

# NSW Health Influenza Surveillance Report

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**Week 35: 28 August to 3 September, 2017**

## Summary:

- **Influenza activity continues to decline but remains high. Activity is expected to continue to decline throughout September.**
- **Influenza A strains remain predominant but are declining. Influenza B activity is steady.**

### In this reporting week:

- [Hospital surveillance](#) – emergency department presentations for respiratory illness, including influenza-like illness (ILI), decreased further. Overall activity remained high.
- [Laboratory surveillance](#) – the total number of influenza isolations decreased further, and the influenza-positive test rate was lower at 43.4%. The proportion of influenza A fell while influenza B was steady.
- [Community surveillance](#) – influenza notifications decreased overall. ASPREN GP and FluTracking surveillance both indicated further declines in ILI activity. Influenza outbreaks in institutions declined but there were still 41 outbreaks in residential aged care facilities.
- [National and international influenza surveillance](#) – influenza activity at the national level is high with most jurisdictions reporting peak seasonal activity levels.
- [Recommended composition of 2017 influenza vaccines](#) – the 2017 Australian influenza vaccines cover two A and two B strains, including one A strain change from the 2016 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

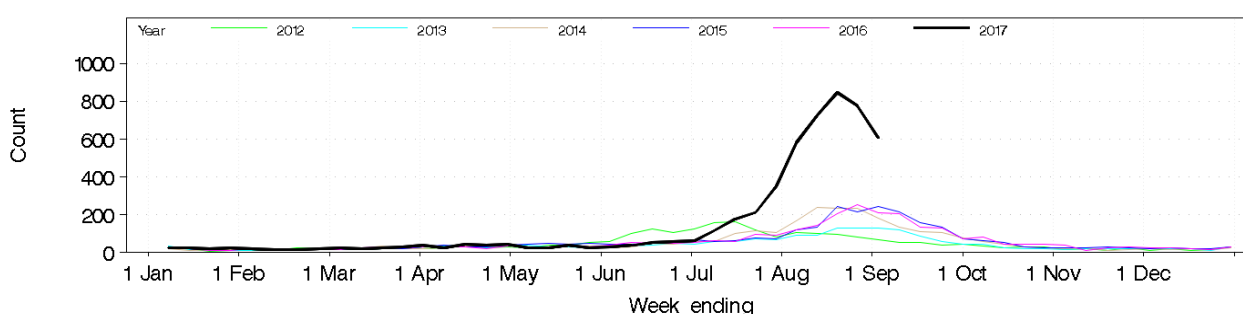
## NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

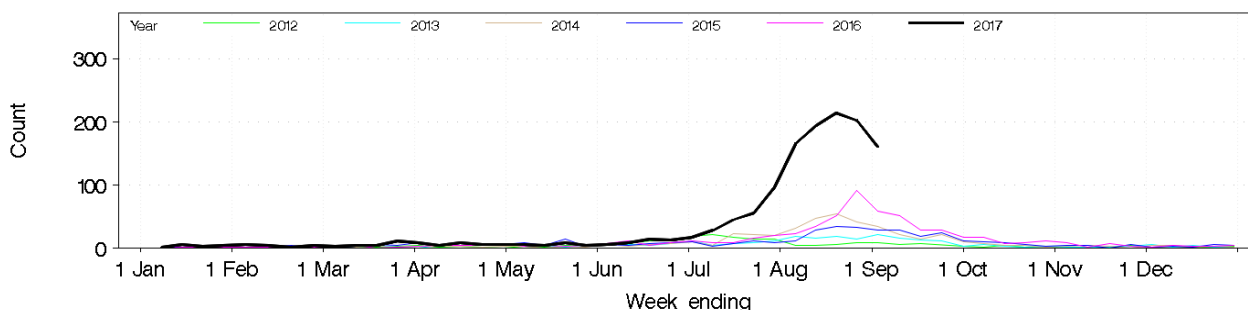
For the week ending 3 September 2017:

- All respiratory illness, fever and unspecified infections presentations decreased further but remained high (Table 1).
- ILI presentations [2] decreased further this week but levels remained high for most age groups and across the majority of NSW local health districts (LHDs) (Figure 1 and Table 1).
- ILI presentations resulting in admission also decreased but remained above the usual range in older age groups and in many LHDs (Figure 2 and Table 1).
- As of 3 September 2017, the daily index of increase for ILI presentations across NSW was lower again at 41.8. The index peaked on 11 August (98.4) after first crossing the ED seasonal threshold of 15.0 on 23 June 2017.
- The proportion of ILI presentations to all ED presentations was 13.0 per 1000 presentations, lower than the previous week (16.3 per 1000).
- ED presentations and admissions for pneumonia [3] both decreased and were within the usual range for this time of year (Table 1).
- Pneumonia and ILI presentations requiring admission to critical care decreased further and were within the usual range for this time of year (Figure 3 and Table 1).

**Figure 1:** Total weekly counts of ED visits for influenza-like illness, all ages, from 1 January – 3 September, 2017 (black line), compared with each of the 5 previous years (coloured lines).



**Figure 2:** Total weekly counts of ED presentations for influenza-like-illness that were admitted, all ages, from 1 January – 3 September 2017 (black line), compared with each of the 5 previous years (coloured lines).

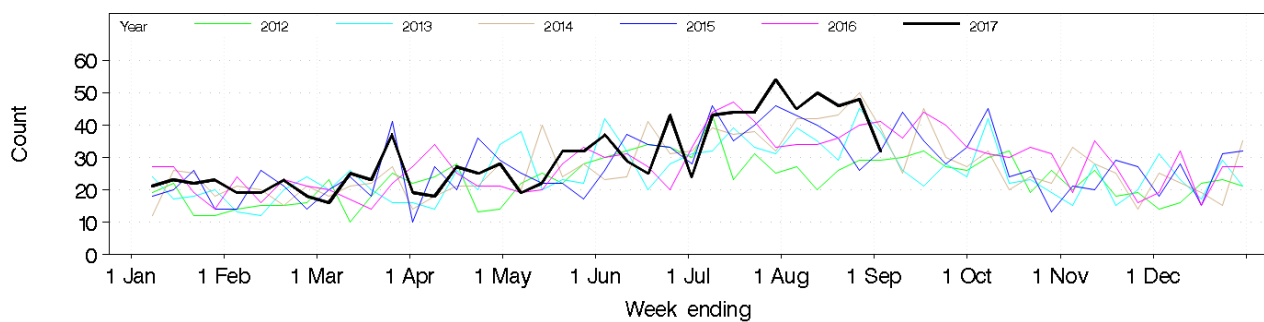


<sup>1</sup> NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system, CEE, NSW Ministry of Health. Comparisons are made with data for the preceding 5 years. Recent counts are subject to change. Data from 60 NSW emergency departments are included. The coverage of rural EDs is lower than metropolitan EDs. Data shown represent unplanned presentations to hospital EDs.

<sup>2</sup> 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.

<sup>3</sup> 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 3** Total weekly counts of ED presentations for influenza-like illness and pneumonia, that were admitted to a critical care ward all ages, from 1 January – 3 September, 2017 (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 3 September 2017. 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*	Significantly elevated age groups	Significantly elevated locations (LHDs)	Significant elevated severity indicators**	Comment
ED presentations 60 NSW hospitals	Influenza-like illness (ILI)	Decreased (608)	Above (66-241)	35-64 years (211) 65+ years (162) 17-34 years (131) 5-16 years (58) 0-4 years (46)	Hunter New England (114), Western NSW (51), Central Coast (34), Northern Sydney (54), Northern NSW (38), Mid North Coast (37), Nepean Blue Mountains (28), Illawarra Shoalhaven (36), South Eastern Sydney (67), Western Sydney (72), Murrumbidgee(23)	Ambulance arrival (143)	Daily index of increase = 41.8
	ILI admissions	Decreased (161)	Above (9-58)	65+ years (90) 35-64 years (45)	Central Coast (10), Hunter New England (36), Northern Sydney (18), Murrumbidgee (12), South Eastern Sydney (21)	Ambulance arrival (85)	
	Pneumonia	Decreased (635)	Within (474-691)				
	Pneumonia admissions	Decreased (443)	Within (372-496)				
	Pneumonia and ILI critical care admissions	Decreased (32)	Within (29-41)				
	Asthma	Decreased (352)	Below (406-502)				
	Bronchiolitis	Decreased (205)	Within (201-294)				
	Breathing problems	Decreased (544)	Within (414-584)				
All respiratory illness, fever and unspecified infections	Decreased (7,978)	Above (5,321-7,700)	65+ years (2,053) 35-64 years (1,617) 17-34 years (1,054)	Western NSW (385), Hunter New England (1,185), Northern NSW (391), Mid North Coast (385), Central Coast (513)	Admitted (2,628), ambulance arrival (1,914)		

<sup>4</sup> **Notes. 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 for ED presentations. The 'daily index of increase' is statistically significant above a threshold of 15. LHD = Local Health District.

\* The usual range is the range of weekly counts for the same week in the previous five years for ED presentations. Note that comparisons are not adjusted for the start of the season. Cells with small counts are not reported.

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

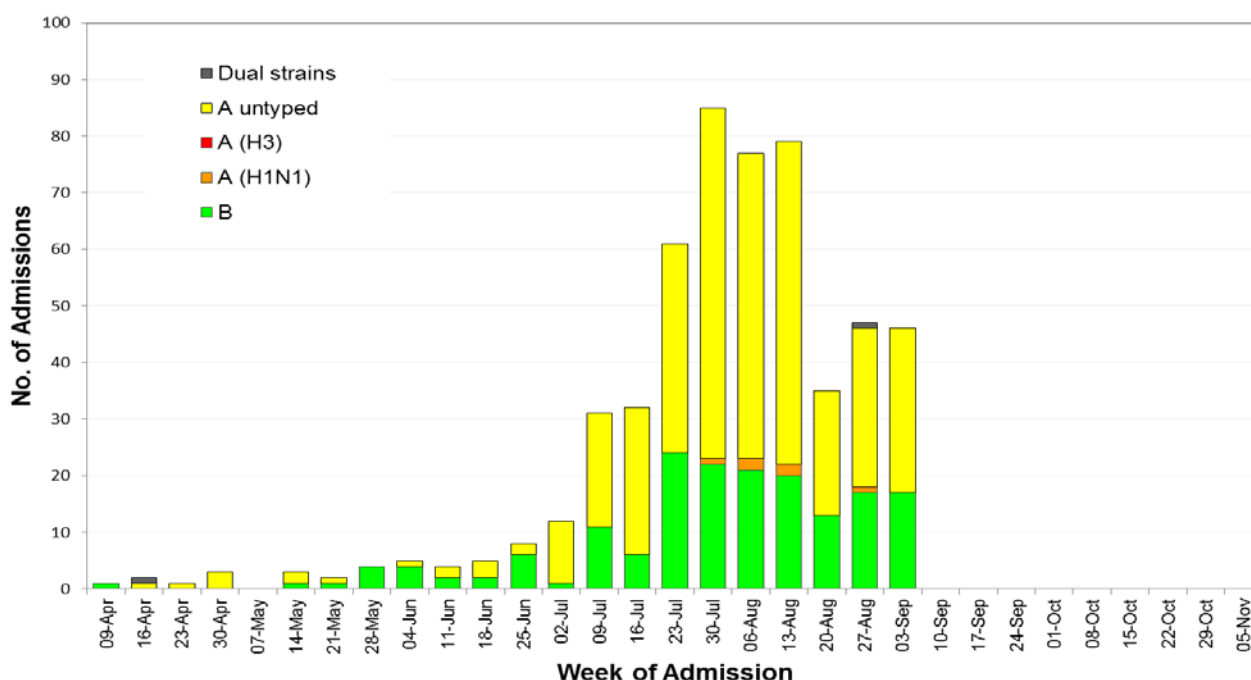
## FluCAN (The Influenza Complications Alert Network)

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 35 there were 46 influenza admissions in NSW sentinel hospitals (Figure 4). Of these, 29 were due to influenza A and 17 were due to influenza B.

Since 1 April 2017, there have been 544 hospital admissions reported for influenza; 369 due to influenza A, 173 due to influenza B, and two with dual infections (Figure 4). Of these admissions, 174 were paediatric cases (<16 years of age) and 370 were in adults. Of the 544 cases, 33 cases (6.1%) have been admitted to a critical care ward.

**Figure 4:** FluCAN – Number of confirmed influenza hospital admissions in NSW, 9 April 2017 to 3 September 2017.\*



**Notes:** \* All data are preliminary and may change as more information is received.

## 2. Laboratory Surveillance

For the week ending 3 September 2017 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [5] which tested positive for influenza A or influenza B decreased further (Table 2, Figure 5), and there was a decrease in testing for respiratory viruses.

Overall, 43.4% of tests for respiratory viruses were positive for influenza, slightly lower than the previous week (Figure 5).

Influenza A strains remain predominant, particularly A(H3N2), although the percentage of positive tests for influenza A strains declined further. The influenza B strain positive percentage was steady at just under 20% (Table 2, Figures 5 and 6).

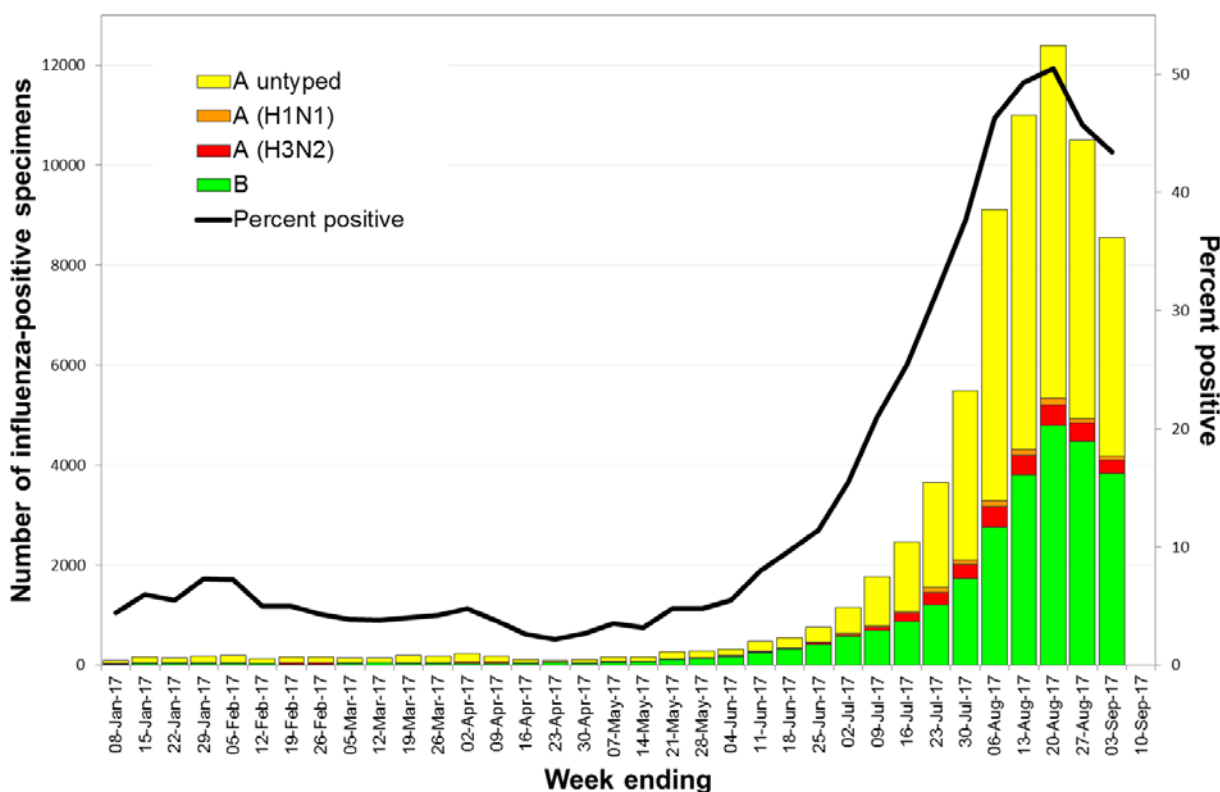
<sup>5</sup> Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Point-of-care test results have been included since August 2012 but serological diagnoses are not included. Participating sentinel laboratories: Pathology North (Hunter, 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

**Table 2:** Summary of testing for influenza and other respiratory viruses at NSW laboratories by test date, 1 January to 3 September 2017.

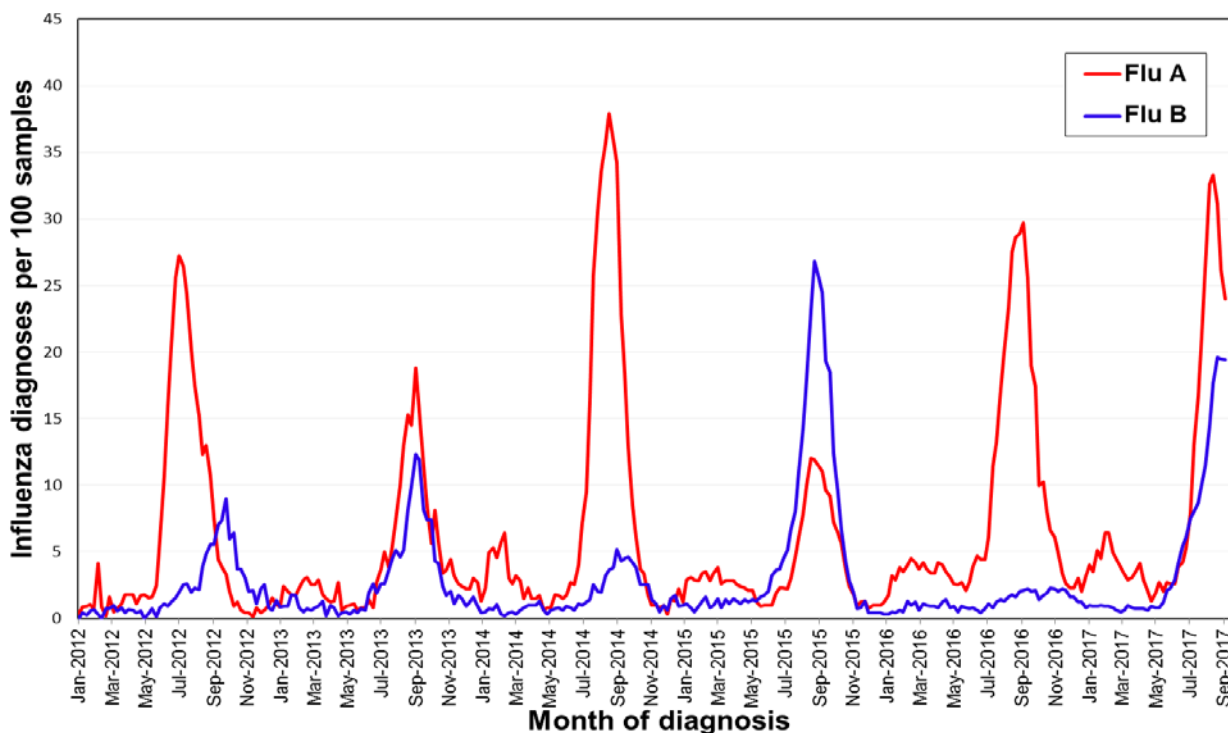
Month ending	Total Tests	TEST RESULTS												
		Influenza A					Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Entero
		Total	H3N2	H1N1 pdm09	A (Not typed)		Total							
Total (%)	Total (%A)	Total (%A)	Total (%)	Total (%)	Total (%)									
29/01/2017	9981	489 (4.9%)	53 (10.8%)	4 (0.8%)	432 (88.3%)	92 (0.9%)	374	433	323	1462	236	131		
26/02/2017	12273	564 (4.6%)	78 (13.8%)	7 (1.2%)	479 (84.9%)	83 (0.7%)	430	458	719	2772	170	248		
02/04/2017*	21161	724 (3.4%)	83 (11.5%)	16 (2.2%)	625 (86.3%)	158 (0.7%)	684	1000	1830	5427	290	530		
30/04/2017	18089	377 (2.1%)	63 (16.7%)	15 (4.0%)	299 (79.3%)	135 (0.7%)	588	901	2600	4202	231	468		
04/06/2017*	26372	657 (2.5%)	67 (10.2%)	52 (7.9%)	538 (81.9%)	506 (1.9%)	1037	852	3275	6859	299	503		
02/07/2017	25565	1407 (5.5%)	104 (7.4%)	73 (5.2%)	1230 (87.4%)	1530 (6.0%)	1058	734	3291	5794	441	490		
30/07/2017	46579	9328 (20.0%)	745 (8.0%)	249 (2.7%)	8334 (89.3%)	4516 (9.7%)	1712	926	4059	6011	709	625		
Week ending														
06/08/2017	19212	6257 (32.6%)	421 (6.7%)	117 (1.9%)	5819 (93.0%)	2757 (14.4%)	575	245	990	1654	216	157		
13/08/2017	21614	7190 (33.3%)	391 (5.4%)	107 (1.5%)	6692 (93.1%)	3809 (17.6%)	600	209	962	1698	226	183		
20/08/2017	24506	7587 (31.0%)	416 (5.5%)	126 (1.7%)	7045 (92.9%)	4796 (19.6%)	629	231	816	1652	251	153		
27/08/2017	22990	6020 (26.2%)	358 (5.9%)	88 (1.5%)	5574 (92.6%)	4487 (19.5%)	652	260	735	1722	223	115		
03/09/2017	19704	4722 (24.0%)	272 (5.8%)	88 (1.9%)	4362 (92.4%)	3829 (19.4%)	528	235	596	1530	215	70		

**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 3 September 2017.



**Figure 6:** Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2012 to 3 September 2017, New South Wales.



### 3. Community Surveillance

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

For week 35 there were 10,143 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, lower than in the previous week (10,916).

Notifications were steady or fell in most Sydney metropolitan LHDs, with the exception of South Western Sydney LHD where notifications increased (Table 3). Notifications were increased in LHDs in the southern and western parts of NSW apart from Far West LHD.

**Table 3:** Weekly notifications of laboratory-confirmed influenza by NSW Local Health District, by earliest report or create date.

Local Health District	Week ending 03 Sep 2017		Week ending 27 Aug 2017	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	368	106.55	460	133.19
Far West	9	29.39	18	58.78
Hunter New England	939	100.99	1356	145.84
Illawarra Shoalhaven	516	126.26	534	130.66
Mid North Coast	147	66.12	202	90.86
Murrumbidgee	353	145.77	175	72.27
Nepean Blue Mountains	620	161.13	576	149.69
Northern NSW	123	40.13	283	92.33
Northern Sydney	1161	126.84	1669	182.34
South Eastern Sydney	1019	109.82	1288	138.81
South Western Sydney	1837	185.51	1264	127.65
Southern NSW	253	118.19	133	62.13
Sydney	745	113.78	729	111.34
Western NSW	438	156.73	221	79.08
Western Sydney	1615	166.51	2008	207.03

**Notes:** \* All data are preliminary and may change as more notifications are received. Excludes notifications based on serology. For further information follow the influenza link from the [diseases data page](#).



## Influenza outbreaks in institutions

There were 45 influenza outbreaks in institutions reported this week, a decline compared to the previous week (54, Figure 7). Of these, 41 were in residential aged care facilities, one was in a hostel and three were in hospitals. A total of 32 outbreaks were due to influenza A, 10 were due to influenza B and three involved both influenza A and B strains.

In the year to date there have been 412 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 320 have been due to influenza A, 62 were due to influenza B, and 30 involved both influenza A and B strains.

In outbreaks affecting aged care facilities, at least 5378 residents were reported to have had ILI symptoms and 550 required hospitalisation. Overall, there have been 197 deaths in residents reported linked to these outbreaks, all of whom were noted to have other significant co-morbidities.

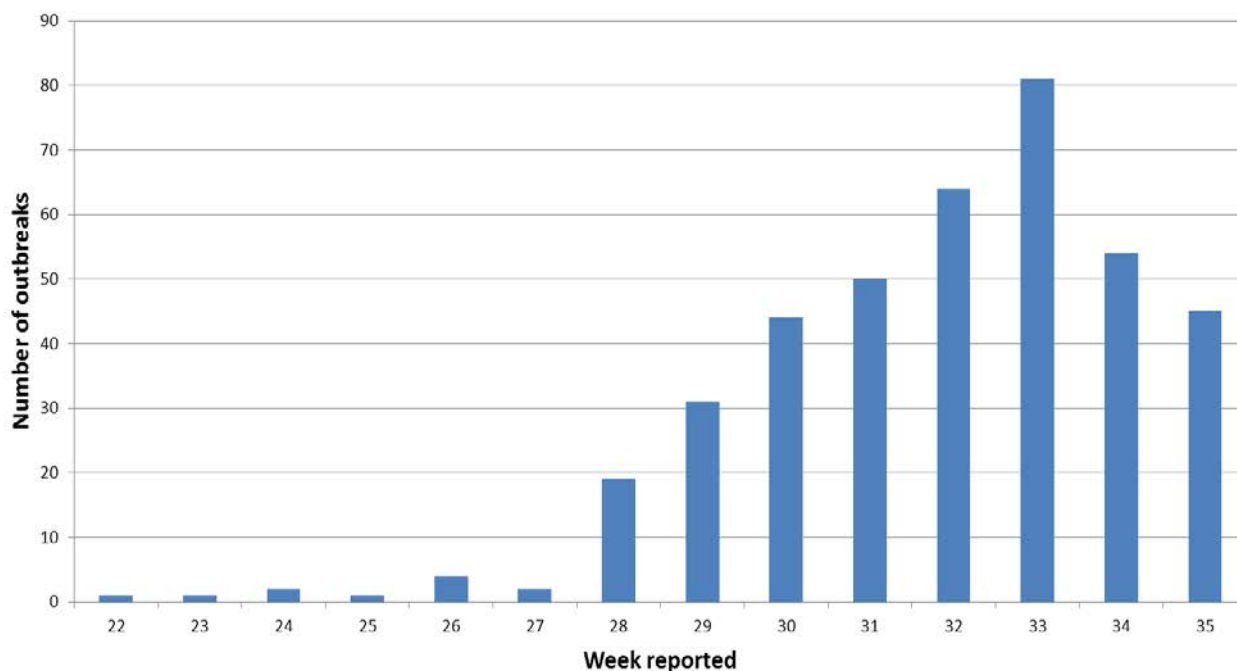
People in older age-groups are at higher risk of infection from the influenza A(H3N2) strain than the influenza A(H1N1) strain. The influenza A(H3N2) strain also predominated in 2012, 2014 and 2016. In 2015, influenza B was the predominant strain, and was also associated with an increase in influenza outbreaks in institutions, particularly residential aged care facilities (Table 4).

**Table 4:** Reported influenza outbreaks in NSW institutions, 2010 to 3 September 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	412

**Notes:** \* Year to date. All data are preliminary and subject to change.

**Figure 7:** Reported influenza outbreaks in NSW institutions by week, week 22 to week 35, 2017.



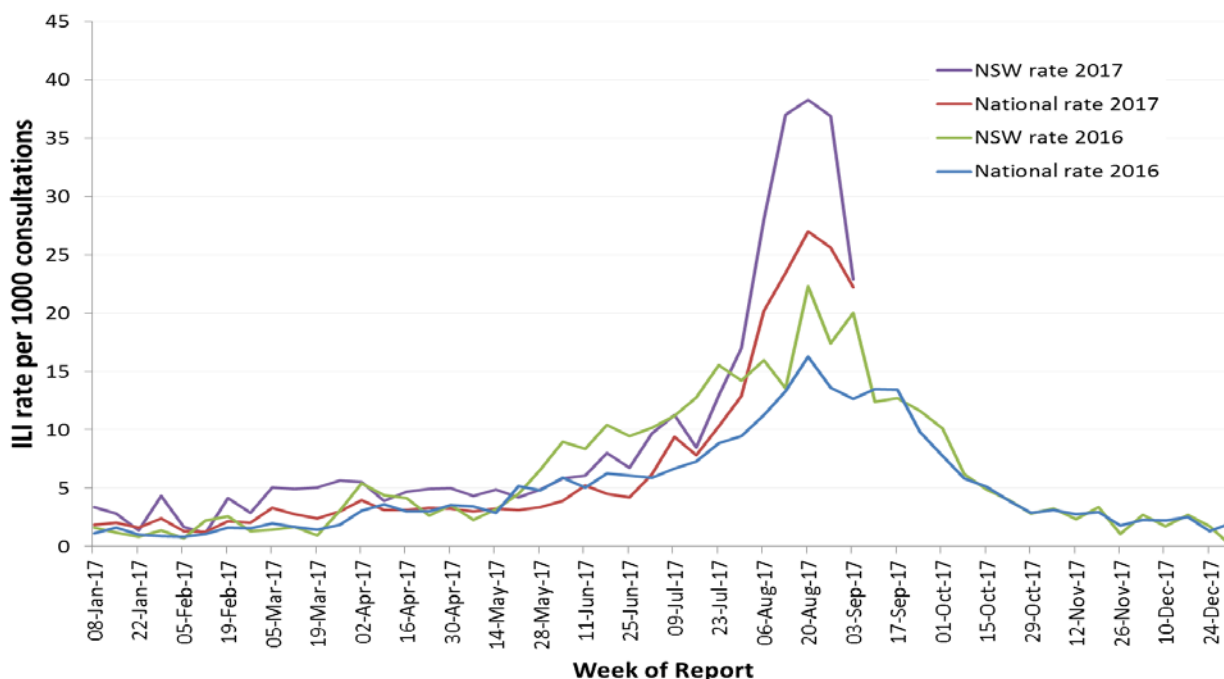
## The Australian Sentinel Practices Research Network (ASPREN)

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 35 there were ASPREN reports received from 12 NSW GPs. The reported consultation rate for ILI per 1000 consultations was lower at 22.9, and close to the national rate (Figure 8). For further information see the [ASPREN](#) website.

**Figure 8:** ASPREN – NSW and National GP ILI rates per 1000 consultations – 2016 to week 35, 2017.



## FluTracking.net

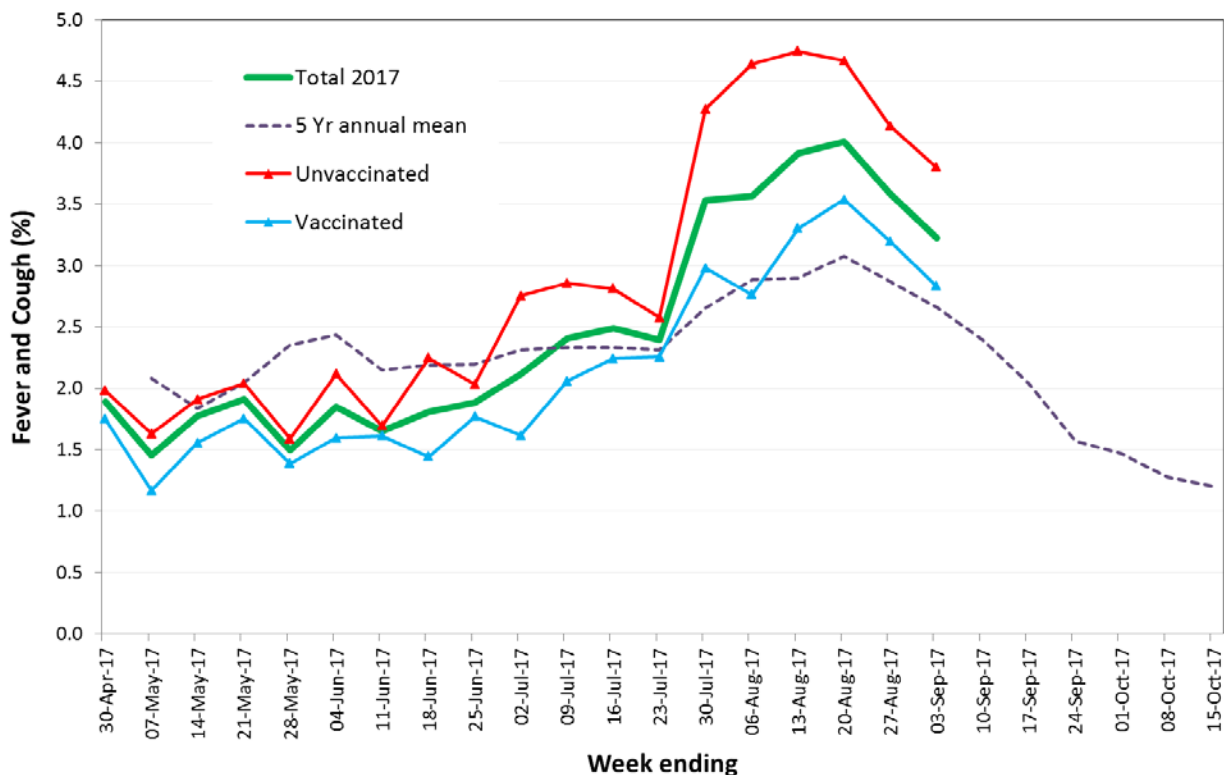
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute. Participants complete a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

In week 35 FluTracking received reports for 8,126 people in NSW with the following results:

- 3.2% of respondents reported fever and cough, down from the previous week (3.6%) but still above the 5 year annual mean (Figure 9).
- Among respondents who reported being vaccinated for influenza in 2017, 2.8% reported fever and cough compared to 3.8% for unvaccinated respondents (Figure 9).
- Overall, 2.5% of respondents reported fever, cough and absence from normal duties, lower than the previous week (3.2%).



**Figure 9:** FluTracking – Percent of NSW participants reporting fever and cough overall, compared to the 5 year average and by reported influenza vaccination status, 2017.\*



**Notes:** From 2016, if a participant reported influenza-like illness symptoms for more than one consecutive week, only the first reported week of symptoms is included. Participants are not considered vaccinated until two or more weeks have elapsed since their recorded time of vaccination. Vaccinated and Unvaccinated rates are calculated using the total number of vaccinated respondents and the total number of unvaccinated respondents as denominators, respectively. The 5-year annual mean is calculated from years 2012 to 2016.

For further information on the project and how to participate see the [FluTracking](http://FluTracking) website.

## 4. National and International Influenza Surveillance

### National Influenza Surveillance

In the *Australian Surveillance Report No.7*, with data up to 18 August 2017, influenza activity at the national level continued to increase this reporting fortnight with many surveillance systems at levels comparable to the peak of the 2016 season. Of note:

- There has been almost two and a half times the number of laboratory confirmed notifications of influenza reported to the National Notifiable Diseases Surveillance System this year when compared with the same period last year. An earlier season onset and introduction of rapid testing have contributed, in part, to this increase.
- Influenza-like illness (ILI) is increasing nationally. Influenza was the most common cause of ILI presentations to sentinel general practitioners this fortnight, with more than half of all patients presenting to sentinel general practitioners with ILI and tested positive for influenza.
- Influenza A(H3N2) is currently the predominant circulating influenza A virus nationally, though the number of notifications has decreased this reporting period. Influenza B viruses also continue to circulate.
- Notification rates to date this year have been highest in adults aged 80 years or older, with a secondary peak in young children, aged 5 to 9 years.
- Hospitalisations with confirmed influenza have increased overall this reporting fortnight, but have declined in the most recent week.
- Clinical severity for the season to date, as measured through the proportion of patients admitted directly to ICU and deaths attributed to pneumonia or influenza, is low.

- To date, based on antigenic characterisation of circulating influenza viruses, the seasonal influenza vaccines appear to be a moderate to good match for circulating virus strains, depending on the strain. Vaccine effectiveness estimates, which provide an indication of how well the vaccine provides protection against influenza, are only available towards the end of the influenza season.

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

## Global Influenza Update

The latest [WHO global update on 4 September 2017](#) provides data up to 20 August. WHO reports that in the temperate zone of the southern hemisphere and in some countries of South and South East Asia, high levels of influenza activity continued to be reported. In Central America and the Caribbean influenza activity continued to be reported in a few countries. Influenza activity remained at low levels in the temperate zone of the northern hemisphere. Worldwide, influenza A(H3N2) viruses are predominating.

For further information see the [WHO influenza surveillance reports](#).

## Avian Influenza Update

WHO publishes monthly updated risk assessments of human infections with avian influenza viruses at [Influenza at the human-animal interface](#). These reports provide 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.

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, and made recommendations for the composition of influenza vaccines for use in the 2017 Southern Hemisphere influenza.

In Australia, all influenza vaccines included in the National Immunisation Program are quadrivalent influenza vaccines and have the following composition:

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

Of note, there has been replacement of the influenza A(H1N1) component of the vaccine. The A/California/7/2009 (H1N1)pdm09-like virus component has been replaced 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/en/>.