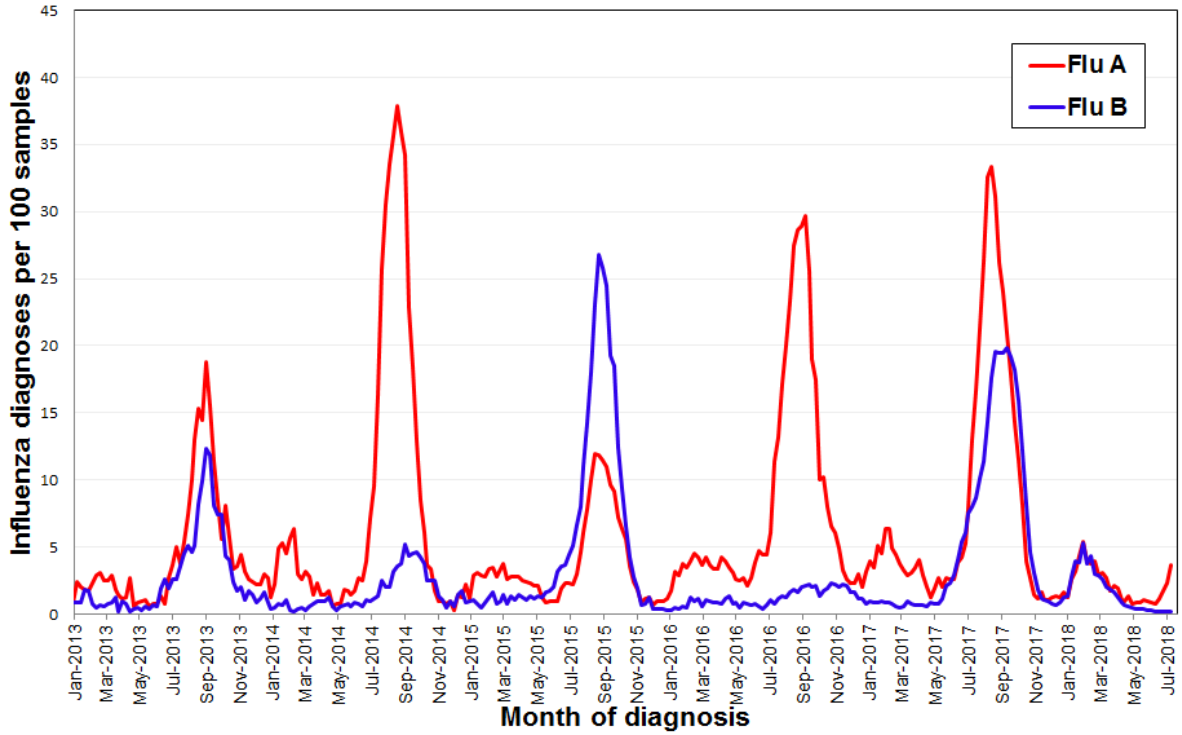


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2013 to 8 July 2018, New South Wales.



Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 8 July there were 256 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 178 notifications reported in the previous week but still much lower than the 6449 notifications for the same period in 2017.

Influenza notification rates were increasing across metropolitan Sydney but remained low and stable across regional NSW (Table 3). Notifications again in Western Sydney LHD were higher than other LHDs.

Table 3: Weekly notifications of laboratory-confirmed influenza by Local Health District.

Local Health District	Week ending 08 Jul 2018		Week ending 01 Jul 2018	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	3	0.86	2	0.57
Far West	0	0.00	0	0.00
Hunter New England	14	1.49	12	1.28
Illawarra Shoalhaven	12	2.91	20	4.85
Mid North Coast	1	0.44	1	0.44
Murrumbidgee	2	0.82	1	0.41
Nepean Blue Mountains	11	2.82	2	0.51
Northern NSW	0	0.00	1	0.32
Northern Sydney	36	3.89	28	3.03
South Eastern Sydney	35	3.72	18	1.91
South Western Sydney	38	3.77	19	1.88
Southern NSW	0	0.00	0	0.00
Sydney	27	4.04	12	1.79
Western NSW	3	1.07	3	1.07
Western Sydney	74	7.44	59	5.93

Notes: * All data are preliminary and may change as more notifications are received. Excludes notifications based on serology. For further information see the influenza notifications data page.

Influenza outbreaks in institutions

There were no respiratory outbreaks in institutions reported this week.

In the year to date there have been 11 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including ten in residential care facilities (Table 4, Figure 8). Six of the outbreaks have been due to influenza A and five were due to influenza B.

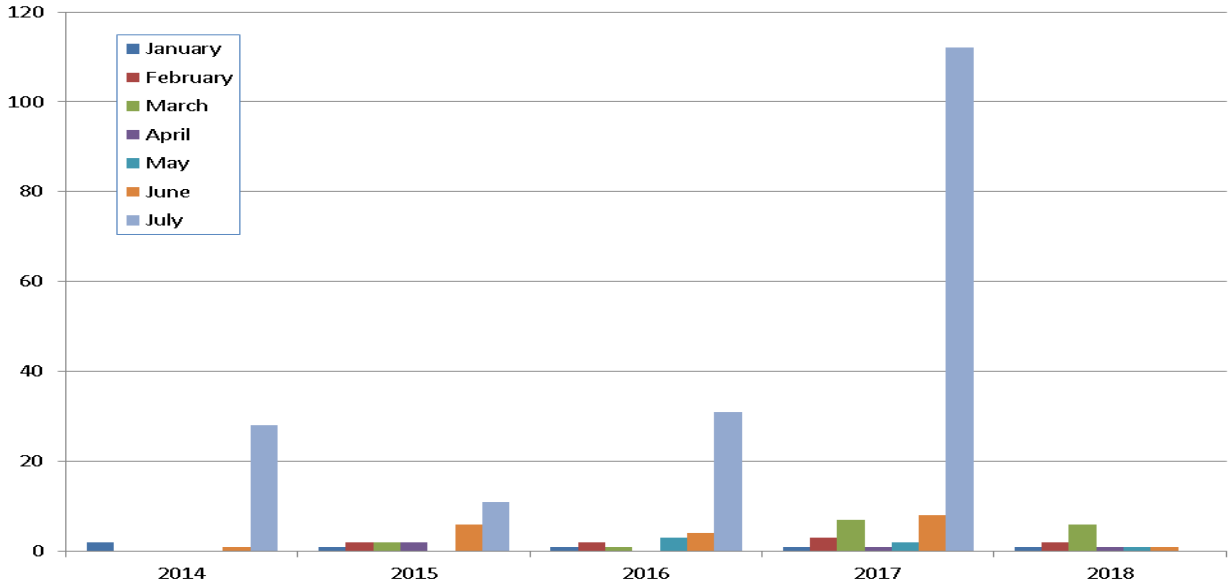
In the 10 influenza outbreaks affecting residential care facilities, at least 70 residents were reported to have had ILI symptoms and 13 required hospitalisation. Overall, there have been two deaths in residents reported which were linked to these outbreaks, both of whom were noted to have other significant co-morbidities.

Table 4: Reported influenza outbreaks in NSW institutions, January 2011 to June 2018.

Year	2011	2012	2013	2014	2015	2016	2017	2018*
No. of outbreaks	4	39	12	120	103	279	588	11

Notes: * Year to date.

Figure 8: Reported influenza outbreaks in NSW residential care facilities by month, 2014 to 2018.



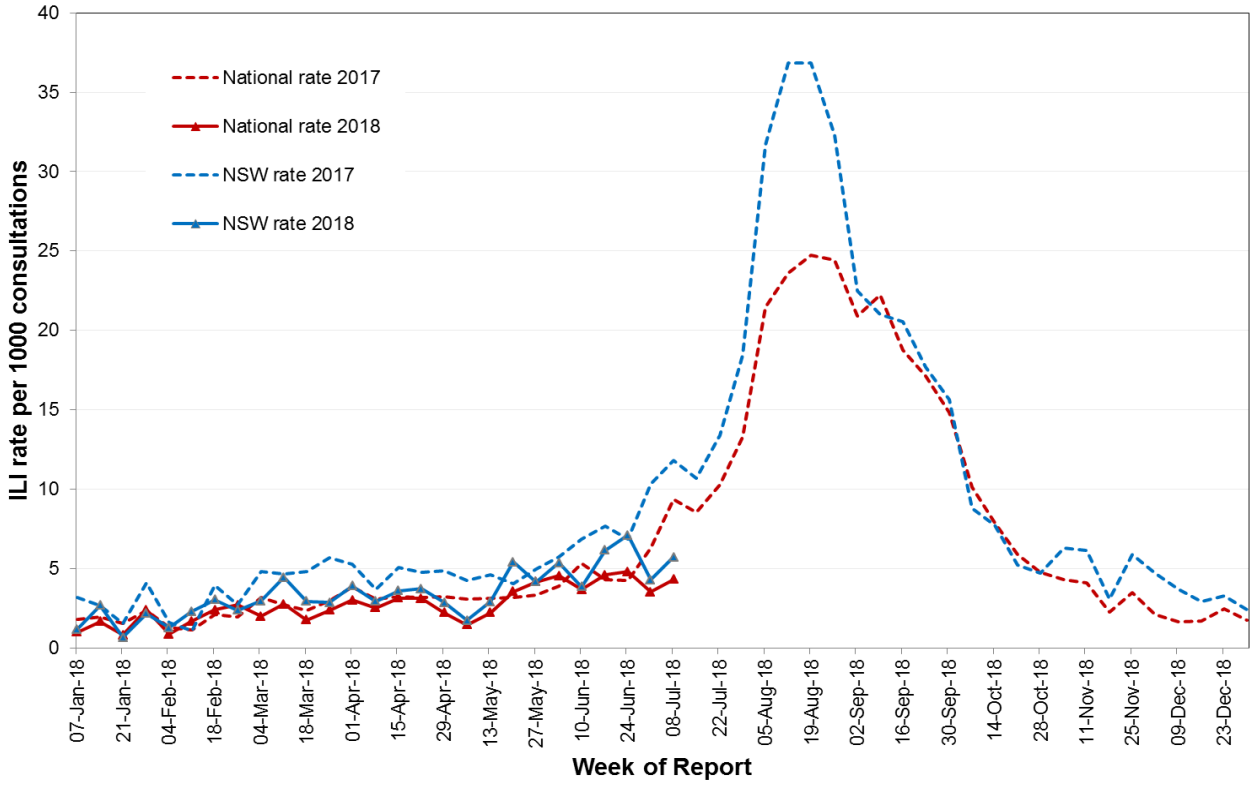
The Australian Sentinel Practices Research Network (ASPREN)

ASPREN is a network of sentinel general practitioners (GPs) run through the Royal Australian College of General Practitioners and the University of Adelaide which has collected de-identified information on influenza-like illness (ILI) and other conditions seen in general practice since 1991.

Participating GPs in the program report on the proportion of patients presenting with an ILI. The number of GPs participating on a weekly basis may vary.

In week 27 there were ASPREN reports received from 78 NSW GPs. The reported consultation rate for ILI per 1000 consultations was 5.71 (Figure 9), higher than the previous week (4.28, revised) and still low overall. For further information see the ASPREN website.

Figure 9: ASPREN – NSW and National GP ILI rates per 1000 consultations – 2018 to week 27, compared to 2017.



FluTracking.net

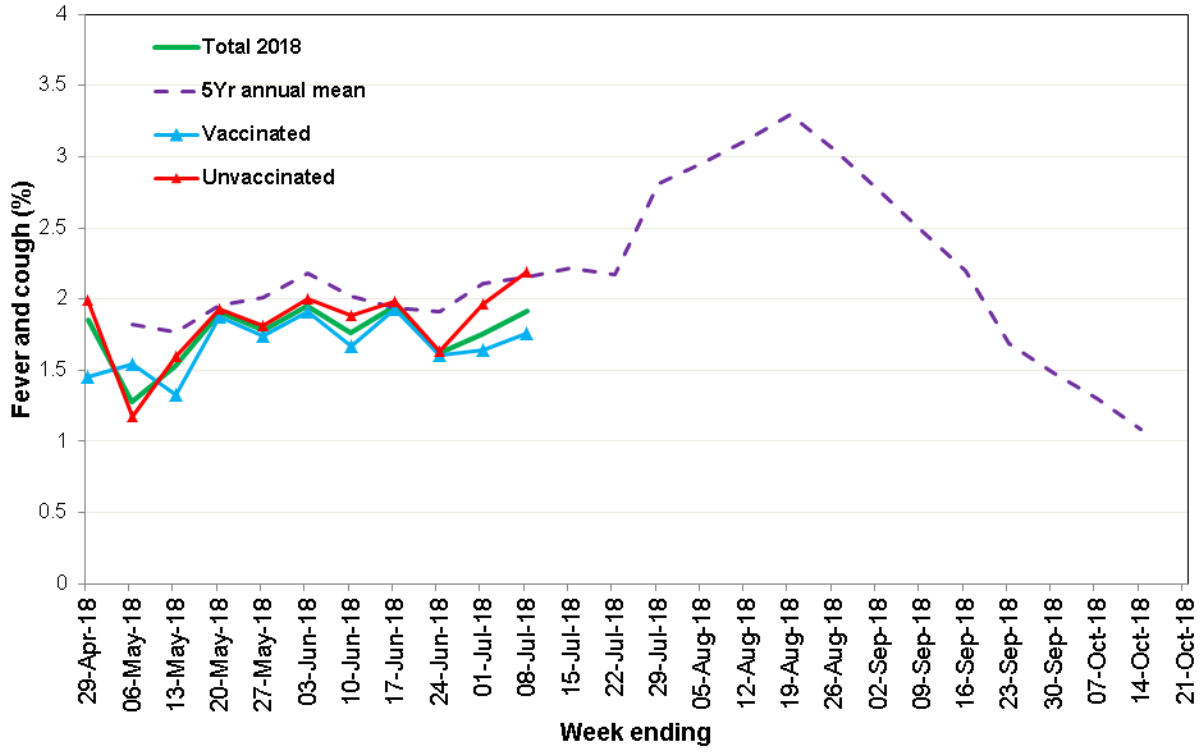
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

Participants complete a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

In week 27 FluTracking received reports for 11,178 people in NSW with the following results:

- 1.9% of respondents reported fever and cough, slightly higher than the previous week (1.7%) but lower than the five year annual mean (2.2%) (Figure 10).
- Among respondents who reported being vaccinated for influenza in 2018, 1.8% reported fever and cough lower than the 2.2% rate among unvaccinated respondents (Figure 10).
- 1.1% of respondents reported fever, cough and absence from normal duties, similar to the previous week (1.0%).

Figure 10: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status.



Notes: Participants are not considered vaccinated until at least two weeks has elapsed since their recorded time of vaccination.

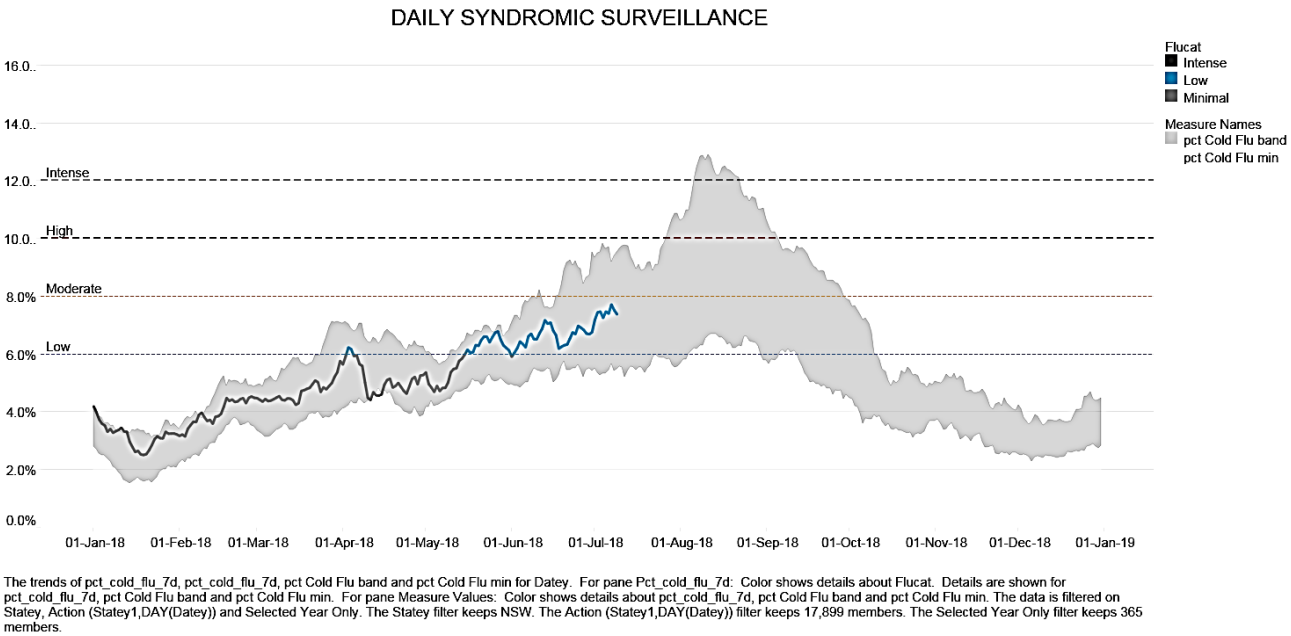
For further information on the project and how to participate please see the FluTracking website.

Healthdirect Australia

Healthdirect Australia was first introduced in 2007 and is a national, government-owned, not-for profit organisation that delivers a range of telehealth and digital health services 24 hours a day, 7 days a week across Australia. Healthdirect Australia collects data based on calls to the Healthdirect helpline (1800 022 222). This data includes the number of callers who report symptoms consistent with influenza-like illness (ILI).

In week 27 the number of ILI-related calls to Healthdirect Australia for NSW decreased but remained in the low-moderate range of activity (Figure 11).

Figure 11: Healthdirect Australia – ILI-related calls as a proportion of all calls for NSW, 2018 to week 27, compared to the weekly minimum and maximum range between 2012 and 2017.



The trends of pct_cold_flu_7d, pct_cold_flu_7d, pct Cold Flu band and pct Cold Flu min for Datey. For pane Pct_cold_flu_7d: Color shows details about Flucat. Details are shown for pct_cold_flu_7d, pct Cold Flu band and pct Cold Flu min. For pane Measure Values: Color shows details about pct_cold_flu_7d, pct Cold Flu band and pct Cold Flu min. The data is filtered on Statey, Action (Statey1,DAY(Datey)) and Selected Year Only. The Statey filter keeps NSW. The Action (Statey1,DAY(Datey)) filter keeps 17,899 members. The Selected Year Only filter keeps 365 members.

For further information see the Healthdirect Australia flu trends website.

National and International Influenza Surveillance

National Influenza Surveillance

The fortnightly *Australian Surveillance Report No.3,* with data up to 1 July 2018, noted the following:

- **Activity** – Currently, influenza and influenza-like illness (ILI) activity are low and remain at inter-seasonal levels across Australia. Rhinovirus was the most common respiratory virus detected in patients presenting with ILI to sentinel general practices this fortnight.
- **Severity** – There is no indication of the potential severity of the 2018 season at this time.
- **Impact** – Currently, the impact of circulating influenza on society is low.
- **Virology** – This fortnight, the majority of confirmed influenza cases reported nationally were influenza A (84%).

For further information see the Australian Influenza Surveillance Reports.

Global Influenza Update

The latest WHO global update on 9 July 2018 provides data up to 24 June. Influenza detections continued to increase in Southern Africa and in recent weeks started to increase in South America. However, influenza activity remained at inter-seasonal levels in Australia and New Zealand. In the temperate zone of the northern hemisphere influenza activity returned to inter-seasonal levels. Increased influenza activity was reported in some countries of tropical America.

Worldwide, seasonal influenza subtype A viruses accounted for the majority of detections. Of these, influenza A(H1N) was the predominant strain, accounting for 84.9% of the sub-typed influenza A viruses. 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 28 May 2018. These reports provide information on human cases of infection with non-seasonal influenza viruses, such as H5 and H7 clade viruses, and outbreaks among animals.

Since the previous update, new human infections with avian or swine influenza 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.

Composition of 2018 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the 2018 Southern Hemisphere was held in Melbourne on 25-27 September 2017.

Following the Consultation, WHO announced its recommendations for the composition of trivalent vaccines for use in the 2018 Southern Hemisphere influenza season, which includes changes in the influenza A(H3N2) component, as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus
- an A/Singapore/INFIHM-16-0019/2016 (H3N2)-like virus [8]
- a B/Phuket/3073/2013-like virus (Yamagata lineage)

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/Brisbane/60/2008-like virus (Victoria lineage).[9]

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.

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

Information for immunisation providers on the influenza vaccines available for use in Australia in 2018, including vaccines used as part of the National Immunisation Program can be found at: https://beta.health.gov.au/resources/publications/atagi-advice-on-seasonal-influenza-vaccines-in-2018 .

Information on NSW seasonal influenza vaccination activities in 2018, 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 .

Report Notes:

[1] Notes for trend comparisons with the previous week:

		Trend in Cases	Trend in Presentations
►	Stable	<10% change or <20 cases change	<10% change or <40 presentations change
▼	Decrease	10% or greater decrease	10% or greater decrease
▲	Increase	10-20% increase	10-20% increase
▲	Higher increase	>20% increase	>20% increase

[2] *All Respiratory, fever and unspecified infections* presentations as a percentage of all unplanned emergency department presentations in participating hospitals in the local health district.

[3] 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.

[4] 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, which accounted for 83% of all NSW ED presentations in the 2016/2017 financial year. The coverage is lower in rural EDs. Data is continuously updated.

[5] The ED 'ILI' syndrome includes provisional diagnoses selected by a clinician of 'influenza-like illness' or 'influenza' (including 'pneumonia with influenza'), avian and other new influenza viruses.

[6] 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'.

[7] Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Point-of-care test results have been included since August 2012 but serological diagnoses are not included. 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, VDRLab

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

[9] This B/Brisbane strain had been part of the WHO recommendations for 2017 southern hemisphere trivalent influenza vaccines but has been replaced by the B/Phuket strain for 2018 trivalent vaccines.