

NSW Health Influenza Surveillance Report

Week 26: 27 June to 3 July 2016

Summary:

- **The influenza season has started and activity continues to increase steadily, particularly in metropolitan Sydney.**
- **Influenza A(H3N2) and influenza A(H1N1) strains are circulating at similar levels.**

In this reporting week:

- [Hospital Surveillance](#) – the rate of influenza like illness (ILI) presentations to selected emergency departments increased further above the seasonal threshold.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was 7.2%, continuing its steady increase.
- [Community surveillance](#) – influenza notifications were increased, particularly in metropolitan Sydney local health districts (LHD). General Practice surveillance systems showed moderate levels of ILI activity, similar to the previous week. One new influenza outbreak was reported in a rehabilitation hospital.
- [National and international influenza surveillance](#) – influenza activity remains at low levels across Australia, with current influenza strains well matched to the 2016 influenza vaccines. Influenza activity is increasing in other regions in the Southern Hemisphere.
- [Recommended composition of influenza vaccines](#) – the World Health Organization (WHO) recommendations for influenza vaccines for the 2016-17 northern hemisphere winter influenza season are the same as for the 2016 southern hemisphere winter influenza vaccines.

About this report:

Health Protection NSW collects and analyses surveillance data on influenza and other respiratory viruses. Surveillance reports are produced weekly commencing in May, and continuing until the end of the influenza season. Monthly reports are produced throughout the rest of the year.

The influenza surveillance reports include data from a range of surveillance systems and sources concerned with Emergency Department illness surveillance, laboratory (virological) surveillance, and community illness surveillance. Pneumonia and influenza mortality data are also monitored and reported upon periodically.

For further information on influenza see the [NSW Health Influenza website](#).

1. Hospital Surveillance

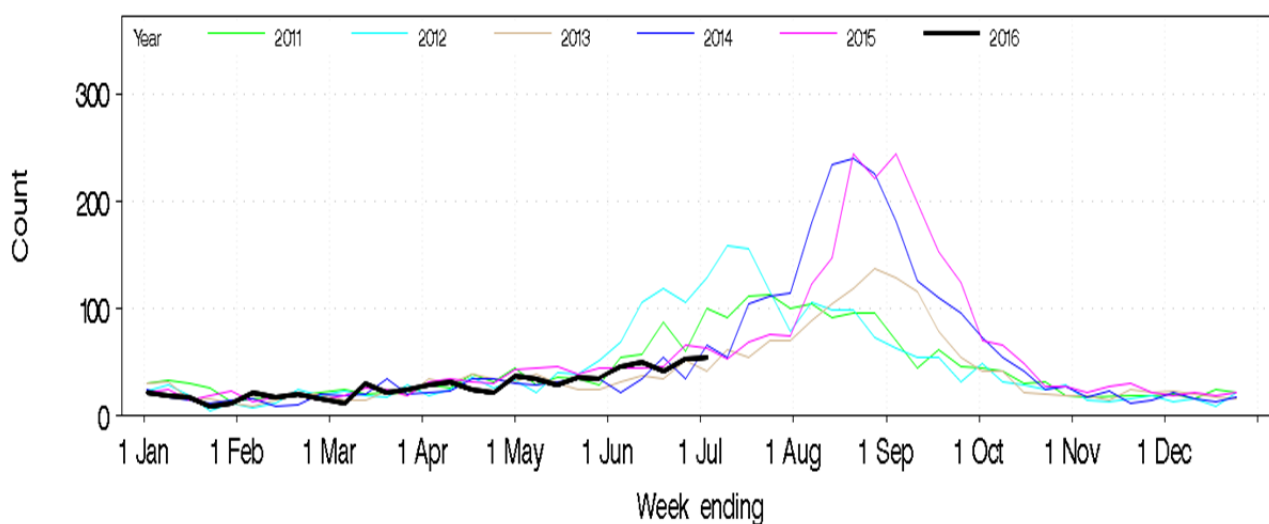
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

For the week ending 3 July 2016:

- ILI presentations [2] increased this week and are expected to continue to increase further over the coming weeks (Figure 1 and Table 1). There were no major variations in presentations by Local Health District.
- The index of increase for ILI presentations was 16.6 on 3 July, an increase on the previous week (15.1). The index of increase for ILI presentations crossed the threshold of 15 in the week ending 26 June, consistent with the start of the influenza season.
- The proportion of ILI presentations to all ED presentations remained relatively low at 1.4 per 1000 presentations, slightly higher than the previous week (1.3).
- ED presentations for pneumonia [3] increased but were within the usual range for this time of year (Figure 2).
- Pneumonia or ILI presentations which resulted in admission decreased and were below the usual range for this time of year. Admissions to critical care increased but were within the usual range for this time of year (Figure 3 and Table 1).
- Bronchiolitis presentations increased this week but were below the usual range for this time of year (Figure 4).
- The category combining all respiratory, fever and unspecified infection presentations decreased and were below the usual range for this time of year (Table 1).

Figure 1: Total weekly counts of ED visits for influenza-like illness, all ages, from January – 3 July 2016 (black line), compared with each of the 5 previous years (coloured lines).



[1] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system. Centre for Epidemiology and Evidence, NSW Ministry of Health. Comparisons are made with data for the preceding five years. Recent counts are subject to change. Data from 60 NSW emergency departments are included representing approximately 82% of ED visits in the 2014-15 financial year. The coverage of rural EDs is lower than metropolitan EDs.

[2] 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.

[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'.

Figure 2: Total weekly counts of ED presentations for pneumonia, all ages, from January – 3 July 2016 (black line), compared with each of the 5 previous years (coloured lines).

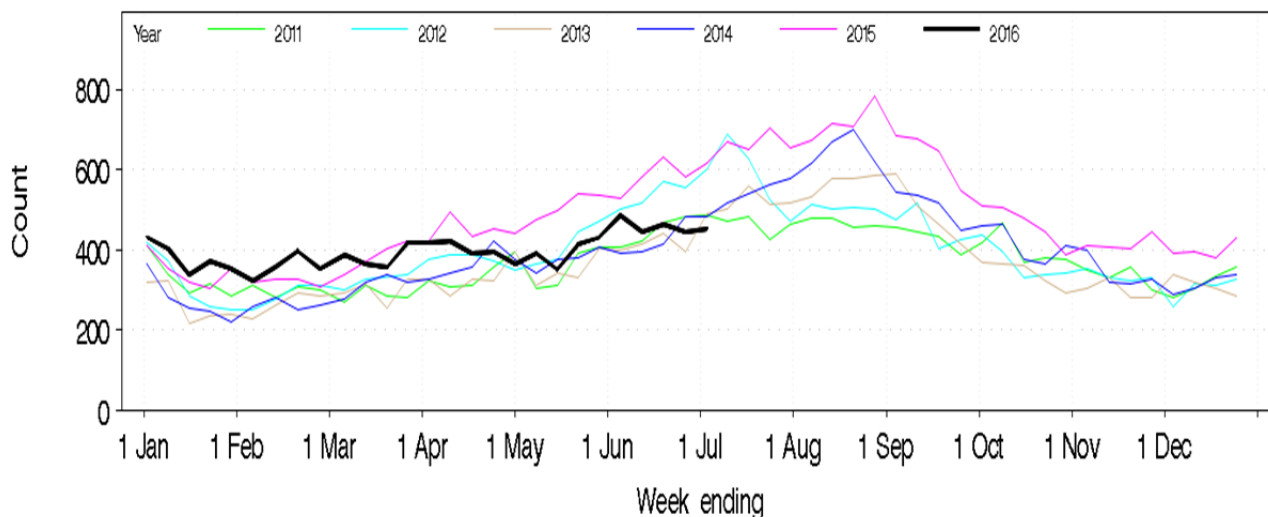


Figure 3: Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, all ages, from January – 3 July 2016 (black line), compared with each of the 5 previous years (coloured lines).

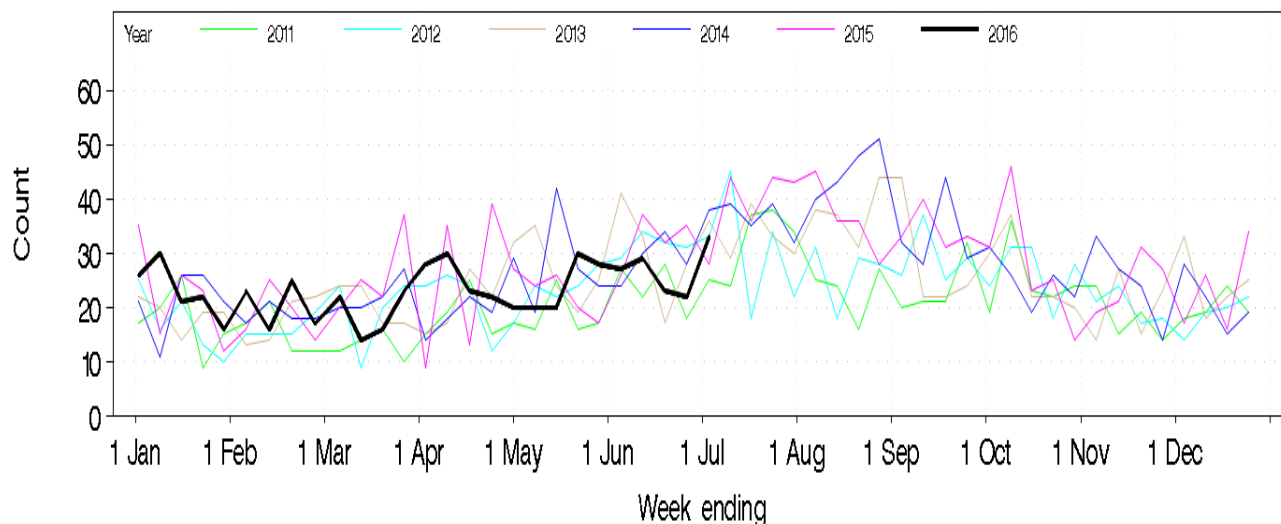


Figure 4: Total weekly counts of ED presentations for bronchiolitis, from January – 3 July 2016 (black line), compared with the 5 previous years (coloured lines).

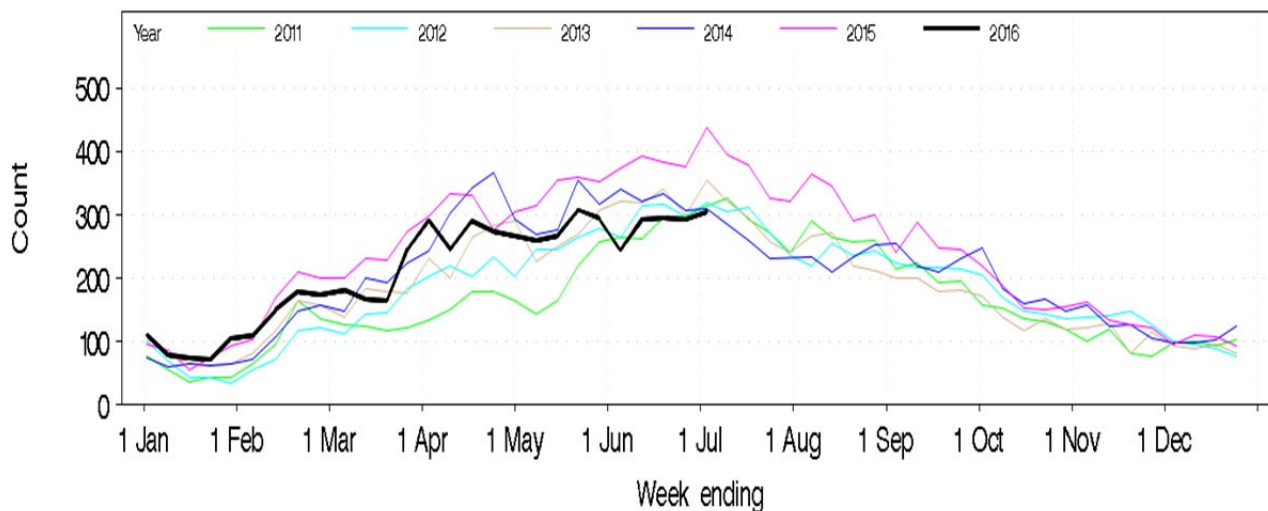


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 3 July 2016. Includes data from 60 NSW EDs and the NSW Ambulance Division. *

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range for time of year*	Statistically significant age groups (if any)	Statistically significant local increase (if any)	Statistically significant severity indicators (if any)	Comment
ED presentations, 60 NSW hospitals	Influenza-like illness (ILI)	Increased	Usual				Daily index of increase = 16.6 (season commenced on 26 June 2016)
	Pneumonia	Increased	Below usual				
	Pneumonia and ILI admissions	Decreased	Below usual				
	Pneumonia and ILI critical care admissions	Increased	Usual				
	Asthma	Increased	Below usual				
	Bronchiolitis	Increased	Below usual				Bronchiolitis is a disease of infants. Daily index of increase = 31.1
	Breathing problems	Increased	Usual		The Children's Hospital at Westmead		
	All respiratory illness, fever and unspecified infections	Increased	Below usual				

*** Notes on Table 1:**

The usual range for the time of year is the range of weekly counts for the same week in the previous five years for ED presentations.

Key: Non-bold and green =usual range; Non-bold and orange= above usual range, but not significantly; Bold and red = statistically greater than usual range.

Counts are statistically significant if they are at least five standard deviations above the five-year mean for ED presentations; the ILI 'daily index of increase' is statistically significant above a threshold of 15; LHD = Local Health District.

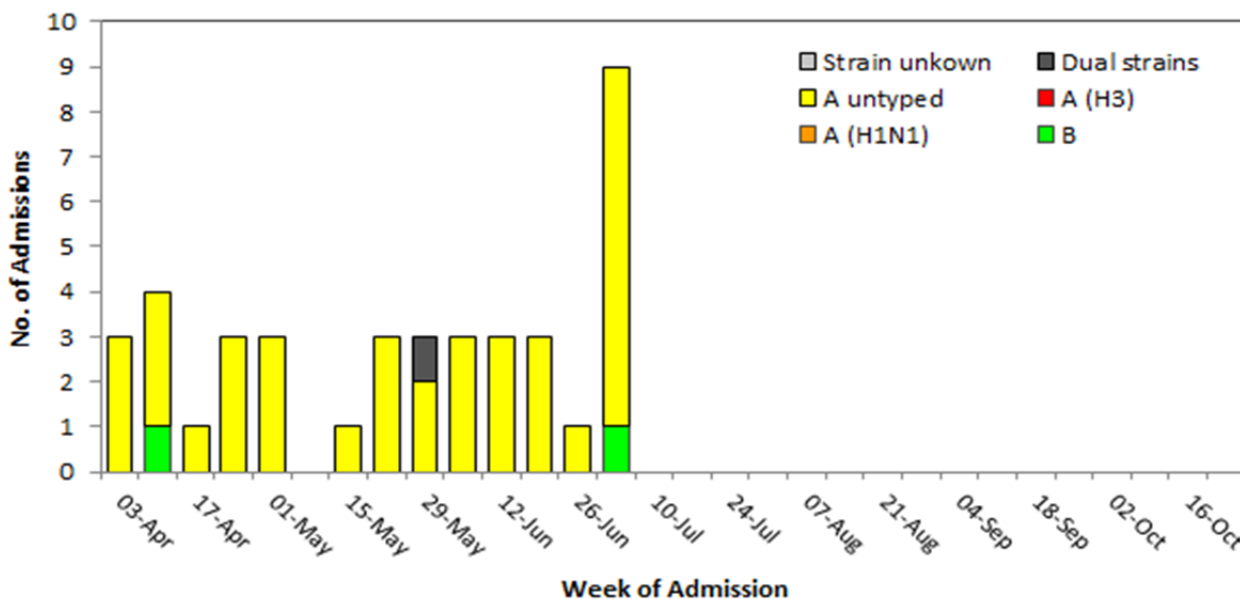
FluCAN (The Influenza Complications Alert Network)

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 26 there were 9 influenza admissions in NSW sentinel hospitals (Figure 5).
- Since 1 April 2015, there have been 40 hospital admissions reported for influenza; 38 with influenza A, one with influenza B, and one with influenza A and B (Figure 5).
- Of these admissions, 18 were paediatric (<16 years of age) cases and 22 were in adults. One child was admitted to ICU/HDU.

Figure 5: FluCAN – weekly number of confirmed influenza hospital admissions in NSW, 3 April – 3 July 2016.



2. Laboratory Surveillance

For the week ending 3 July 2016 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [4] which tested positive for influenza A or influenza B increased and is expected to increase further over the next few weeks.

A total of 4,947 tests for respiratory viruses were reported this week with 7.2% testing positive for influenza viruses, up from 5.1% in the previous week. Both influenza A(H1N1) and influenza A(H3) strains are circulating at similar levels. Influenza B activity remains at low levels (Figure 6 and 7).

Rhinoviruses and respiratory syncytial virus (RSV) were the leading respiratory viruses reported, with other viruses circulating at usual levels for this time of year (Table 2).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 3 July, 2016.

Month ending	Total Tests	TEST RESULTS															
		Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Enterov		
		Total		H3N2		H1N1 pdm09		A (Not typed)								Total	
		Total	(%)	Total	(%A)	Total	(%A)	Total	(%A)							Total	(%)
31/01/2016	8079	270	(3.3%)	45	(16.7%)	114	(42.2%)	111	(41.1%)	38	(0.5%)	202	179	202	941	73	96
28/02/2016	9810	397	(4.0%)	54	(13.6%)	199	(50.1%)	144	(36.3%)	96	(1.0%)	208	244	323	1484	80	150
03/04/2016*	14699	555	(3.8%)	32	(5.8%)	271	(48.8%)	248	(44.7%)	138	(0.9%)	282	412	937	1862	68	188
01/05/2016	13614	457	(3.4%)	16	(3.5%)	268	(58.6%)	173	(37.9%)	152	(1.1%)	271	371	1189	1470	71	128
29/05/2016	15760	398	(2.5%)	57	(14.3%)	157	(39.4%)	184	(46.2%)	115	(0.7%)	350	358	1488	2211	111	138
03/07/2016*	22487	1065	(4.7%)	227	(21.3%)	269	(25.3%)	569	(53.4%)	167	(0.7%)	707	636	2626	2866	300	420
Week ending																	
05/06/2016	4372	164	(3.8%)	35	(21.3%)	42	(25.6%)	87	(53.0%)	32	(0.7%)	140	117	444	648	43	93
12/06/2016	4441	209	(4.7%)	55	(26.3%)	48	(23.0%)	106	(50.7%)	28	(0.6%)	154	113	510	599	39	85
19/06/2016	4062	186	(4.6%)	33	(17.7%)	61	(32.8%)	92	(49.5%)	19	(0.5%)	116	131	515	536	63	74
26/06/2016	4665	206	(4.4%)	43	(20.9%)	49	(23.8%)	114	(55.3%)	33	(0.7%)	130	129	544	546	73	72
03/07/2016	4947	299	(6.0%)	61	(20.4%)	68	(22.7%)	170	(56.9%)	55	(1.1%)	167	146	613	537	82	96

[4]: 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: South Eastern Area Laboratory Services, The Children’s Hospital at Westmead, Sydney South West Pathology Service, Pacific Laboratory Medicine Service, Royal Prince Alfred Hospital, Hunter Area Pathology Service, Pathology West (Westmead & Nepean), Douglas Hanley Moir Pathology, VDRLab, Laverty Pathology, SydPath (St Vincent’s), Medlab, and Laverty. HAPS data not included for week 41 2015.

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 3 July 2016.

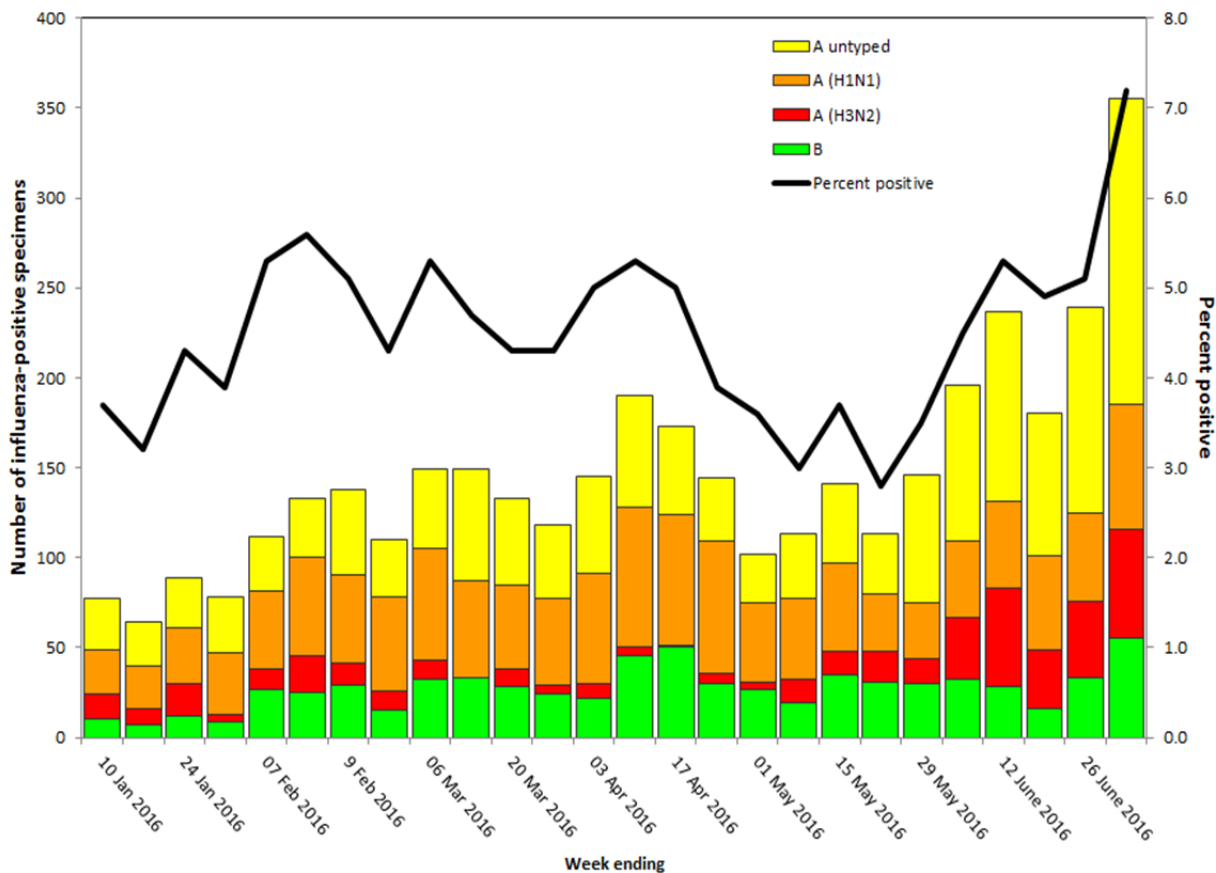
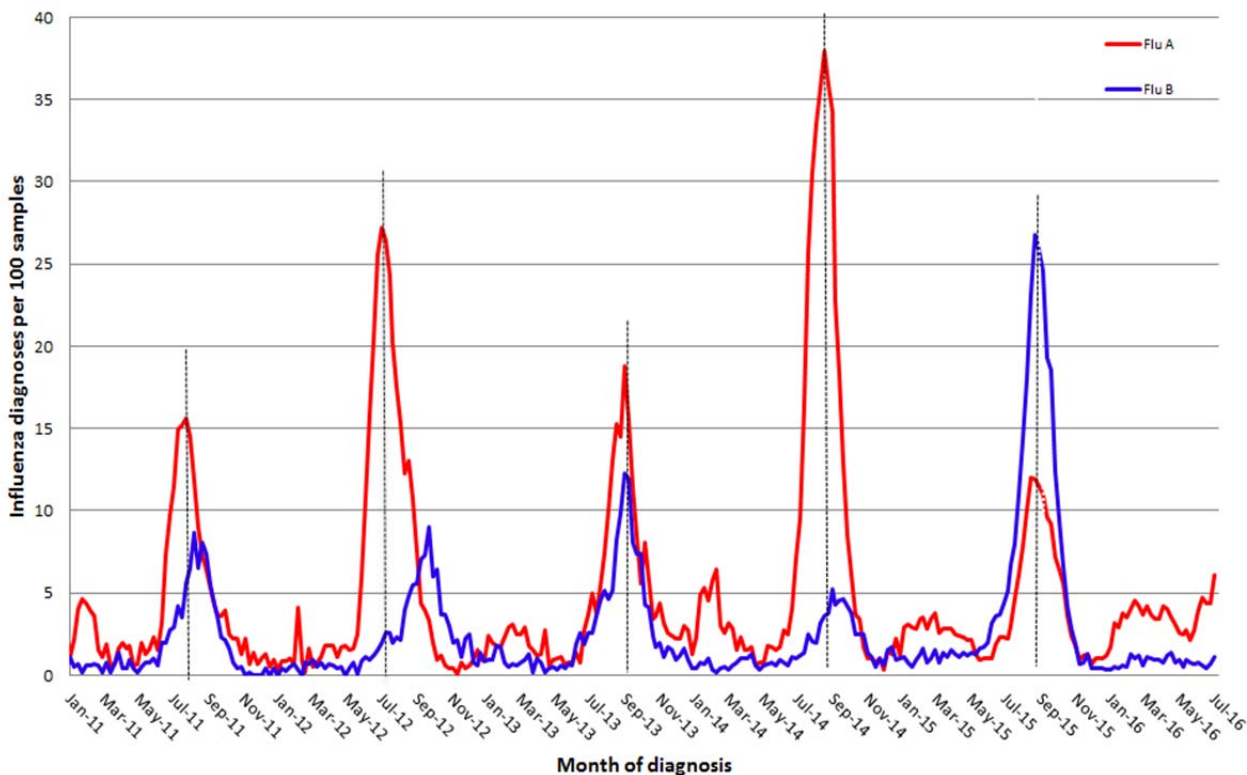


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2010 – 3 July 2016, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 3 July there were 289 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 233 notifications in the previous week.

Rates were again highest in Western Sydney and South Eastern Sydney Local Health Districts (Table 3). Compared to the previous week, notifications were up across the majority of LHDs.

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

Local Health District	Week ending 03 Jul 2016		Weekly average (previous 4 weeks)	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	0	0	4	1.11
Far West	4	13.12	0	0
Hunter New England	16	1.75	7	0.79
Illawarra Shoalhaven	11	2.73	3	0.74
Mid North Coast	4	1.84	5	2.18
Murrumbidgee	1	0.42	1	0.42
Nepean Blue Mountains	13	3.47	11	3
Northern NSW	11	3.66	4	1.33
Northern Sydney	45	4.96	43	4.77
South Eastern Sydney	57	6.31	26	2.9
South Western Sydney	42	4.35	28	2.92
Southern NSW	0	0	2	0.72
Sydney	19	3.02	23	3.62
Western NSW	6	2.16	5	1.68
Western Sydney	60	6.34	41	4.3

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

Influenza outbreaks in institutions

There were two new influenza (influenza A) outbreaks reported this week. One was in an aged care facility the other was in a hospital ward (Table 4).

In the year to date there have been ten laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 11 have been due to influenza A and 1 was combined A and B. At least 80 residents were reported to have had ILI symptoms and 13 required hospitalisation. Nine deaths in residents linked to these outbreaks have been reported, all of whom were noted to have other significant co-morbidities.

People in older age-groups are at higher risk of infection from influenza A(H3N2) strains than from the influenza A(H1N1) strain. The influenza A(H3N2) strain predominated in 2012 and 2014. In 2015, influenza B was the predominant strain, and was also associated with an increase in influenza outbreaks in institutions, particularly residential aged care facilities (Table 4).

Table 4: Reported influenza outbreaks in NSW institutions, January 2010 to 3 July 2016.

Year	2010	2011	2012	2013	2014	2015	2016*
No. of outbreaks	2	4	39	12	120	103	12

Notes: * Year to date.

Electronic General Practice Surveillance (eGPS)

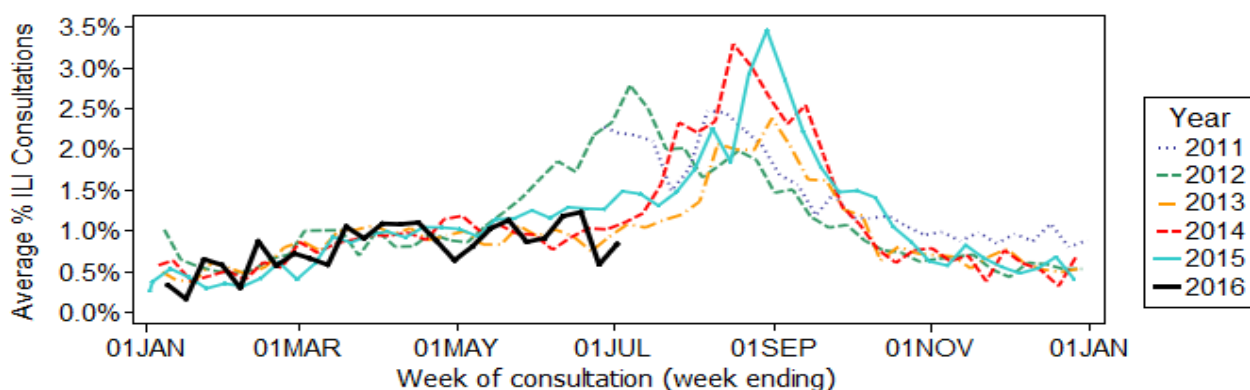
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator of influenza activity. Consultations for ILI are identified each week by an automatic search of electronic records for validated combinations of ILI terms rather than diagnosis codes.

Data generated from eGPS should be interpreted with caution as they are not representative of all practices within the participating LHDs or across NSW.

In Week 26:

- There were four surveillance reports received from eGPS sentinel practices in NSW; no reports were received from South Eastern Sydney and Illawarra Shoalhaven this week.
- The average rate of ILI patient consultations decreased to 0.8% (range 0.4 – 1.3%), higher than the previous week but below the usual range seen for this time of year (Figure 8).

Figure 8. Average rate of influenza-like presentations to sentinel general practices by week of consultation 2011-2016 (year to date).



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 26 there were 24 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 4.3%, an increase from the previous week (2.8%).

For further information please see the [ASPREN](#) website.

FluTracking.net

FluTracking.net is an online health surveillance system to detect epidemics of influenza.

FluTracking is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute. It involves participants from around Australia completing a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

There was no FluTracking data available for week 26 at the time of publication. For further information, including national estimates, please see the [FluTracking](#) website.

4. National and International Influenza Surveillance

National Influenza Surveillance

No new national influenza surveillance reports were issued this week.

In the Australian Department of Health has reported up to 10 June 2016, influenza activity remained at low levels across Australia with increases seen in some areas of the country. Of note:

- Respiratory viruses other than influenza are more commonly causing influenza-like illness presentations to sentinel general practitioners, with rhinovirus detected most frequently.
- There is no indication of the potential severity of the 2016 season at this time.
- To date, the seasonal influenza vaccines appear to be a good match for circulating virus strains.

Follow the link for the [Australian Influenza Surveillance Reports](#) which provide the latest information on national influenza activity.

Global Influenza Update

The latest [WHO global update on 27 June 2016](#) provides data up to 12 June. In temperate countries in the southern hemisphere, influenza activity increased steadily in the last weeks in South America and South Africa, but remained still low overall in most of Oceania. Influenza activity in the temperate zone of the northern hemisphere was back to inter-seasonal levels. Follow the link for the [WHO influenza surveillance reports](#).

Avian Influenza Update:

Human infections with avian influenza viruses

The most recent WHO risk assessment of human infections with avian influenza viruses (see [Influenza at the human-animal interface](#)) was published on 13 June 2016. This report provides updated information on human cases of infection with H5 and H7 clade viruses and outbreaks among animals.

The overall risk assessment for these viruses remains unchanged. Whenever avian influenza viruses are circulating in poultry, sporadic infections and small clusters of human cases are possible in people exposed to infected poultry or contaminated environments, therefore sporadic human cases would not be unexpected.

For H7N9, WHO has noted current evidence suggests that this virus has not acquired the ability of sustained transmission among humans but it is possible that limited human-to-human transmission may have occurred where there was unprotected close contact with symptomatic human cases.

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](#).

5. Composition of 2016 Australian influenza vaccines

The National Immunisation Program (NIP) uses quadrivalent influenza vaccines in 2016 for the first time. The four strains chosen are based on the recommendations of the WHO Consultation on the Composition of Influenza Vaccines for the 2016 Southern Hemisphere. Following the Consultation, WHO announced its recommendations for the composition of trivalent and quadrivalent vaccines for use in the 2016 influenza season (southern hemisphere winter).

For trivalent vaccines:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A/Hong Kong/4801/2014 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus (Victoria lineage).

For quadrivalent vaccines it was recommended that a second influenza B virus be added:

- a B/Phuket/3073/2013-like virus (Yamagata lineage).

Of note, the trivalent vaccine recommendations included strain changes for both the A(H3N2) and B components. The recommended A(H1N1) strain has remained unchanged since 2010. More details about the most recent influenza vaccine recommendations can be found at:

http://www.who.int/influenza/vaccines/virus/recommendations/2016_south/en/.

The WHO consultation on the composition of influenza vaccines for the Northern Hemisphere 2016-2017 was held in February 2016. The recommended composition was unchanged from the composition recommended for the 216 Southern Hemisphere vaccines (above). For information about the Northern Hemisphere vaccine recommendations can be found at:

http://www.who.int/influenza/vaccines/virus/recommendations/2016_17_north/en/