

Influenza Surveillance Weekly Report

Week 37: 10 to 16 September 2018

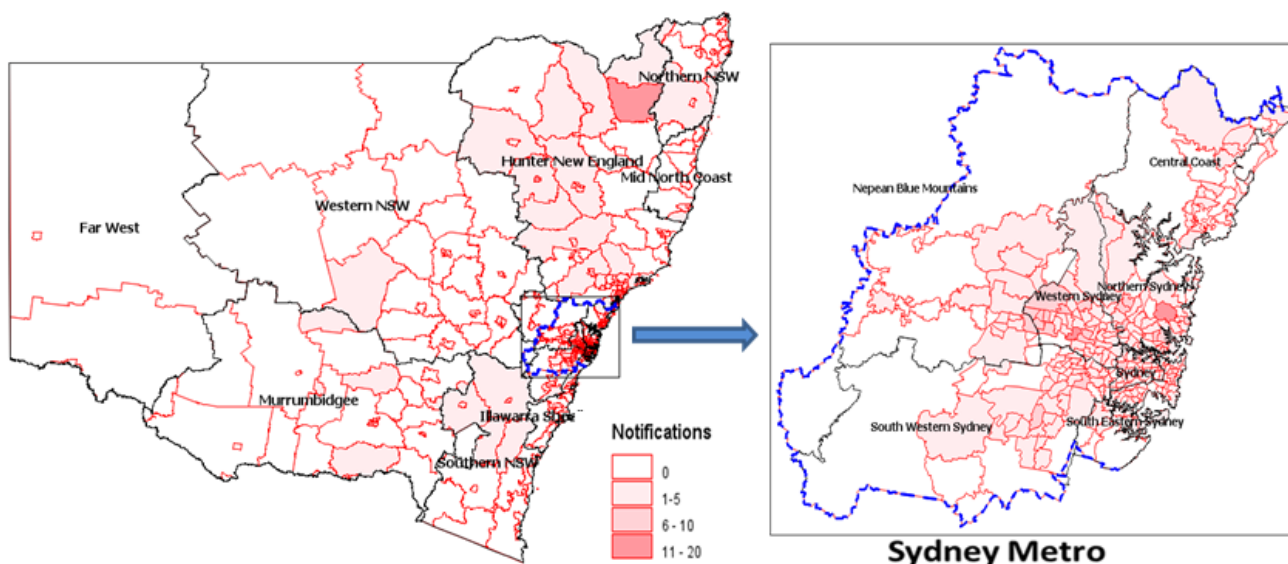
Key Points

- ▶ Influenza seasonal activity has peaked and is now trending down in many areas
- ▶ Overall, the influenza A(H1N1) strain continues to be the most common strain identified
- ▶ Respiratory presentations to NSW emergency departments are in the mid-range for this time of year but are showing signs of decreasing

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	27	▶	390	▶	14%
Far West	0	▶	72	▶	16%
Hunter New England	172	▶	928	▼	14%
Illawarra Shoalhaven	55	▲	381	▶	14%
Mid North Coast	12	▶	316	▶	16%
Murrumbidgee	18	▶	298	▶	15%
Nepean Blue Mountains	48	▶	287	▶	14%
Northern NSW	25	▼	334	▶	15%
Northern Sydney	132	▲	602	▲	14%
South Eastern Sydney	77	▼	806	▲	13%
South Western Sydney	93	▶	909	▲	16%
Southern NSW	12	▶	101	▶	14%
Sydney	63	▼	440	▲	14%
Western NSW	8	▶	219	▶	16%
Western Sydney	165	▼	841	▼	14%
New South Wales	907	▼	6924	▼	14%

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



Summary for this reporting week:

- ▶ [Hospital surveillance](#) – pneumonia presentations to ED and pneumonia admissions both increased but ILI presentations to ED decreased
- ▶ [Laboratory surveillance](#) – the influenza laboratory test positive rate was lower at 11.0%; influenza A(H1N1) remains the most common strain
- ▶ [Community surveillance](#) – influenza activity decreased in some Sydney metropolitan LHDs, Northern NSW LHD, and for NSW overall
- ▶ [National surveillance](#) – influenza activity remained low nationally

Hospital Surveillance

NSW emergency department (ED) presentations for respiratory illness

Source: PHREDSS⁴

For the week ending 16 September 2018:

- Presentations for *All respiratory illness, fever and unspecified infections* were decreased and were within the usual range for this time of year (Figure 1, Table 1). However, presentations remained significantly elevated in children under five years of age. The proportion of these presentations to all unplanned ED presentations was slightly decreased at 14.5 per 100 presentations and was just within the seasonal range (Figure 2).
- ILI presentations resulting in admissions decreased and were within the usual range for this time of year (Table 1).
- ED presentations and admissions for *pneumonia*⁵ both increased, but remained within their usual ranges for this time of year (Table 1).
- *Pneumonia and ILI* presentations requiring admission to critical care (Figure 3) also increased but were within the usual range for this time of year (Table 1).
- ED presentations for *asthma* decreased while presentations for *bronchiolitis* increased. *Bronchiolitis* presentations were above the usual range for this time of year but *asthma* presentations were within the usual range (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 – 16 September, 2018 (black line), compared with the 5 previous years (coloured lines).

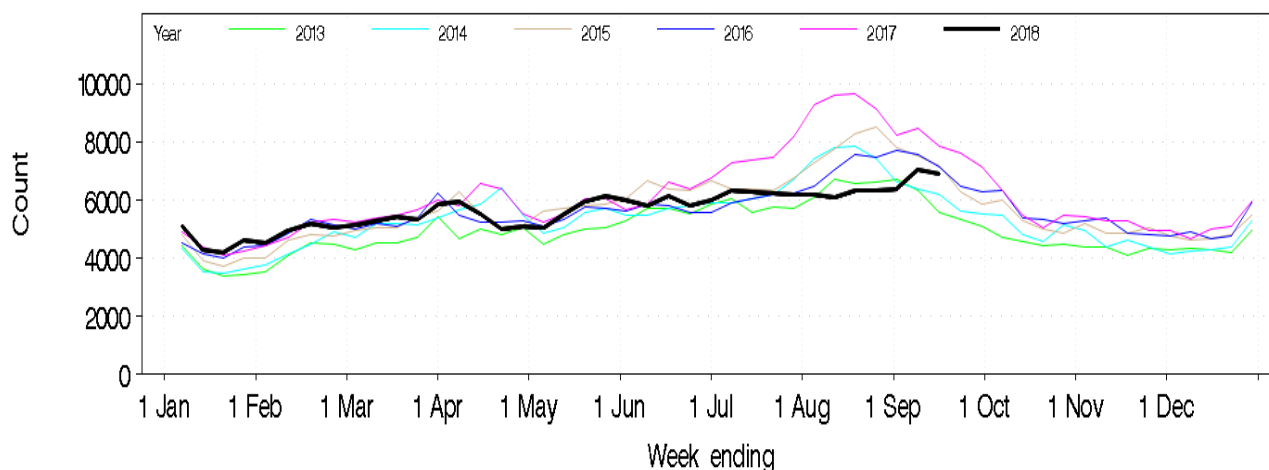


Figure 2: Total weekly counts of ED visits for *All respiratory illness, fever and unspecified infections*, all ages, as a rate per 100 ED visits, from 1 January – 16 September, 2018 (black line), compared with the range of season rate curves for the 5 previous years (white zone) aligned to the PHREDSS season start in 2018 (week 29).

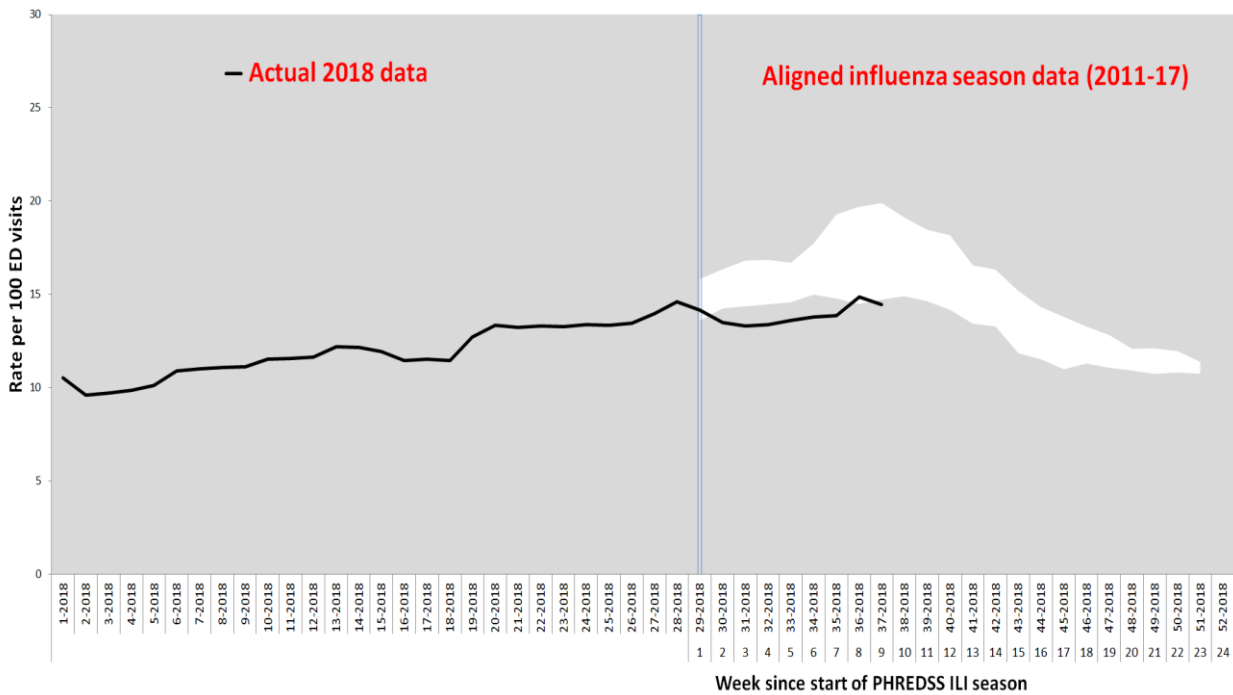


Figure 3: Total weekly counts of ED visits for *influenza-like-illness and pneumonia* that were admitted to a critical care unit, all ages, from 1 January – 16 September, 2018 (black line), compared with the 5 previous years (coloured lines).

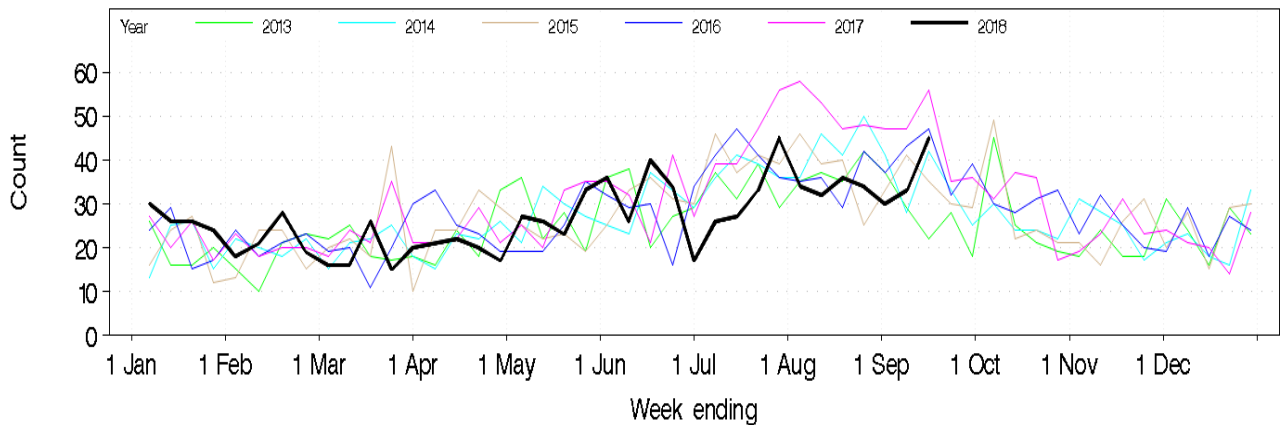


Figure 4: Total weekly counts of ED visits for *bronchiolitis*, all ages, from 1 January – 16 September, 2018 (black line), compared with the 5 previous years (coloured lines).

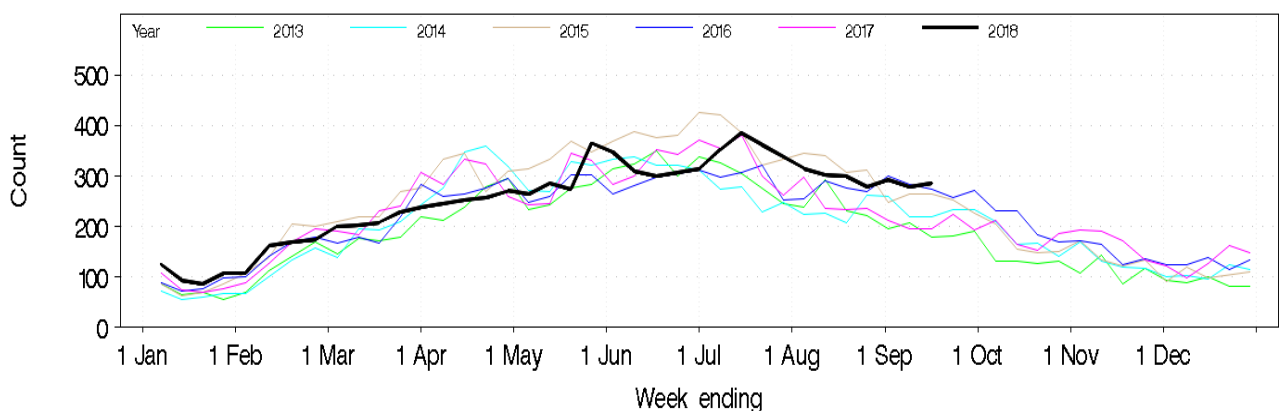


Table 1: Weekly emergency department respiratory illness summary, week ending 16 September 2018.

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 (106)	Within (91-516)			The NSW daily index of increase for ILI presentations was 26.9 on 16 September.
	ILI admissions	Decreased (22)	Within (11-135)			
	Pneumonia	Increased (581)	Within (501-654)			
	Pneumonia admissions	Increased (421)	Within (375-481)			
	Pneumonia and ILI critical care admissions	Increased (45)	Within (22-56)			
	Asthma	Decreased (416)	Within (390--523)			
	Bronchiolitis	Increased (285)	Above (178-273)			Bronchiolitis is a disease of infants.
	All respiratory illness, fever and unspecified infections	Decreased (6,912)	Within (5,573-7,864)	Under 5 years (2,576)		
Ambulance	Breathing problems	Increased (2,221)	Within (1,759-2,695)	Under 5 years (206)		

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.

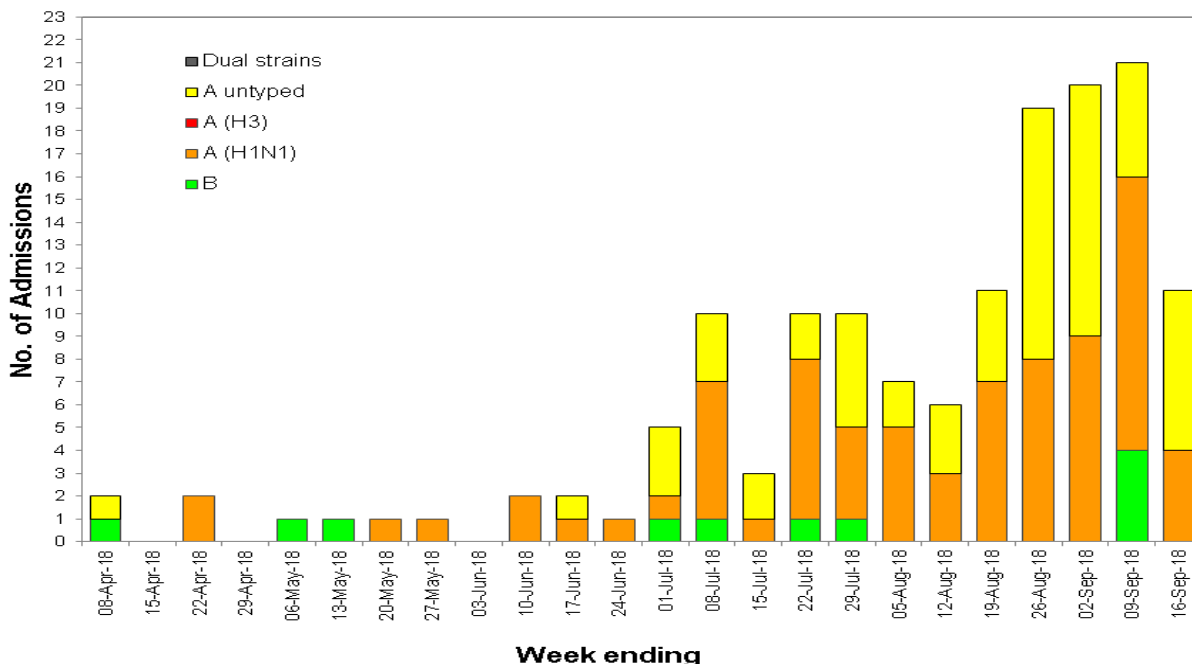
In NSW, three hospitals participate in providing weekly FluCAN data: Westmead Hospital, John Hunter Hospital and the Children's Hospital at Westmead.

In the week ending 16 September there were 11 new influenza admissions to NSW sentinel hospitals (Figure 5).

Since 1 April 2018, there have been 146 hospital admissions reported for influenza; 135 due to influenza A (including 75 A(H1N1)) and 11 due to influenza B (Figure 5). Of these admissions, 85 were paediatric cases (<16 years of age) and 61 were in adults. Ten cases (90% 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 16 September 2018.



Laboratory Surveillance

In the week ending 16 September the number and proportion of respiratory specimens reported by NSW sentinel laboratories⁶ which tested positive for influenza decreased and remains low for this time of year (Table 2, Figure 6). Influenza A and B activity has started to trend downwards.

Overall, 11.0% of tests for respiratory viruses were positive for influenza (Figure 6), lower than the previous week (12.1%). Influenza A strains accounted for 92% 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 16 September 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
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																	
09/09/2018	10252	1108	(10.8%)	10	(0.9%)	75	(6.8%)	1023	(92.3%)	137	(1.3%)	355	293	402	1270	447	89
16/09/2018	10226	1035	(10.1%)	15	(1.4%)	63	(6.1%)	957	(92.5%)	91	(0.9%)	412	352	432	1315	531	124

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 16 September 2018.

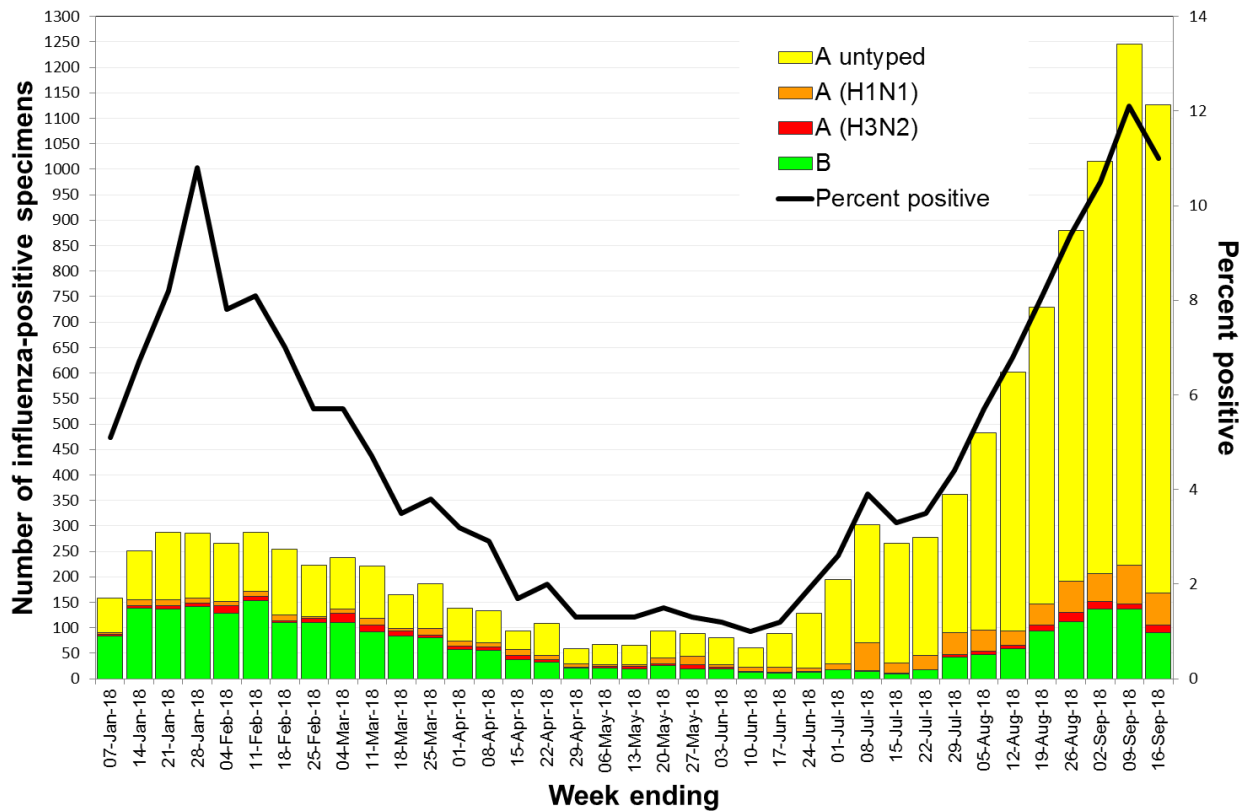
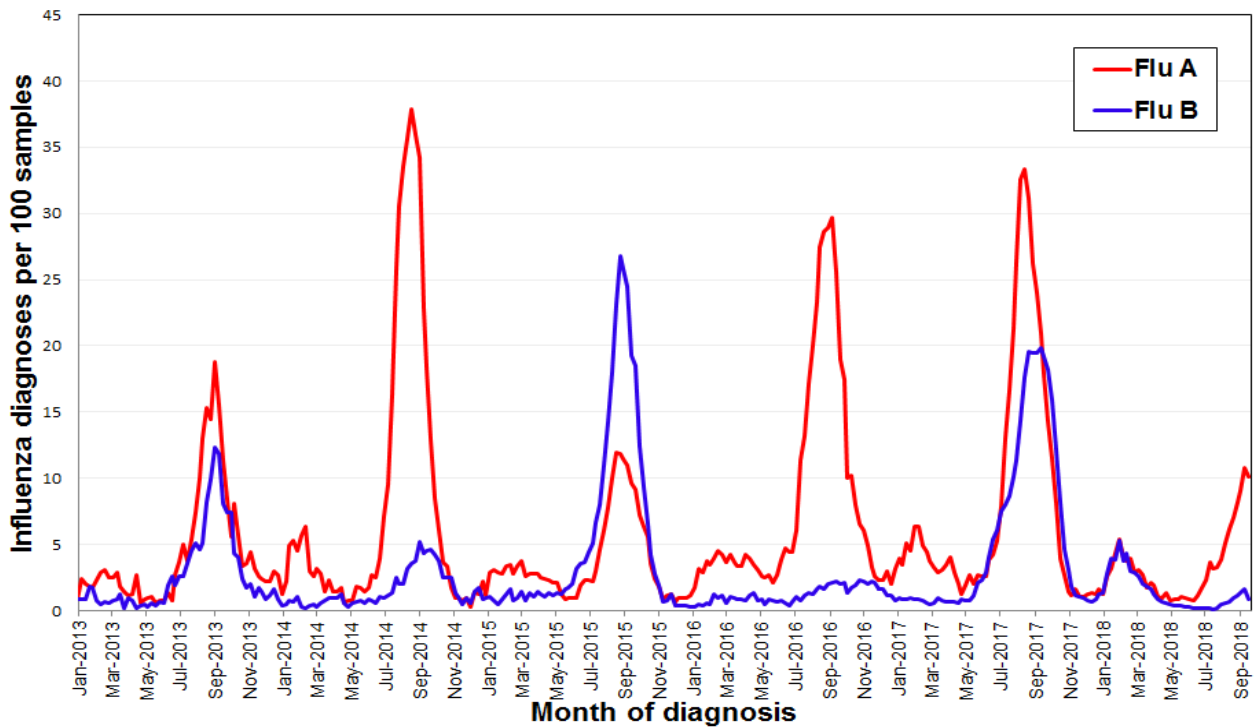


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2013 to 16 September 2018, New South Wales.



Influenza notifications by Local Health District (LHD)

In the week ending 16 September there were 907 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, lower than the 1031 (revised) notifications reported in the previous week and much lower than the 5,960 notifications for the same period in 2017.

Influenza notification rates varied across NSW LHDs this week. Notifications increased across the majority of rural region, Nepean and Northern Sydney LHDs. Influenza notification rates were highest in the Hunter New England, Western Sydney, Northern Sydney, Illawarra Shoalhaven and Nepean Blue Mountains LHD's.

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

Local Health District	Week ending 16 Sept 2018		Week ending 9 Sept 2018	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	27	7.85	20	5.81
Far West	0	0	0	0
Hunter New England	172	18.45	152	16.3
Illawarra Shoalhaven	55	13.33	30	7.27
Mid North Coast	12	5.43	9	4.07
Murrumbidgee	18	7.42	6	2.47
Nepean Blue Mountains	48	12.65	41	10.81
Northern NSW	25	8.24	57	18.78
Northern Sydney	132	14.12	101	10.8
South Eastern Sydney	77	8.22	124	13.24
South Western Sydney	93	9.29	137	13.68
Southern NSW	12	5.68	12	5.68
Sydney	63	9.31	106	15.67
Western NSW	8	2.83	12	4.25
Western Sydney	165	16.48	224	22.38

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, one was due to influenza A and one influenza B.

In the year to date there have been 27 laboratory-confirmed influenza outbreaks in institutions reported to NSW public health units, including 25 in residential care facilities (Table 4, Figure 8). Eighteen of the outbreaks have been due to influenza A and nine were due to influenza B.

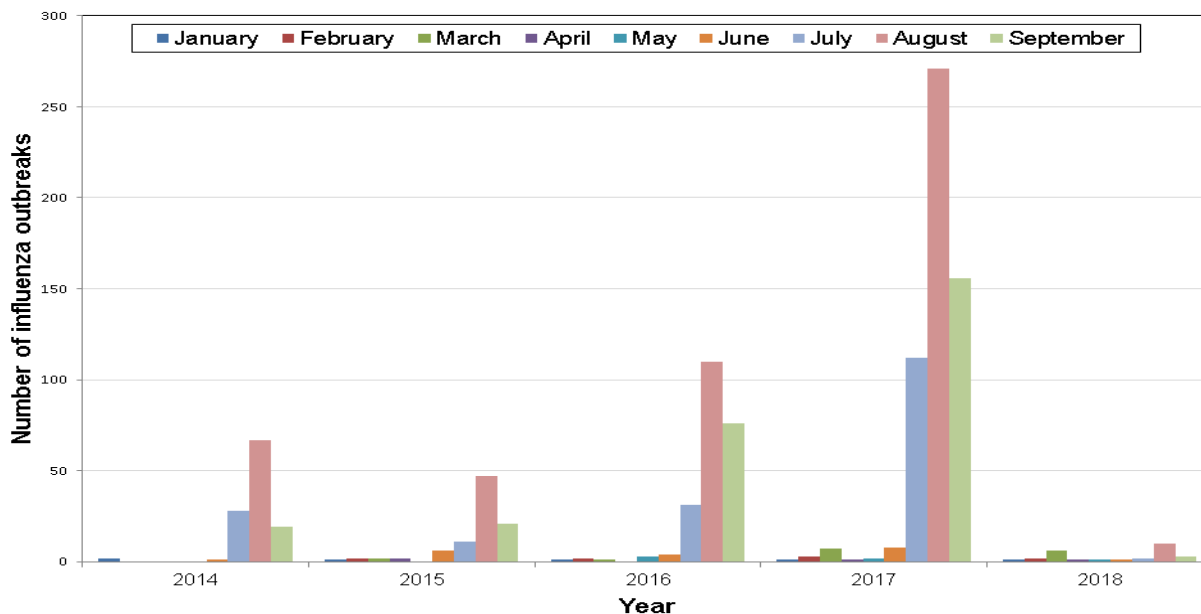
In the 25 influenza outbreaks affecting residential care facilities, at least 190 residents were reported to have had ILI symptoms and 25 required hospitalisation. Overall, there have been six deaths in residents reported which were linked to these outbreaks, all of whom were noted to have other significant 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	27

Notes: * Year to date.

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



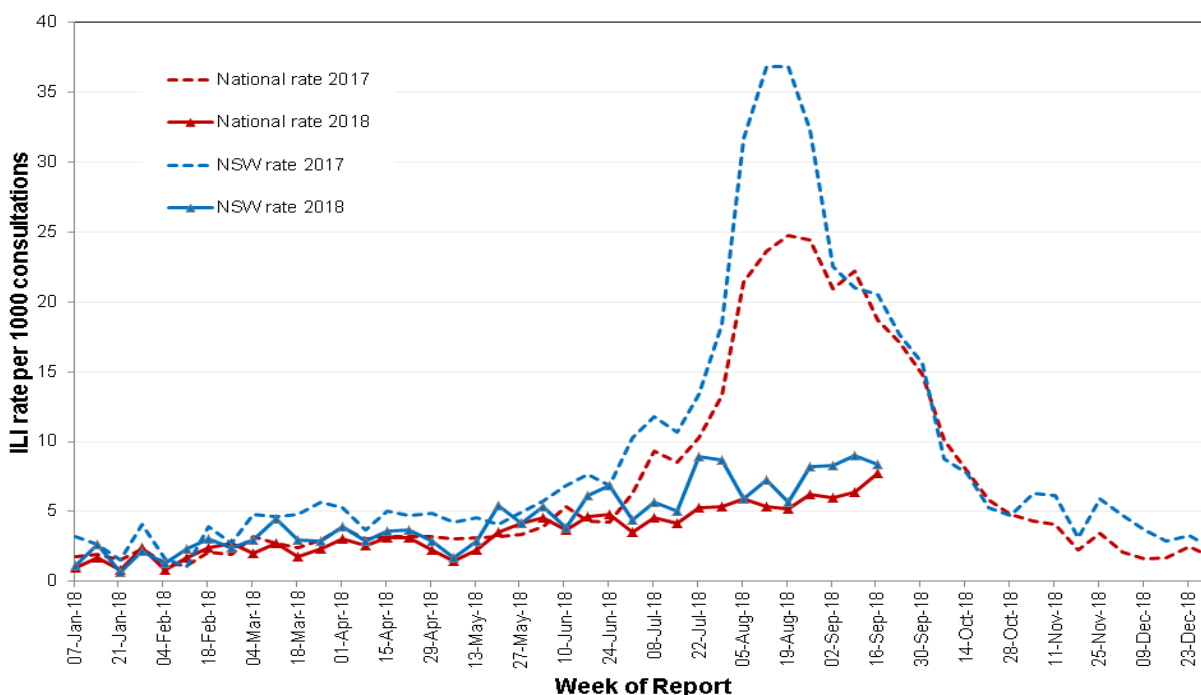
The Australian Sentinel Practices Research Network (ASPREN)

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 16 September there were ASPREN reports received from 78 NSW GPs. The reported consultation rate for ILI per 1000 consultations was 8.37 (Figure 9), slightly down from the previous week (9.0, 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 16 September, compared to 2017 weekly rates.



FluTracking.net

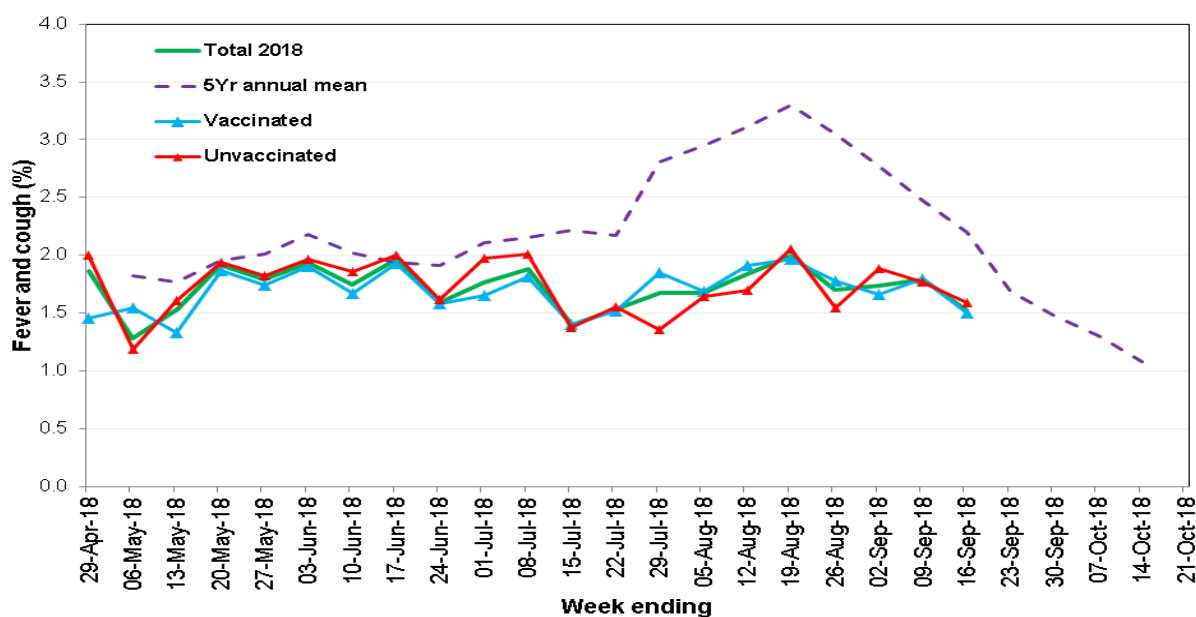
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

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 16 September FluTracking received reports for 11,070 people in NSW with the following results:

- 1.5% of respondents reported fever and cough, less than the previous week (1.8%) and well below the five year annual mean (2.2%) (Figure 10).
- Among respondents who reported having been vaccinated against influenza in 2018, 1.5% reported fever and cough, similar to the 1.6% rate among unvaccinated respondents (Figure 10).
- 0.8% of all respondents reported fever, cough and absence from normal duties, lower than the previous week (1.1%, revised).

Figure 10: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status and week, 2018 to the week ending 16 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.

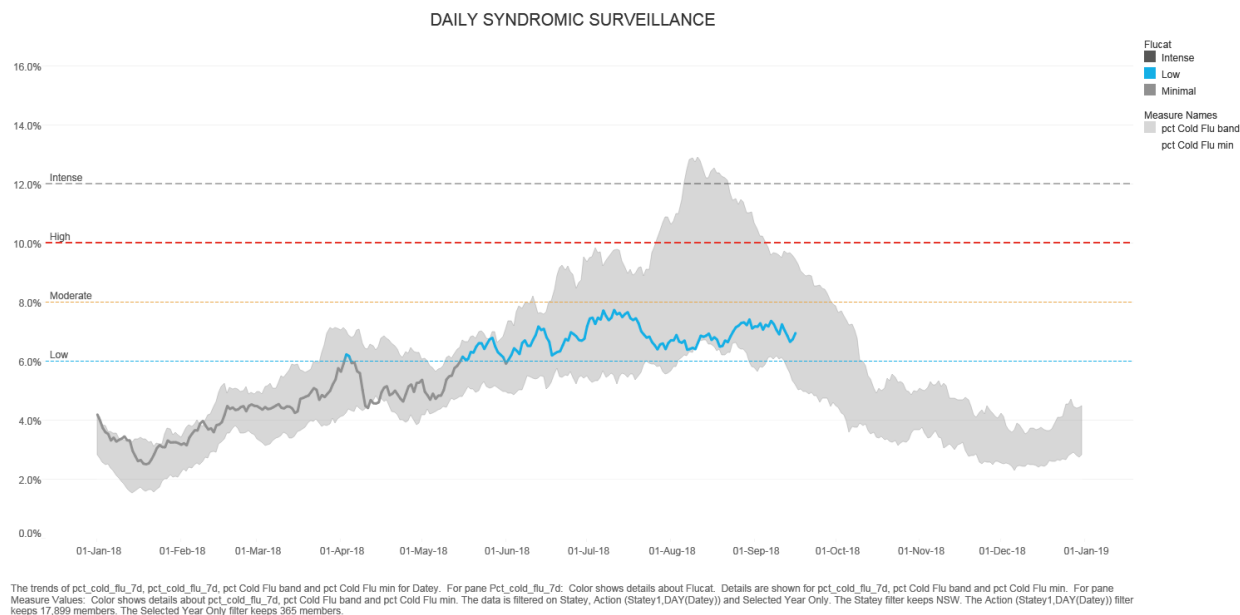
For further information on the project and how to participate please see the [FluTracking](#) website.

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 16 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 16 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.8*, with data up to 9 September 2018, noted the following:

- **Activity** –At a national level, person to person transmission of influenza and influenza-like illness (ILI) in the community has been increasing slowly since July but remains at low levels.
- **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 (86%) and where subtyping data were available, influenza A(H1N1) pdm09 was the dominant subtype.

Information provided by the WHO Collaborating Centre for Reference and Research on Influenza noted that of the 45 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 17 September 2018](#) provides data up to 2 September. In the temperate zones of the southern hemisphere, influenza activity remained elevated in South America and appeared to decrease in Southern Africa. Influenza activity remained at low seasonal levels in Australia and New Zealand and at inter-seasonal levels in most of temperate zone of the northern hemisphere. Decreased influenza activity was reported in most countries of tropical America. 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/INF1HM-16-0019/2016 (H3N2)-like virus ⁷
- 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.