

# NSW Health Influenza Surveillance Report

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**Week 43: 24 to 30 October 2016**

## Summary:

- **Seasonal influenza activity continues to fall across most NSW local health districts, with all indicators indicating a return to inter-seasonal activity.**
- **Influenza A(H3N2) remains the dominant circulating influenza strain.**

## In this reporting week:

- [Hospital Surveillance](#) – influenza like illness (ILI) presentations to selected emergency departments increased slightly but activity remained at inter-seasonal levels. The index of increase indicates that seasonal activity peaked on 28 August and fell below the seasonal threshold on 27 September.
- [Laboratory surveillance](#) – the total number of influenza isolations decreased further this week with the proportion of respiratory samples positive for influenza at 8.2%.
- [Community surveillance](#) – influenza notifications increased slightly across a few NSW local health districts (LHD) this week but activity remains low. General practice and community-based surveillance systems showed decreasing ILI activity. Aged care facilities have been affected with three new respiratory outbreaks reported this week.
- [National and international influenza surveillance](#) – the most recent national report suggests nationally, influenza activity is returning to baseline levels, however seasonal activity persists in some regions. Current influenza strains are well-matched to the 2016 influenza vaccines.
- [Recommended composition of 2017 influenza vaccines](#) – the World Health Organization (WHO) has provided recommendations for the 2017 southern hemisphere winter influenza season including one strain change.

## 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

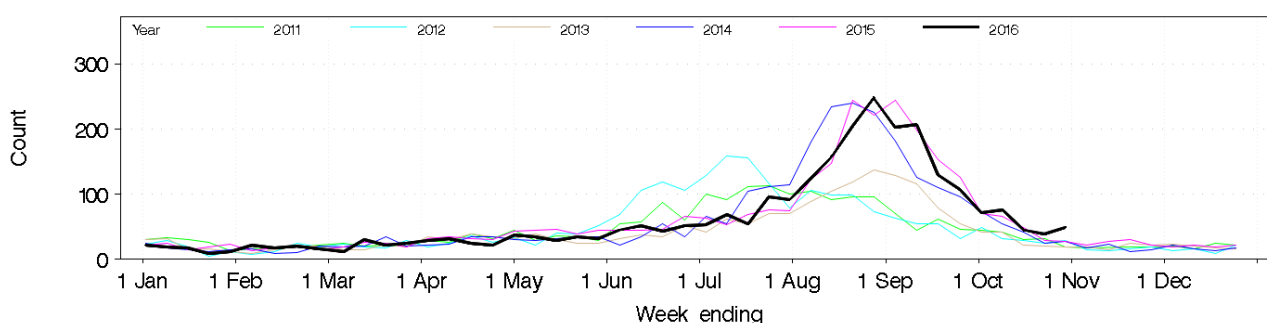
## NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

For the week ending 30 October 2016:

- ILI presentations [2] increased this week and were above the usual range for this time of year. ILI presentations were significantly above the five-year mean in Murrumbidgee LHD (Figure 1 and Table 1).
- The index of increase for ILI presentations was 5.8 on 30 October, higher than the previous week (4.4). Based on the index threshold of 15, this year's influenza season commenced around 26 June 2016, peaked on Sunday 28 August 2016 at 61.0 (lower than the peak of 64.2 seen in 2015) and ended on 27 September 2016.
- The proportion of ILI presentations to all ED presentations was low at 1.1 per 1000 presentations, similar to the previous week (0.9).
- ED presentations for pneumonia [3] decreased but were above the usual range for this time of year. Presentations were significantly above the five-year mean at Lismore Base and Dubbo Base Hospitals (Figure 2 and Table 1.)
- ILI and pneumonia presentations which resulted in admission also decreased and were within the usual range for this time of year. Admissions were significantly above the five-year mean at Lismore Base and Campbelltown Hospitals (Table 1).
- Pneumonia and ILI presentations which resulted in admission to critical care decreased and were within the usual range for this time of year (Figure 3 and Table 1).
- Bronchiolitis presentations this week increased and were above the usual range for this time of year (Table 1).
- Presentations in the category combining all respiratory, fever and unspecified infections were steady but were above the usual range for this time of year. Presentations were significantly above the five-year mean in people aged 35 years and over, in South Western Sydney LHD and at Dubbo Base Hospital (Table 1).

**Figure 1:** Total weekly counts of ED visits for influenza-like illness, all ages, from 1 January – 30 October 2016 (black line), compared with each of the 5 previous years (coloured lines).

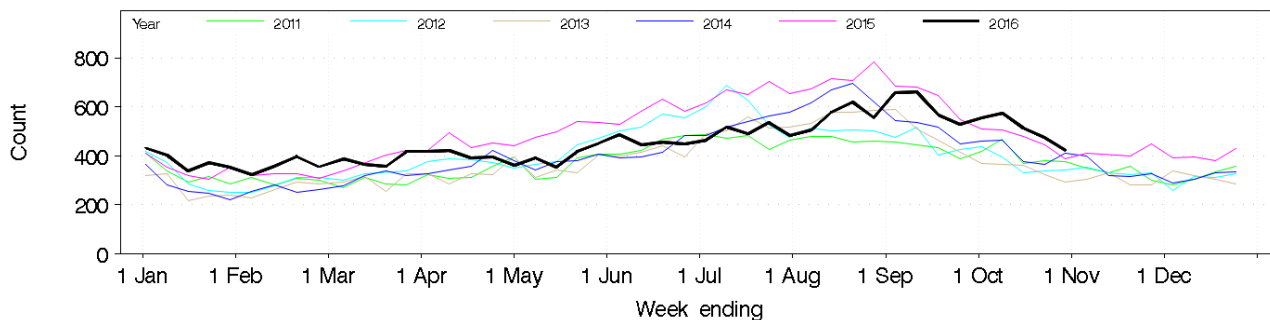


[1] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system. Centre for Epidemiology and Evidence, NSW Ministry of Health. Comparisons are made with data for the preceding five years. Recent counts are subject to change. As of 31 March 2016, data from 60 NSW emergency departments are included representing approximately 82% of ED visits in the 2015-16 financial year. The coverage of rural EDs is lower than metropolitan EDs. Data shown represents unplanned presentations to hospital EDs.

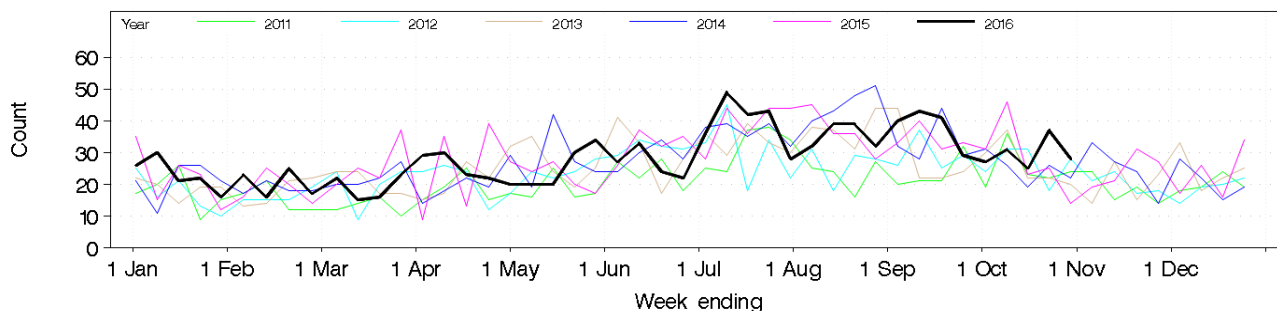
[2] The ED 'ILI' syndrome includes provisional diagnoses selected by a clinician of 'influenza-like illness' or 'influenza' (including 'pneumonia with influenza'), avian and other new influenza viruses.

[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 that were admitted, all ages, from 1 January – 30 October 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 1 January – 30 October 2016 (black line), compared with each of the 5 previous years (coloured lines).



**Table 1:** Weekly ED and Ambulance Respiratory Activity Summary for the week ending 30 October 2016. Includes data from 60 NSW EDs and the NSW Ambulance Division [4].

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range for time of year*	Statistically significant age groups (if any)	Locations with weekly counts significantly above the 5 year mean	Severity indicators** with weekly counts significantly above the 5 year mean	Comment
ED presentations, 60 NSW hospitals	Influenza-like illness (ILI)	Increased	<b>Above</b>		Murrumbidgee LHD	Admitted to ward	Daily index of increase = 5.3
	Pneumonia	Decreased	<b>Above</b>	65+ years	Lismore Base Hospital Dubbo Base Hospital		
	Pneumonia and ILI admissions	Decreased	<b>Above</b>		Lismore Base Hospital Campbelltown Hospital		
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Asthma	Increased	<b>Above</b>		Dubbo Base Hospital		
	Bronchiolitis	Increased	<b>Above</b>				Bronchiolitis is a disease of infants. Daily index of increase = 9.5
	Breathing problems	Increased	<b>Above</b>	65+ years	Liverpool Hospital	Admitted to ward	
	All respiratory illness, fever and unspecified infections	Steady	<b>Above</b>	65+ years 34-64 years	South Western Sydney LHD Dubbo Base Hospital	Admitted to ward	

[4] Notes for 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. \*\*Severity indicators include: Admission to a ward or critical care service; Triage category 1; Ambulance arrival and Death in ED.

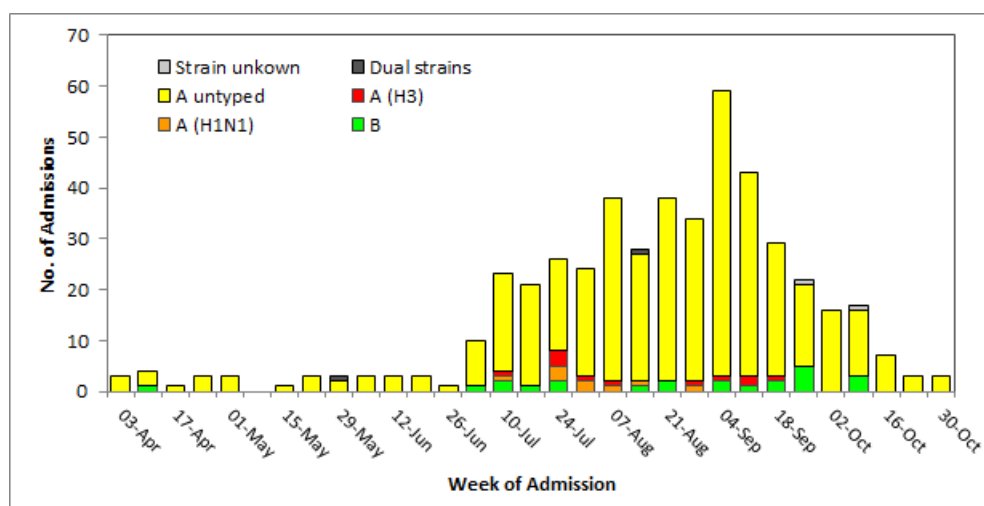
## FluCAN (The Influenza Complications Alert Network)

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 43 there were 3 influenza admissions (2 adults and 1 child) in NSW sentinel hospitals (Figure 5).
- Since 1 April 2016, there have been 470 hospital admissions reported for influenza; 445 with influenza A, 23 with influenza B, two with co-infections and two strains unknown (Figure 4).
- Of these admissions, 124 were paediatric (<16 years of age) cases and 346 were in adults. Thirty-two cases were admitted to ICU/HDU.

**Figure 4:** FluCAN – Number of confirmed influenza hospital admissions in NSW, 03 April – 30 October, 2016.



## 2. Laboratory Surveillance

For the week ending 30 October 2016 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [5] which tested positive for influenza A or influenza B continued to decrease and is expected to reach inter-seasonal levels over the next few weeks. The peak of activity for 2016 occurred during the week ending 4 September (Table 2).

A total of 5,435 tests for respiratory viruses were reported this week with 8.2% testing positive for influenza viruses, down from 5,800 tests and a 8.9% influenza-positive rate in the previous week. Influenza A(H3N2) is the dominant circulating influenza strain while influenza B activity remains at a low level (Figures 5 and 6).

Rhinovirus was the leading respiratory virus reported, with other viruses circulating at usual but increasing levels for this time of year (Table 2).

[5]: 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.

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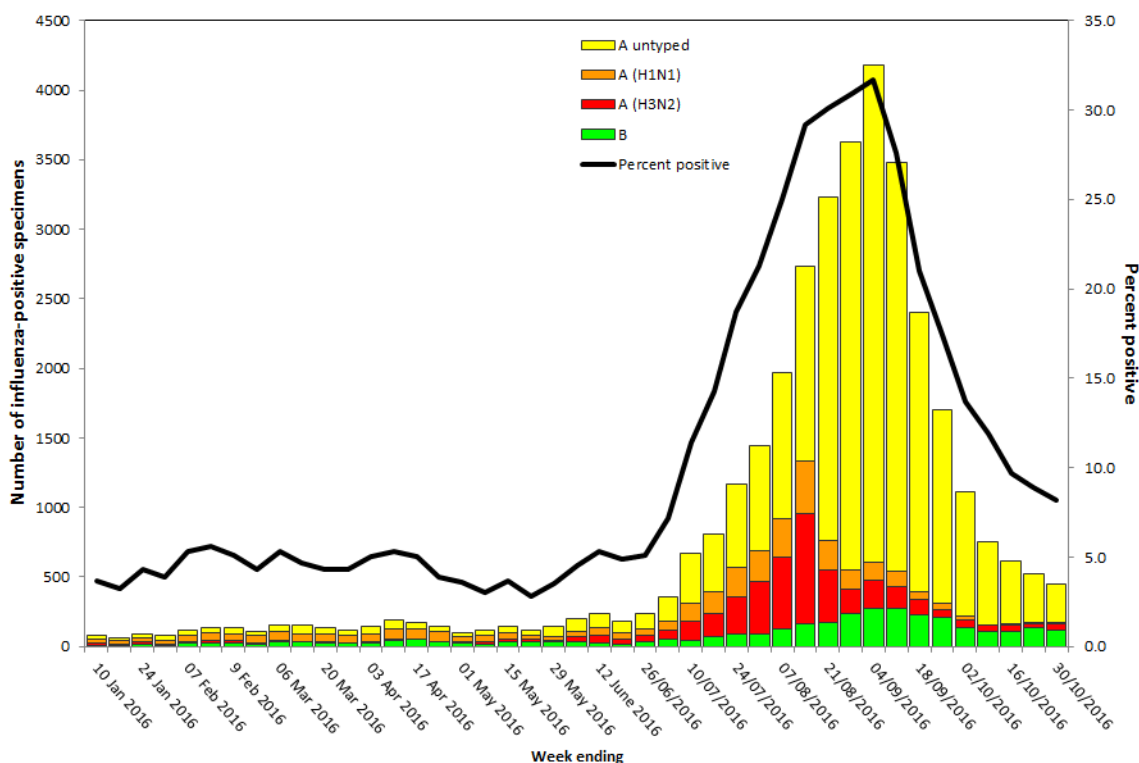
**Participating sentinel laboratories:** Pathology North (Hunter, Royal North Shore Hospital), Pathology West (Nepean, Westmead), South Eastern Area Laboratory Services, Sydney South West Pathology Service (Liverpool, Royal Prince Alfred Hospital), The Children's Hospital at Westmead, Australian Clinical Labs, Douglas Hanly Moir Pathology, Laverty Pathology, Medlab, SydPath, VDRLab to June 2016

**Table 2:** Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 30 October 2016.

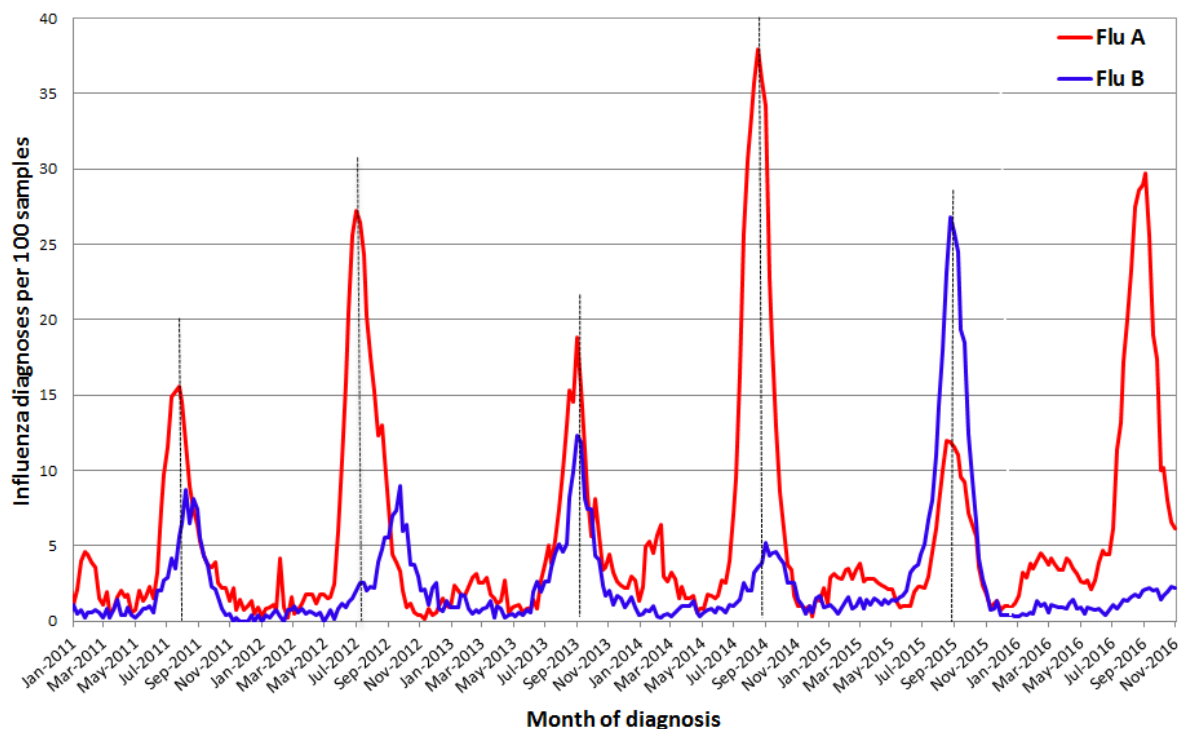
Month ending	Total Tests	TEST RESULTS														
		Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Entero	
		Total		H3N2		H1N1 pdm09		A (Not typed)								Total
Total	(%)	Total	(%A)	Total	(%A)	Total	(%A)	Total	(%)							
31/01/2016	8079	270 (3.3%)	45 (16.7%)	114 (42.2%)	111 (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
31/07/2016	24176	3796 (15.7%)	1021 (26.9%)	722 (19.0%)	2052 (54.1%)	291 (1.2%)					753	527	2339	2240	484	404
28/08/2016	40031	10953 (27.4%)	1852 (16.9%)	1002 (9.1%)	7999 (73.0%)	705 (1.8%)					1114	721	2347	2739	1046	398
02/10/2016*	54948	11742 (21.4%)	575 (4.9%)	355 (3.0%)	10814 (92.1%)	1128 (2.1%)					1826	1587	2197	5022	2527	584
30/10/2016	23910	1867 (7.8%)	168 (9.0%)	23 (1.2%)	1676 (89.8%)	466 (1.9%)					973	1113	705	3946	1267	302
Week ending																
09/10/2016	6333	648 (10.2%)	45 (6.9%)	6 (0.9%)	597 (92.1%)	105 (1.7%)					246	316	234	1047	401	85
16/10/2016	6342	506 (8.0%)	46 (9.1%)	7 (1.4%)	453 (89.5%)	109 (1.7%)					259	259	190	960	350	78
23/10/2016	5800	384 (6.6%)	29 (7.6%)	5 (1.3%)	350 (91.1%)	134 (2.3%)					248	291	160	885	284	66
30/10/2016	5435	329 (6.1%)	48 (14.6%)	5 (1.5%)	276 (83.9%)	118 (2.2%)					220	247	121	1054	232	73

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

**Figure 5:** Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 30 October 2016.



**Figure 6:** Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2011 to 30 October 2016, New South Wales.



### 3. Community Surveillance

#### Influenza notifications by Local Health District (LHD)

In the week ending 30 October there were 389 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, lower than the 463 notifications in the previous week.

Population rates were highest in Murrumbidgee and South Eastern Sydney NSW LHDs (Table 3). Overall notifications are declining however across a few LHDs there were slight increases but notifications are expected to decline further over the next few weeks.

**Table 3:** Weekly notifications of laboratory-confirmed influenza by local health district.

Local Health District	Week ending 30 Oct 2016		Average (previous 4 weeks)	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	11	3.25	22	6.36
Far West	1	3.28	3	8.2
Hunter New England	38	4.15	99	10.83
Illawarra Shoalhaven	16	3.97	27	6.64
Mid North Coast	6	2.76	11	4.83
Murrumbidgee	21	8.79	28	11.62
Nepean Blue Mountains	19	5.07	49	13.14
Northern NSW	10	3.33	21	7.08
Northern Sydney	50	5.51	114	12.6
South Eastern Sydney	63	6.97	83	9.21
South Western Sydney	52	5.38	88	9.06
Southern NSW	4	1.92	10	4.91
Sydney	36	5.73	44	6.92
Western NSW	12	4.33	21	7.39
Western Sydney	50	5.28	102	10.8

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

## Influenza outbreaks in institutions

There were four new respiratory outbreaks reported this week, the same as the previous week. All of the outbreaks were due to influenza A, three were in residential aged care facilities and one in a hospital ward.

In the year to date there have been 272 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 264 have been due to influenza A, five were influenza B, and three were combined influenza A and B outbreaks. At least 4,010 residents were reported to have had ILI symptoms and 465 required hospitalisation. One hundred and ninety 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 the cause of some influenza outbreaks in institutions, particularly residential aged care facilities (Table 4).

**Table 4:** Reported influenza outbreaks in NSW institutions, 1 January 2010 to 30 October 2016.

Year	2010	2011	2012	2013	2014	2015	2016*
Number of outbreaks	2	4	39	12	120	103	272

**Notes:** \* Year to date.

## Electronic General Practice Surveillance (eGPS)

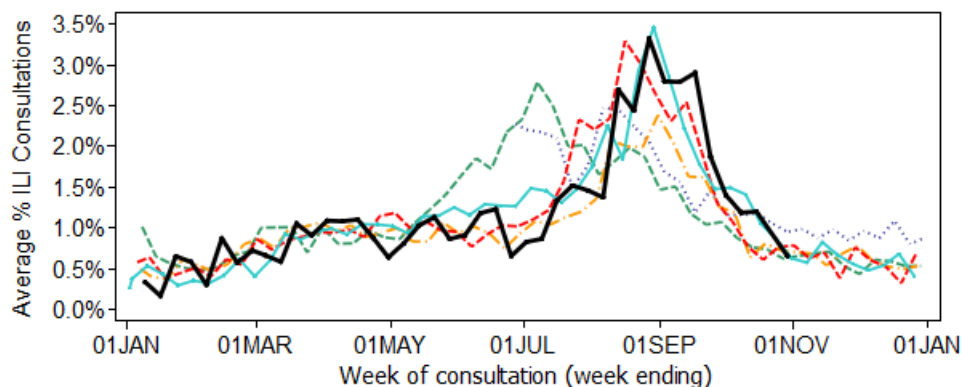
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 43:

- there were 5 surveillance reports received from eGPS sentinel practices in NSW;
- the average rate of ILI patient consultations was 0.7% (range 0.0 – 1.6%), lower than the previous week (1.2) (Figure 7).

**Figure 7.** 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 43 there were 39 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was low at 1.4%, the same as the previous week.

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.

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

### No report this week

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

## 4. National and International Influenza Surveillance

### National Influenza Surveillance

- In the *Australian Surveillance Report No.11*, with data up to 28 October 2016, nationally, influenza activity is returning to baseline levels, however seasonal activity persists in some regions.

Of note:

- Nationally, and in most jurisdictions, the seasonal peak of laboratory confirmed notifications of influenza occurred in the fortnight ending 2 September 2016 (week 34 and 35). Notifications peaked two weeks later in South Australia and four weeks later in the Northern Territory. Notifications have decreased this reporting fortnight, however are higher than at the same time in recent years. This is likely driven by a later season onset and persistent regional activity.
- Throughout the season national indicators of influenza-like illness (ILI) in the community remained on the lower range of activity reported in previous years until late September, when they were at the higher end of the historical range. National indicators of ILI in the community continued to decline this fortnight and have reached baseline levels. Rhinovirus was the primary cause of ILI presentations to sentinel general practitioners this fortnight.
- The 2016 season was characterised by the dominant circulation of influenza A. Early interseasonal activity was driven by influenza A(H1N1)pdm09, with influenza A(H3N2) predominating throughout the season from July.
- Notification rates to date this year have been highest in adults aged 75 years or older, with a secondary, smaller peak in the very young, aged less than 5 years. This is consistent with higher susceptibility to influenza A(H3N2) in older age groups compared to influenza A (H1N1).
- There were fewer admissions with confirmed influenza to sentinel hospitals this year than in the past two years. The overall proportion of patients admitted directly to Intensive Care Units (ICUs) was higher than last year, but consistent with a season of moderate severity. Aboriginal and Torres Strait Islander peoples and pregnant women were identified at greater risk of being admitted to ICU than other admitted patients this season.
- 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 17 October 2016](#) provides data up to 2 October. Influenza activity decreased in Oceania, South Africa and temperate South America. Influenza activity in the temperate zone of the northern hemisphere remained at inter-seasonal levels. Follow the link for the [WHO influenza surveillance reports](#).

## Avian Influenza Update:

### Human infections with avian influenza viruses

The monthly WHO risk assessment of human infections with avian and swine influenza viruses (see [Influenza at the human-animal interface](#)) was published on 3 October 2016. This report provides updated information on human cases of infection with animal influenza viruses and outbreaks among animals caused by novel influenza strains.

Of note:

- Since the previous update, new human infections with A(H5N1), A(H7N9), A(H9N2), A(H1N2)v and A(H3N2)v viruses were reported.
- The overall public health risk from currently known influenza viruses at the human-animal interface has not changed. Further human infections with viruses of animal origin can be expected, but the likelihood of sustained human-to-human transmission remains low.

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 2017 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the 2017 Southern Hemisphere was held in Geneva on 26-28 September 2016.

Following the Consultation, WHO announced its recommendations for the composition of trivalent vaccine for use in the 2017 Southern Hemisphere influenza season as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Hong Kong/4801/2014 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus (Victoria lineage)

WHO also recommended that quadrivalent vaccines containing two influenza B viruses should contain the above three viruses and a B/Phuket/3073/2013-like virus.

Of note, there has been replacement of the A/California/7/2009 (H1N1)pdm09-like virus component with an A/Michigan/45/2015 (H1N1)pdm09-like virus in the vaccine recommendations, the first time the recommended A(H1N1) strain has changed since 2010.

More details about the most recent influenza vaccine recommendations can be found at: [http://www.who.int/influenza/vaccines/virus/recommendations/2017\\_south/en/](http://www.who.int/influenza/vaccines/virus/recommendations/2017_south/en/).

The WHO consultation on the composition of influenza vaccines for the Northern Hemisphere 2016-2017 influenza season was held in February 2016. The recommended composition was unchanged from the composition recommended for the 2016 Southern Hemisphere vaccines. Information about the Northern Hemisphere vaccine recommendations can be found at: [http://www.who.int/influenza/vaccines/virus/recommendations/2016\\_17\\_north/en/](http://www.who.int/influenza/vaccines/virus/recommendations/2016_17_north/en/)