

Influenza Surveillance Weekly Report

Week 35: 27 August to 2 September 2018

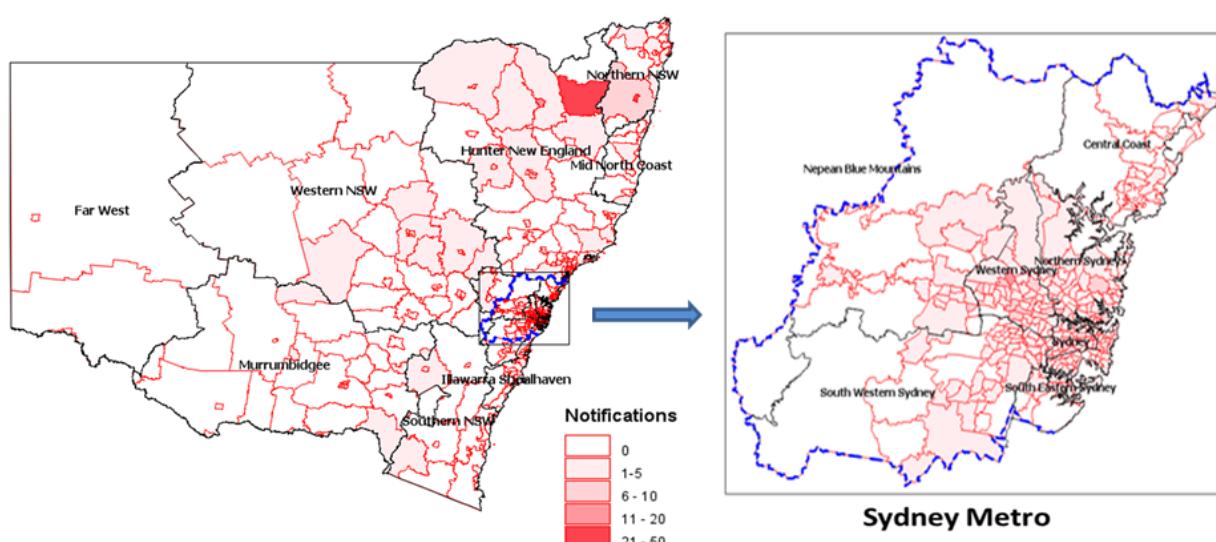
Key Points

- Influenza seasonal activity continues to increase slowly for the state overall.
- Overall, the influenza A(H1N1) strain continues to be the most common strain identified. Influenza activity is higher in the New England region.
- Respiratory presentations to NSW emergency departments remain low for this time of year but increases were noted for asthma and bronchiolitis.

Activity compared to the previous week – NSW local health districts

Local Health District	Confirmed Influenza		NSW Emergency Departments (60) All Respiratory/Fever/Unspecified infections		% of LHD ED presentations ²
	Cases	Trend ¹	Presentations	Trend ¹	
Central Coast	10	►	327	►	13%
Far West	1	►	57	►	12%
Hunter New England	192	▲	858	►	14%
Illawarra Shoalhaven	27	►	331	►	13%
Mid North Coast	18	►	262	►	14%
Murrumbidgee	10	►	282	►	15%
Nepean Blue Mountains	41	►	268	►	14%
Northern NSW	45	►	325	►	15%
Northern Sydney	136	▲	482	►	12%
South Eastern Sydney	136	►	708	▼	12%
South Western Sydney	80	►	859	►	16%
Southern NSW	6	►	92	►	14%
Sydney	70	▲	411	►	13%
Western NSW	15	►	232	►	14%
Western Sydney	159	▲	799	►	16%
New South Wales	946	▲	6293	►	14%

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



Summary for this reporting week:

- ▶ [Hospital surveillance](#) – pneumonia presentations to ED decreased as did pneumonia admissions; ILI presentations also decreased
- ▶ [Laboratory surveillance](#) – the influenza laboratory test positive rate was slightly higher at 10.5%; influenza A(H1N1) remains the most common strain
- ▶ [Community surveillance](#) – influenza activity increased slightly in most LHDs; influenza activity in the New England area continues to be high
- ▶ [National surveillance](#) – influenza activity remained low nationally

Hospital Surveillance

NSW emergency department (ED) presentations for respiratory illness

Source: PHREDSS⁴

For the week ending 2 September 2018:

- Presentations for *All respiratory illness, fever and unspecified infections* were decreased and were below the usual range for this time of year (Figure 1, Table 1). The proportion of these presentations to all unplanned ED presentations was steady at 14.0 per 100 presentations and remained below the seasonal range (Figure 2).
- ILI presentations resulting in admission decreased and were below the usual range for this time of year (Figure 3, Table 1).
- ED presentations and admissions for *pneumonia*⁵ both decreased. Both were below their usual ranges for this time of year (Table 1).
- *Pneumonia and ILI* presentations requiring admission to critical care decreased further and were below the usual range for this time of year (Table 1).
- ED presentations for both *asthma* and *bronchiolitis* (Figure 4) both increased but both were within the usual range for this time of year (Table 1).

Figure 1: Total weekly counts of ED visits for *All respiratory illness, fever and unspecified infections*, all ages, from 1 January – 2 September, 2018 (black line), compared with the 5 previous years (coloured lines).

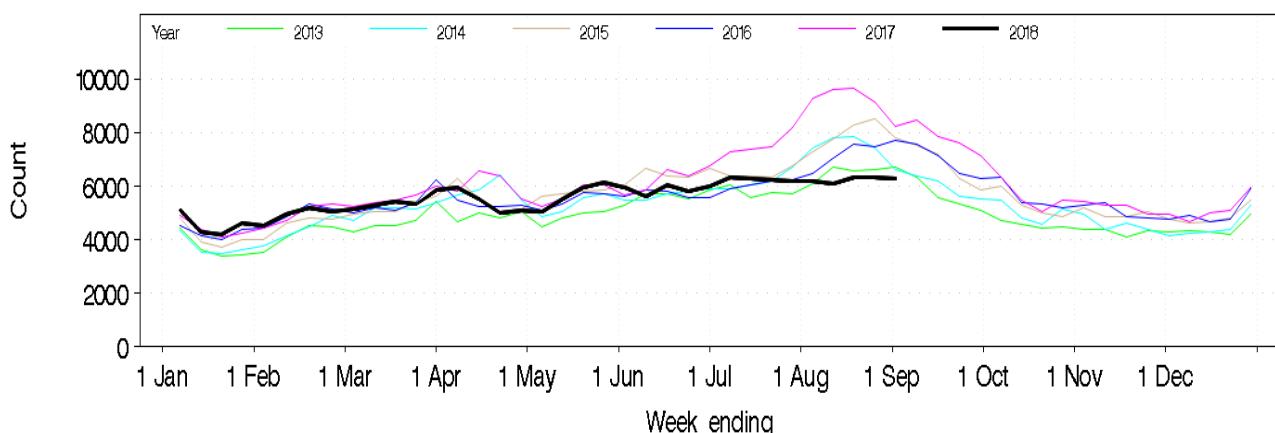


Figure 2: Total weekly counts of ED visits for *All respiratory illness, fever and unspecified infections*, all ages, as a rate per 100 ED visits, from 1 January – 2 September, 2018 (black line), compared with the range of season rate curves for the 5 previous years (white zone) aligned to the PHREDSS season start in 2018 (week 29).

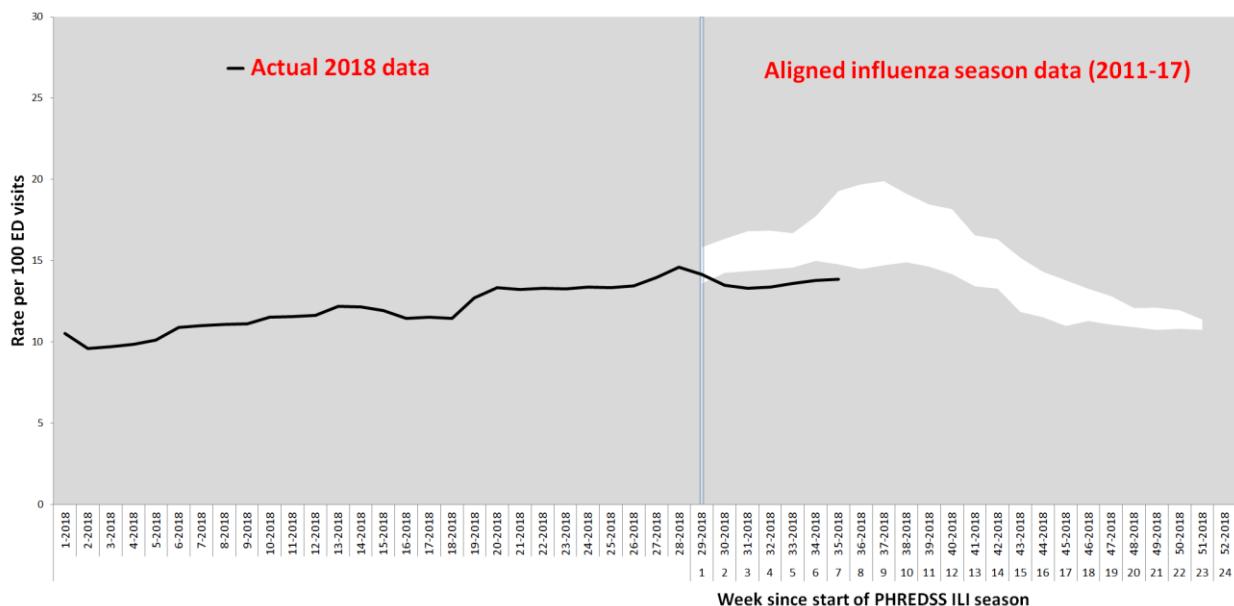


Figure 3: Total weekly counts of ED visits for *influenza-like-illness* that were admitted, all ages, from 1 January – 2 September, 2018 (black line), compared with the 5 previous years (coloured lines).

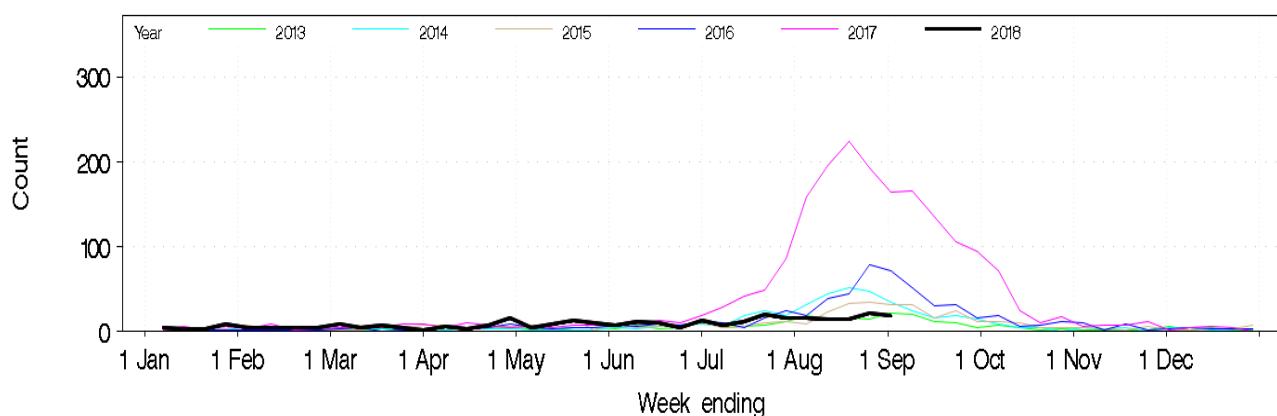


Figure 4: Total weekly counts of ED visits for *bronchiolitis*, all ages, from 1 January – 2 September, 2018 (black line), compared with the 5 previous years (coloured lines).

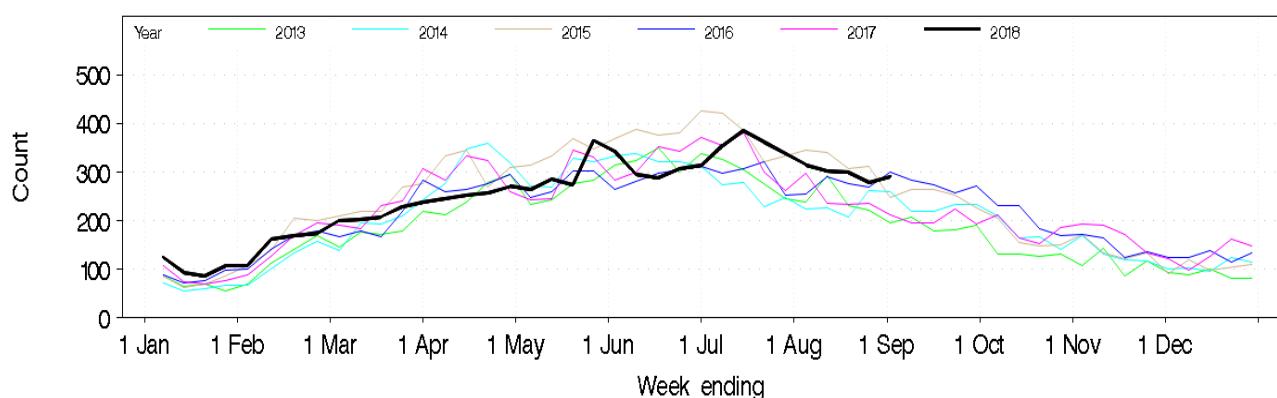


Table 1: Weekly emergency department respiratory illness summary, week ending 2 September 2018.

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)	Decreased (76)	Below (134-624)			The NSW daily index of increase for ILI presentations was 23.3 on 2 September.
	ILI admissions	Decreased (18)	Below (21-164)			
	Pneumonia	Decreased (478)	Below (576-701)			
	Pneumonia admissions	Decreased (364)	Below (433-489)			
	Pneumonia and ILI critical care admissions	Decreased (29)	Below (33-47)			
	Asthma	Increased (380)	Within (344-500)			
	Bronchiolitis	Increased (291)	Within (195-299)			Bronchiolitis is a disease of infants.
	All respiratory illness, fever and unspecified infections	Steady (6,279)	Below (6,623-8,216)			
Ambulance	Breathing problems	Increased (2,296)	Within (1,993-2,526)			

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.

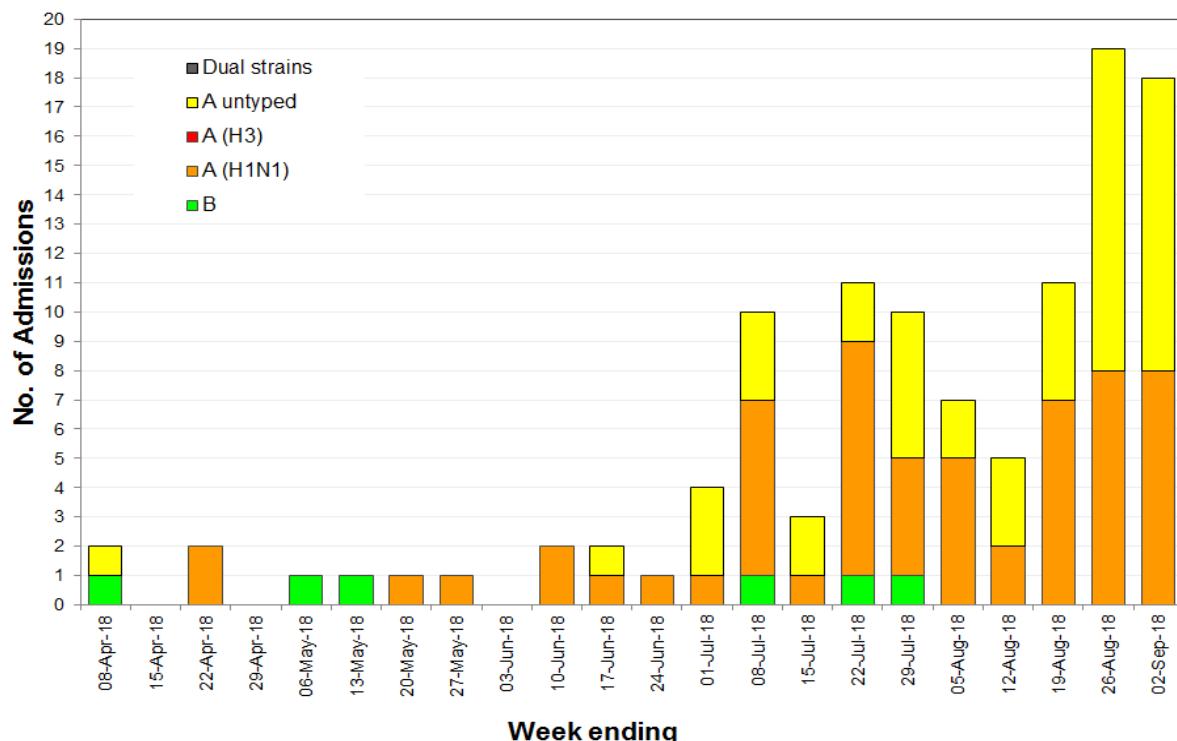
In NSW, three hospitals participate in providing weekly FluCAN data: Westmead Hospital, John Hunter Hospital and the Children's Hospital at Westmead.

In the week ending 2 September there were 18 new influenza admissions to NSW sentinel hospitals (Figure 5).

Since 1 April 2018, there have been 110 hospital admissions reported for influenza; 105 due to influenza A (including 58 A(H1N1)) and six due to influenza B (Figure 5). Of these admissions, 64 were paediatric cases (<16 years of age) and 46 were in adults. Eight cases (all children) were admitted to a critical care ward.

Sadly, one admitted child, aged under five years and unvaccinated, died from their influenza A infection in the week ending 8 July. This is the only child reported to have died from influenza in NSW this year.

Figure 5: FluCAN – Confirmed influenza hospital admissions in NSW, 1 April to 2 September 2018.



Laboratory Surveillance

In the week ending 2 September the number and proportion of respiratory specimens reported by NSW sentinel laboratories⁶ which tested positive for influenza increased but remained low for this time of year (Table 2, Figure 6). Influenza A activity continues to trend upwards.

Overall, 10.5% of tests for respiratory viruses were positive for influenza (Figure 6), slightly higher than the previous week (9.4%). Influenza A strains accounted for 87% of all influenza isolates, with A(H1N1) remaining the dominant circulating strain (Table 2, Figures 6-7).

Rhinovirus and influenza were the most common respiratory viruses identified (Table 2).

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

Month ending	Total Tests	TEST RESULTS															
		Influenza A						Influenza B			Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **		
		Total		H3N2		H1N1 pdm09		A (Not typed)		Total		Total	Total	Total	Total		
Total	(%)	Total	(%)	Total	(%)	Total	(%)	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
29/07/2018	31992	1126	(3.5%)	9	(0.8%)	146	(13.0%)	971	(86.2%)	83	(0.3%)	1268	913	3633	5947	1101	587
02/09/2018*	45387	3260	(7.2%)	59	(1.8%)	226	(6.9%)	2976	(91.3%)	449	(1.0%)	1674	1139	3090	4984	1930	551
Week ending																	
05/08/2018	8551	435	(5.1%)	7	(1.6%)	41	(9.4%)	388	(89.2%)	48	(0.6%)	351	226	781	962	350	105
12/08/2018	8778	542	(6.2%)	7	(1.3%)	27	(5.0%)	508	(93.7%)	59	(0.7%)	310	213	642	942	375	108
19/08/2018	9023	636	(7.0%)	11	(1.7%)	42	(6.6%)	583	(91.7%)	94	(1.0%)	307	201	598	950	390	108
26/08/2018	9359	768	(8.2%)	18	(2.3%)	61	(7.9%)	689	(89.7%)	112	(1.2%)	346	206	551	1021	406	114
02/09/2018	9676	879	(9.1%)	16	(1.8%)	55	(6.3%)	808	(91.9%)	136	(1.4%)	360	293	518	1109	409	116

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 2 September 2018.

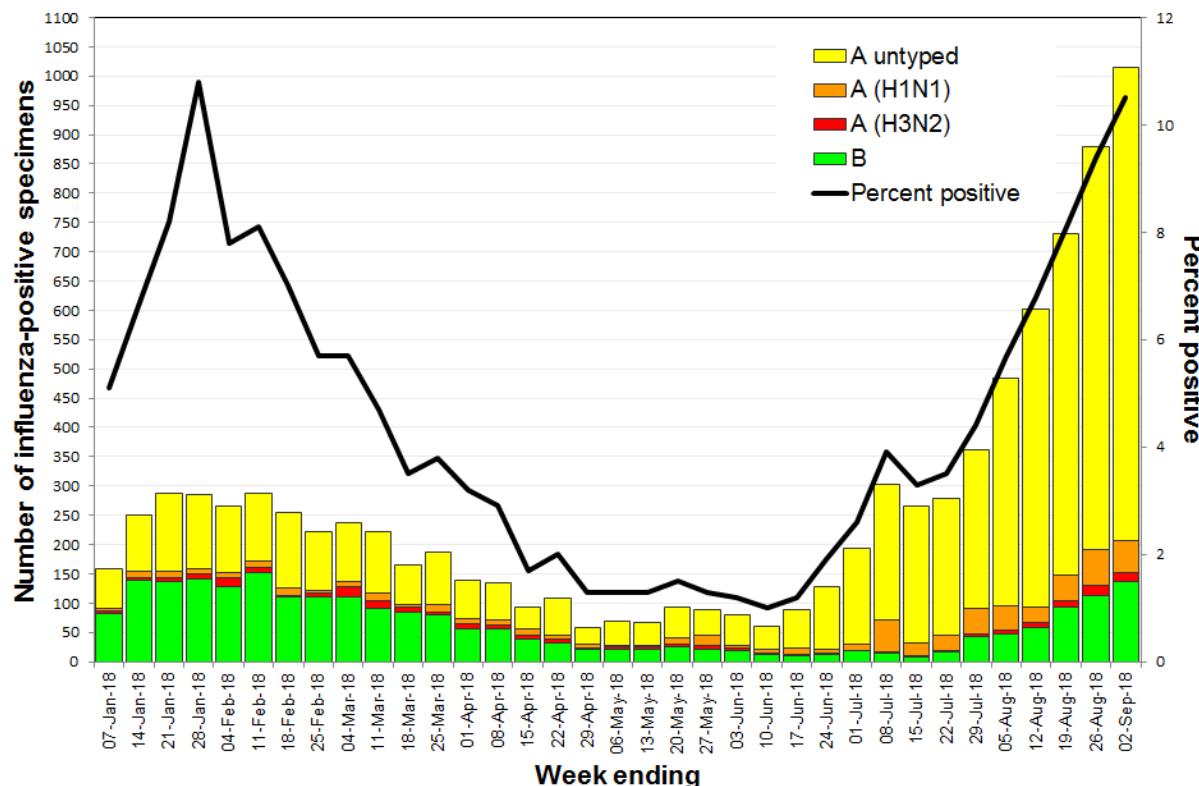
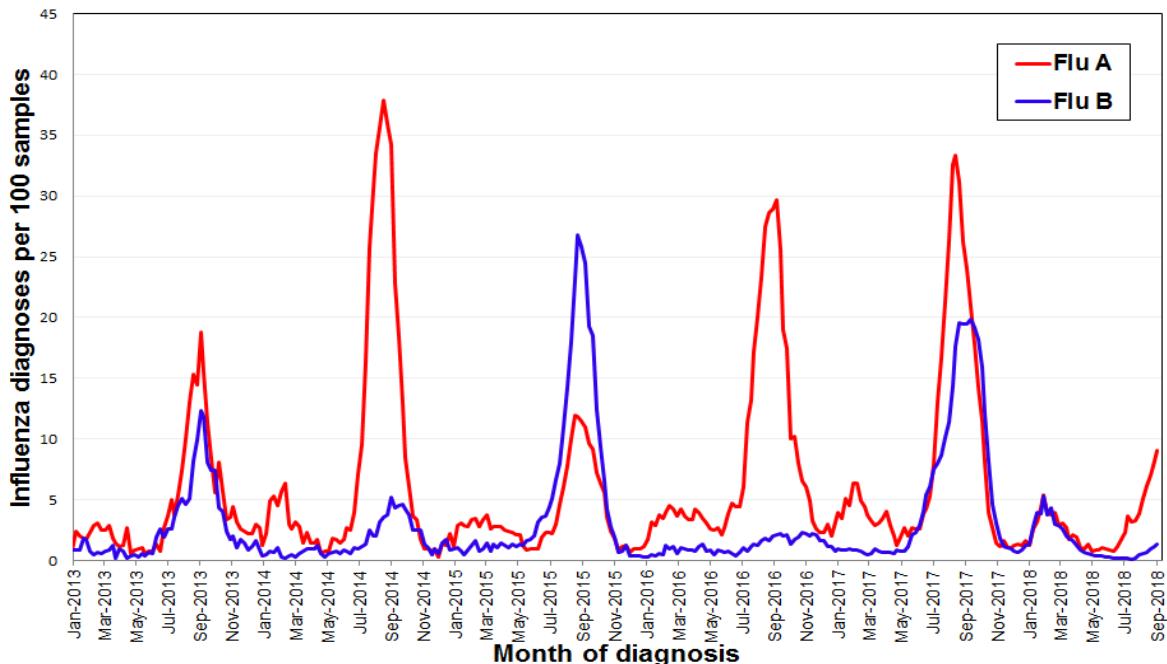


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2013 to 2 September 2018, New South Wales.



Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 2 September there were 946 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 796 (revised) notifications reported in the previous week but much lower than the 10,143 notifications for the same period in 2017.

Influenza notification rates increased slightly across the majority of NSW LHDs. Notifications in the Hunter New England LHD continued to increase (Table 3), mainly in the New England region. Influenza notification rates were highest in the Hunter New England, Western Sydney, Northern NSW, Northern Sydney and South Eastern Sydney LHD's.

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

Local Health District	Week ending 2 Sept 2018		Week ending 26 Aug 2018	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	10	2.91	11	3.2
Far West	1	3.33	2	6.67
Hunter New England	192	20.59	130	13.94
Illawarra Shoalhaven	27	6.54	17	4.12
Mid North Coast	18	8.14	9	4.07
Murrumbidgee	10	4.12	16	6.6
Nepean Blue Mountains	41	10.81	56	14.76
Northern NSW	45	14.83	30	9.89
Northern Sydney	136	14.54	88	9.41
South Eastern Sydney	136	14.52	118	12.6
South Western Sydney	80	7.99	129	12.88
Southern NSW	6	2.84	3	1.42
Sydney	70	10.35	49	7.24
Western NSW	15	5.32	8	2.83
Western Sydney	159	15.88	130	12.99

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 two influenza outbreaks in institutions reported this week, both due to influenza A.

In the year to date there have been 23 laboratory-confirmed influenza outbreaks in institutions reported to NSW public health units, including 21 in residential care facilities (Table 4, Figure 8). Fifteen of the outbreaks have been due to influenza A and eight were due to influenza B.

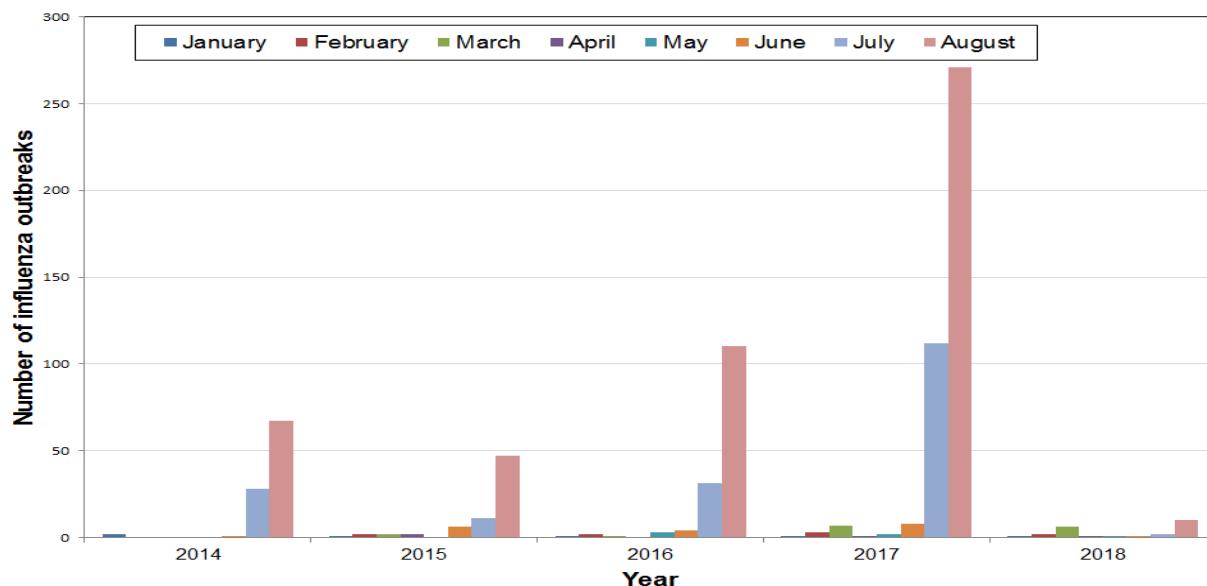
In the 21 influenza outbreaks affecting residential care facilities, at least 171 residents were reported to have had ILI symptoms and 19 required hospitalisation. Overall, there have been four deaths in residents reported which were linked to these outbreaks, all of whom were noted to have other significant co-morbidities.

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

Year	2011	2012	2013	2014	2015	2016	2017	2018*
No. of outbreaks	4	39	12	120	103	279	588	23

Notes: * Year to date.

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



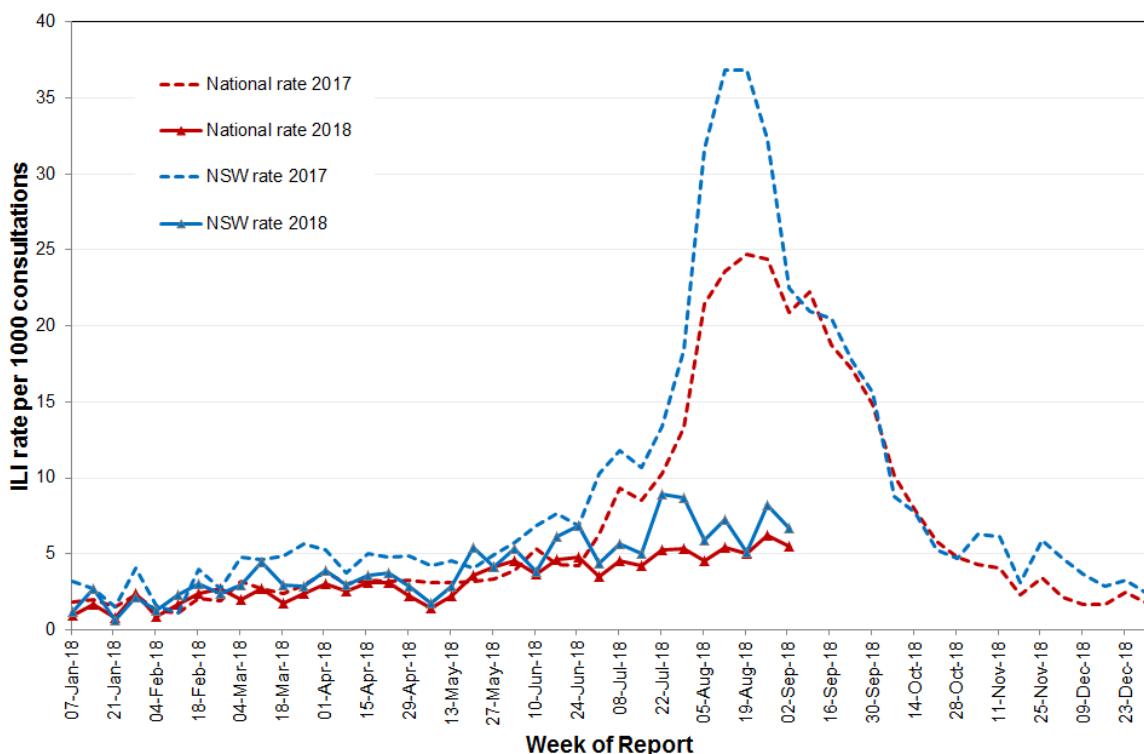
The Australian Sentinel Practices Research Network (ASPREN)

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 each week varies.

In the week ending 2 September there were ASPREN reports received from 78 NSW GPs. The reported consultation rate for ILI per 1000 consultations was 6.66 (Figure 9), lower than the previous week (8.19, revised). For further information see the [ASPREN website](#).

Figure 9: ASPREN – NSW and National GP weekly ILI rates per 1000 consultations – 2018 to the week ending 2 September, compared to 2017 weekly rates.



FluTracking.net

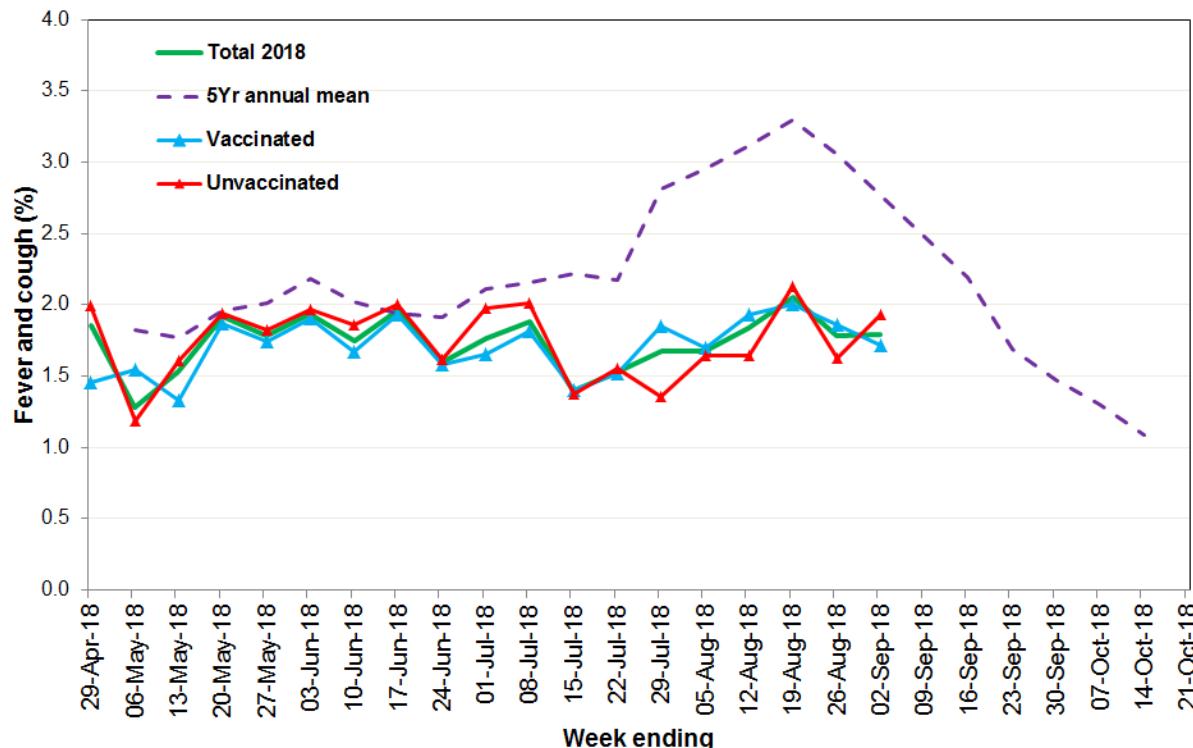
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

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

In the week ending 2 September FluTracking received reports for 11,292 people in NSW with the following results:

- 1.8% of respondents reported fever and cough, similar to the previous week (1.8%, revised) and well below the five year annual mean (2.8%) (Figure 10).
- Among respondents who reported having been vaccinated against influenza in 2018, 1.7% reported fever and cough, lower than the 1.9% rate among unvaccinated respondents (Figure 10).
- 1.1% of all respondents reported fever, cough and absence from normal duties, lower than the previous week (1.2%, revised).

Figure 10: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status and week, 2018 to the week ending 2 September, compared to the 5 year mean.



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

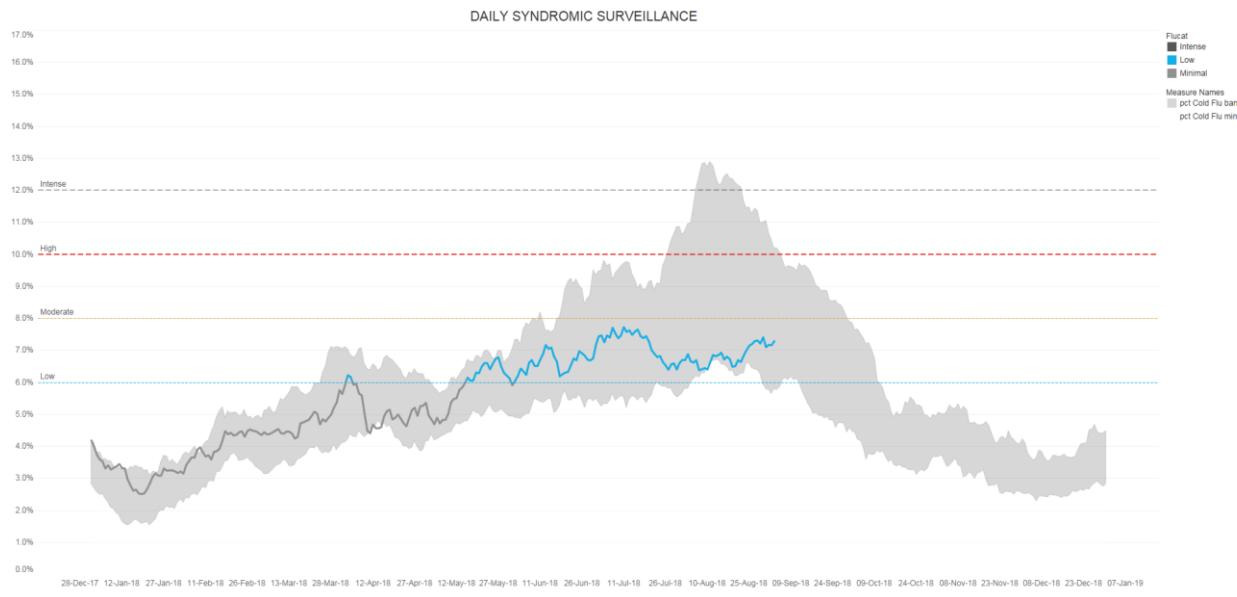
For further information on the project and how to participate please see the [FluTracking](#) website.

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 the week ending 2 September the number of ILI-related calls to Healthdirect Australia for NSW increased slightly but remained in the low-moderate range of activity (Figure 11).

Figure 11: Healthdirect Australia – weekly ILI-related calls as a proportion of all calls for NSW, 2018 to the week ending 2 September compared to the weekly range between 2012 and 2017.



For further information see the [Healthdirect Australia](#) flu trends website.

National and International Influenza Surveillance

National Influenza Surveillance

The fortnightly *Australian Surveillance Report No.7*, with data up to 26 August 2018, noted the following:

- **Activity** – Person to person transmission of influenza and influenza-like illness (ILI) in the community is low and remains within or below the bounds of previous years. Rhinovirus was the most common respiratory virus detected in patients presenting with ILI to sentinel general practices this fortnight.
- **Severity** – Clinical severity for the season to date, as measured through the proportion of patients admitted directly to ICU, and deaths attributed to influenza, is low.
- **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 (85%).

Information provided by the WHO Collaborating Centre for Reference and Research on Influenza noted that of the 36 influenza B samples submitted from NSW for typing so far this year, only one was typed as in the B/Victoria lineage, with the remainder in the B/Yamagata lineage.

Approximately two-thirds of the influenza A samples submitted from NSW have been the A(H1N1) strain.

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

Global Influenza Update

The latest [WHO global update on 3 September 2018](#) provides data up to 19 August. In the temperate zones of the southern hemisphere, influenza activity remained elevated in South America and continued to decrease in Southern Africa. Influenza activity remained below seasonal threshold in Australia and New Zealand and at inter-seasonal levels in most of temperate zone of the northern hemisphere. Worldwide, seasonal influenza subtype 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 20 July 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, one new human infection with an influenza A(H3N2) variant virus was reported from the United States. Sequence analysis confirmed that the virus was closely related to influenza viruses detected in swine in 2017 and 2018 and that are known to circulate in North America. Since 2011, 427 human infections with influenza A(H3N2)v viruses have been reported to the U.S. CDC, most of which have been related to swine exposure at agricultural fairs.

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/INF/16-0019/2016 (H3N2)-like virus⁷
- 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).⁸

WHO has 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 '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'.

⁶ 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

⁷ This replaces A/Hong Kong/4801/2014 (H3N2)-like virus used in the 2017 seasonal influenza vaccines.

⁸ 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.