

NSW Health Influenza Surveillance Report

Week 33: 14 to 20 August, 2017

Summary:

- **Seasonal influenza activity remains high overall, with declines noted in some surveillance indicators. Activity is expected to remain high for the next few weeks.**
- **Influenza B activity increased but influenza A strains remained predominant overall.**

In this reporting week:

- [Hospital surveillance](#) – influenza-like illness (ILI) presentations to selected emergency departments continued to be high; the index of increase peaked on 11 August.
- [Laboratory surveillance](#) – the total number of influenza isolations increased again this week with the proportion of respiratory samples positive for influenza slightly higher at 50.5%. The influenza A rate fell slightly while the influenza B rate was increased.
- [Community surveillance](#) – influenza notifications increased overall but fell in some local health districts (LHD) in Sydney. New influenza outbreaks were reported in 82 institutions, including 72 residential aged care facilities.
- [National and international influenza surveillance](#) – influenza activity at the national level continued to increase this reporting fortnight with many jurisdictions reporting activity at levels comparable to the peak of the 2016 season.
- [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 20 August 2017:

- ILI presentations [2] continued to increase this week and remained above the usual range for this time of year. Presentations were significantly elevated in all age groups and across the majority of NSW districts (Figure 1 and Table 1).
- ILI presentations resulting in admission increased and remained above the usual range in most age groups and in many LHDs (Figure 2 and Table 1).
- As of 20 August 2017, the daily index of increase for ILI presentations across NSW was high at 90.3 but lower than the previous week. The index peaked at 98.4 on 11 August 2017. The index of increase first exceeded the ED seasonal threshold of 15 on 23 June 2017.
- The proportion of ILI presentations to all ED presentations was very high at 17 per 1000 presentations, and higher than the previous week (14.7 per 1000).
- ED presentations for pneumonia [3] decreased and were within the usual range for this time of year (Table 1.) Pneumonia admissions from ED also decreased and were within the usual range for this time of year (Table 1).
- Pneumonia and ILI presentations requiring admission to critical care decreased 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 – 20 August, 2017 (black line), compared with each of the 5 previous years (coloured lines).

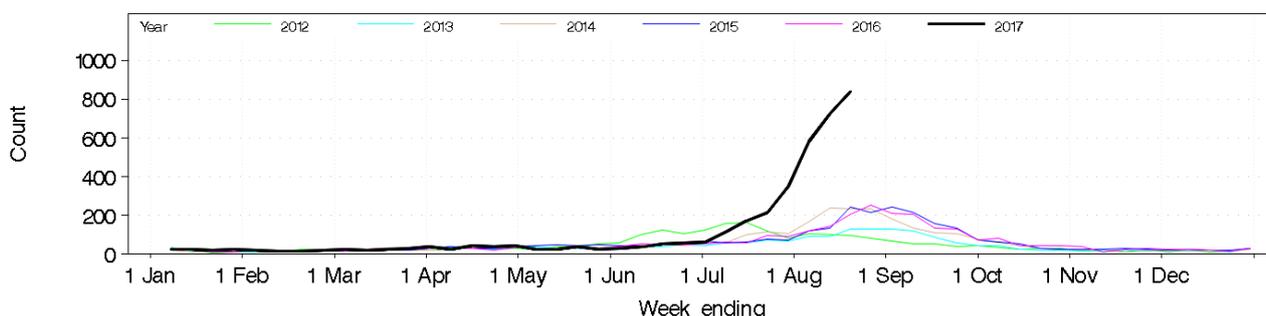
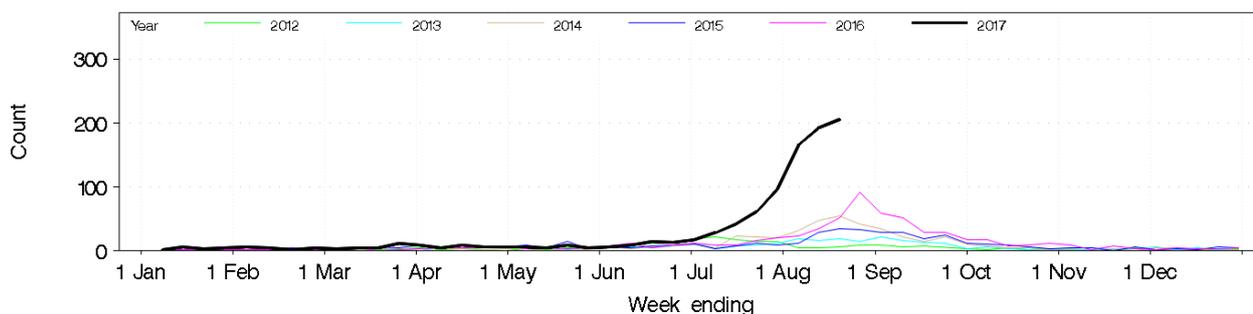


Figure 2: Total weekly counts of ED presentations for influenza-like-illness that were admitted, all ages, from 1 January – 20 August 2017 (black line), compared with each of the 5 previous years (coloured lines).



¹ 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.

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 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 – 20 August, 2017 (black line), compared with each of the 5 previous years (coloured lines).

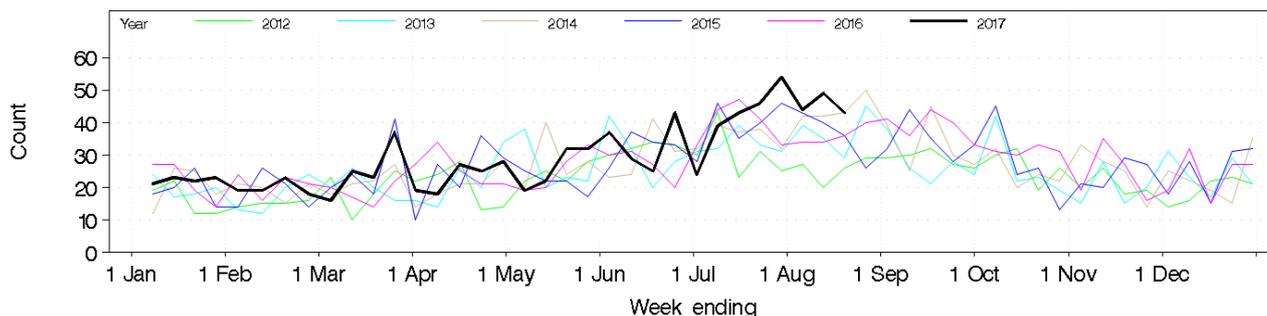


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 20 August 2017. Includes data from 60 NSW EDs and the NSW Ambulance Division. [4]

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range*	Statistically elevated age groups	Statistically significant locations (LHDs)	Significant elevated severity indicators**	Comment
ED presentations, 60 NSW hospitals	Influenza-like illness (ILI)	Increased (838)	Above (96-244)	65+ years (200) 0-4 years (105) 35-64 years (246) 5-16 years (110) 17-34 years (177)	Central Coast (67), Northern Sydney (95), Hunter New England (117), Western Sydney (121), South Eastern Sydney (117), Northern NSW (49), Western NSW (43), Mid North Coast (36), South Western Sydney (63), Nepean Blue Mountains (26), Illawarra Shoalhaven (39), Sydney (30), Murrumbidgee (26) LHDs	Ambulance arrival (185)	Daily index of increase = 90.3
	ILI admissions	Increased (205)	Above (6-54)	65+ years (113) 35-64 years (46) 5-16 years (12) 0-4 years (12)	Central Coast (21), Northern Sydney (31), Northern NSW (11), Hunter New England (38), South Eastern Sydney (30), South Western Sydney (15), Western Sydney (21), Western NSW (5), Illawarra Shoalhaven (9) LHDs, Wagga Wagga Base Hospital (10)	Ambulance arrival (109)	
	Pneumonia	Decreased (637)	Within (522-708)				
	Pneumonia admissions	Decreased (468)	Within (404-515)				
	Pneumonia and ILI critical care admissions	Decreased (43)	Within (26-43)				
	Asthma	Increased (480)	Within (419-551)				
	Bronchiolitis	Decreased (222)	Within (223-301)				
All respiratory illness, fever and unspecified infections	Decreased (9,333)	Above (5,715-8,318)	65+ years (2,285) 35-64 years (1,811) 5-16 years (1,502) 17-34 years (1,215) 0-4 years (2,520)	Central Coast (602), South Western Sydney (1,180), Northern Sydney (799), Hunter New England (1,339), Western Sydney (1,145), Mid North Coast (451), South Eastern Sydney (1,109), Sydney (614) LHDs	Admitted (2,943), ambulance arrival (2,097)		

⁴ **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.

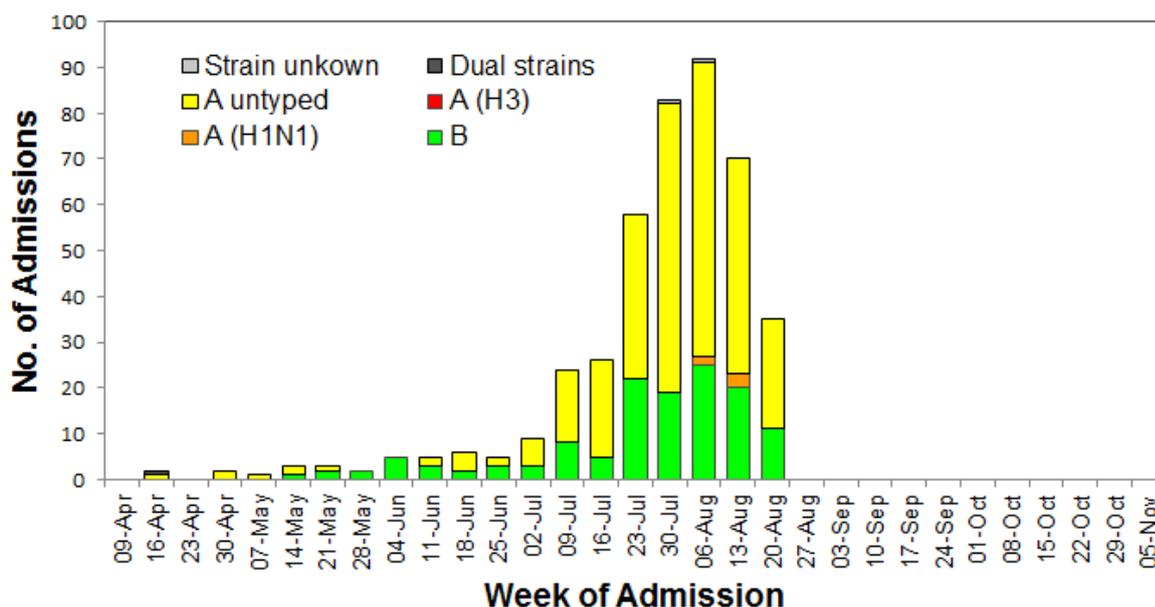
FluCAN (The Influenza Complications Alert Network)

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 33 there were 35 influenza admissions in NSW sentinel hospitals (Figure 4); 24 due to influenza A and 11 due to influenza B.

Since 1 April 2017, there have been 431 hospital admissions reported for influenza; 297 due to influenza A, 131 due to influenza B and 1 with a co-infection and 2 unknown (Figure 4). Of these admissions, 131 were paediatric cases (<16 years of age) and 300 were in adults. Of the 431 cases, 34 cases (7.9%) have been admitted to a critical care ward.

Figure 4: FluCAN – Number of confirmed influenza hospital admissions in NSW, 9 April 2017 to 20 August 2017.



2. Laboratory Surveillance

For the week ending 20 August 2017 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [5] which tested positive for influenza A or influenza B continued to increase but to a lesser extent (Table 2, Figure 5).

Overall, 50.5% of tests for respiratory viruses were positive for influenza, higher than the 49.3% rate of the previous week (Figure 5), and still well above the influenza positive rate seen at the peak of the 2016 influenza season (31.7%).

While influenza A strains remain predominant, particularly A(H3N2), the percentage of positive tests for influenza B strains continued its rise of recent weeks while the proportion positive for influenza A strains decreased slightly (Table 2, Figures 5 and 6).

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. 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, 1 January to 20 August 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 (%A)	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

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 20 August 2017.

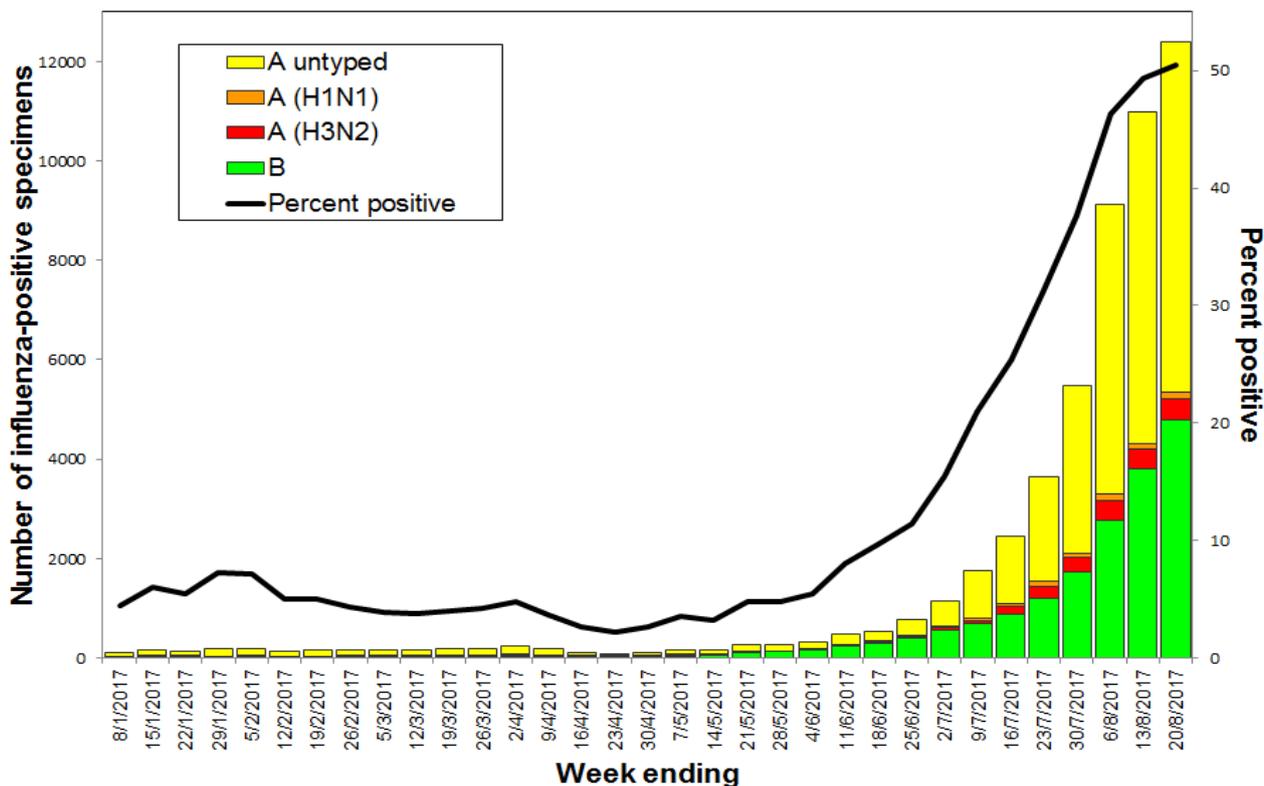
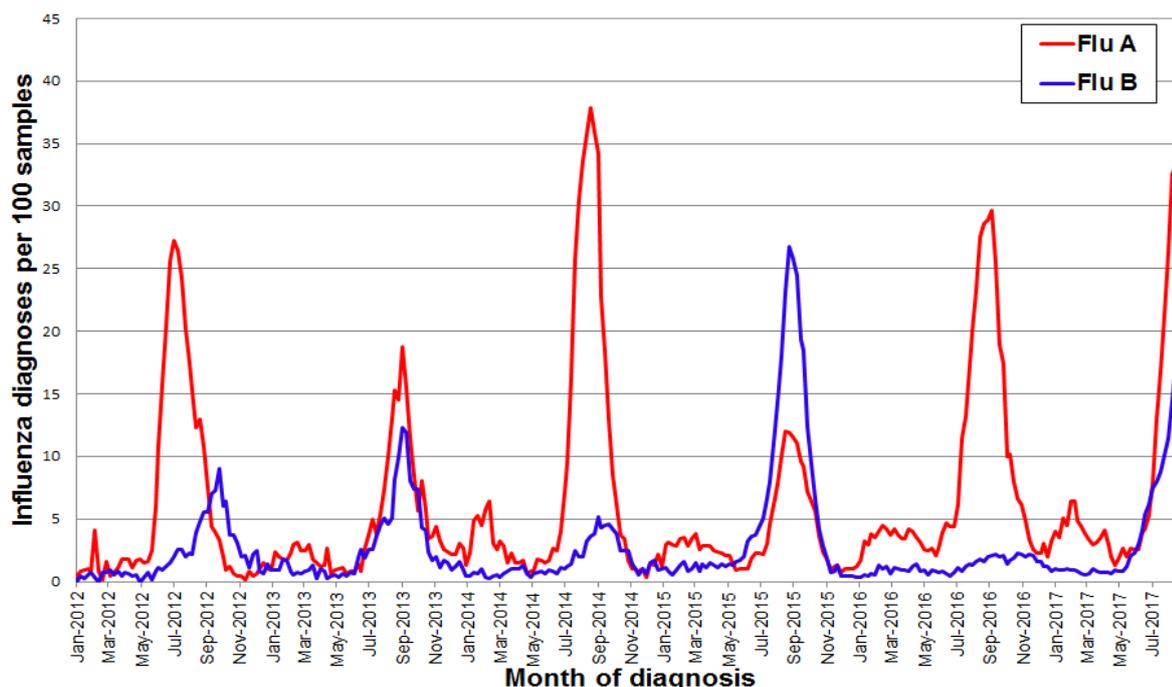


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2012 to 20 August 2017, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 20 August there were 9759 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than in the previous week (9017).

Notifications and population rates were high in Sydney metropolitan LHDs although a number of metropolitan LHDs had fewer notifications than the previous week (Table 3). Notifications were notably increased in the Southern NSW, Murrumbidgee and Western NSW LHDs.

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

Local Health District	Week ending 20 Aug 2017		Average (previous 4 weeks)	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	457	132.32	185	53.56
Far West	9	29.39	3	8.98
Hunter New England	952	102.39	591	63.56
Illawarra Shoalhaven	605	148.03	307	75.06
Mid North Coast	188	84.56	77	34.63
Murrumbidgee	284	117.28	70	28.7
Nepean Blue Mountains	812	211.03	456	118.57
Northern NSW	207	67.54	148	48.12
Northern Sydney	1438	157.11	1034	112.97
South Eastern Sydney	1046	112.73	728	78.41
South Western Sydney	1000	100.99	677	68.34
Southern NSW	256	119.6	107	49.87
Sydney	673	102.78	497	75.94
Western NSW	229	81.94	100	35.69
Western Sydney	1603	165.27	1061	109.34

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 82 influenza outbreaks reported this week in institutions; 72 of these were in residential care facilities, seven were in hospital wards, and there were outbreaks in one multi-purpose health centre, one disability care centre and one correctional centre. A total of 58 outbreaks were due to influenza A alone, 12 were due to influenza B, seven involved both influenza A and B strains and the strain is unknown for the remaining five (Table 4).

In the year to date there have been 318 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 249 have been due to influenza A, 39 were due to influenza B, 24 involved both influenza A and B strains, and the strain for six is unknown.

In outbreaks affecting aged care facilities, at least 3838 residents were reported to have had ILI symptoms and 342 required hospitalisation. Overall, there have been 131 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, January 2010 to 20 August 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	318

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

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 33 there were 38 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was high at 4.8%, the same as the previous week. For further information see the [ASPREN](#) website.

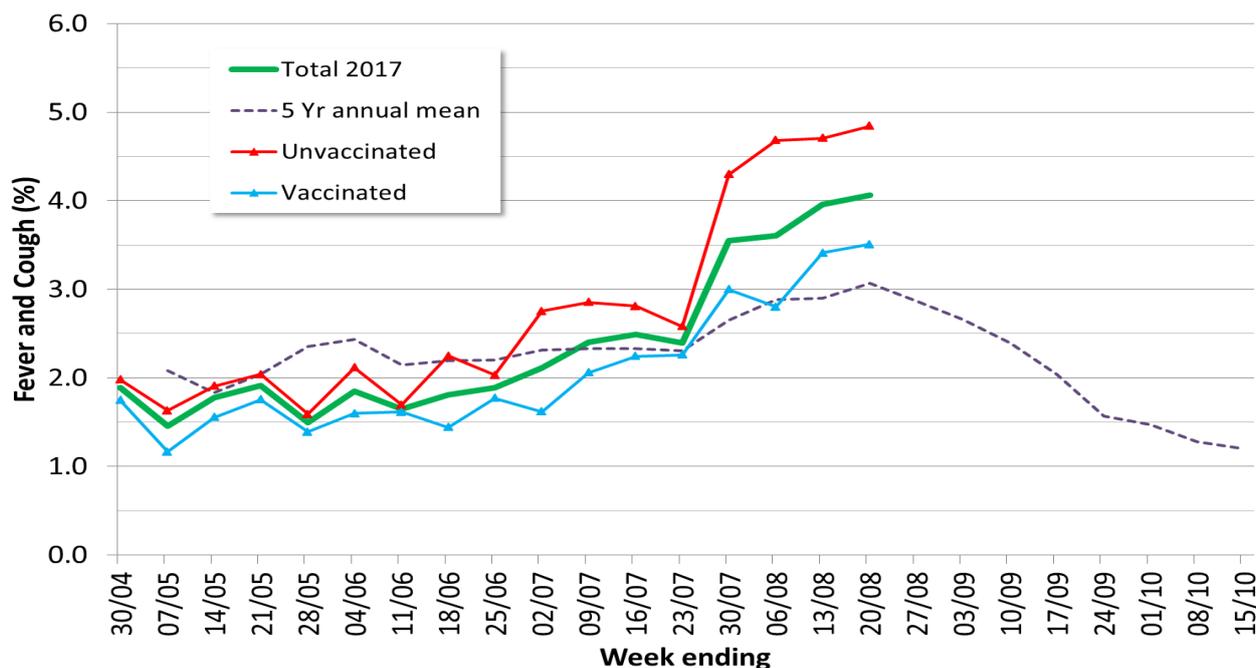
FluTracking.net

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 33 FluTracking received reports for 8,370 people in NSW with the following results:

- 4.1% of respondents reported fever and cough, similar to the previous week (4.0%), and well above the 5 year annual mean (Figure 7).
- Among respondents who reported being vaccinated for influenza in 2017, 3.5% reported fever and cough, well below the 4.8% rate reported among unvaccinated respondents (Figure 7).
- Overall, 3.0% of respondents reported fever, cough and absence from normal duties, higher than the previous week (2.7%).

Figure 7: FluTracking – Percent of NSW participants reporting fever and cough overall, compared to 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](#) website.

4. National and International Influenza Surveillance

National Influenza Surveillance

In the *Australian Surveillance Report No.6*, with data up to 4 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 an almost 2.5 times increase in 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 almost half of all patients presenting to sentinel general practitioners with ILI and tested were positive for influenza.
- Influenza A(H3N2) is currently the predominant circulating virus nationally; however, influenza B viruses also continue to circulate.
- Notification rates for the year to date have been highest in adults aged 85 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.
- Antigenic characterisation of recent influenza viruses suggests that the 2017 influenza vaccines are a moderate to good match for circulating virus strains, depending on the strain. Vaccine effectiveness estimates 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 21 August 2017](#) provides data up to 6 August. WHO reports that in 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. 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.

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 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.

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/>.