

NSW Health Influenza Surveillance Report

Week 36: 4 September to 10 September, 2017

Summary:

- Influenza activity continues to decline but overall activity remains high.
- Influenza A strains continue to decline while 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 40.7%. The number and proportion of influenza A strain isolations fell again while influenza B strain isolations were steady.
- [Community surveillance](#) – influenza notifications decreased overall. ASPREN GP and FluTracking surveillance both indicated further declines in ILI activity. The frail elderly continue to be at increased risk with a further 42 outbreaks reported in residential aged care facilities.
- [National and international influenza surveillance](#) – influenza activity is past the peak in most Australian jurisdictions but activity remains high overall. High influenza activity is being reported in temperate regions of the southern hemisphere. Worldwide, influenza A(H3N2) viruses are predominating.
- [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

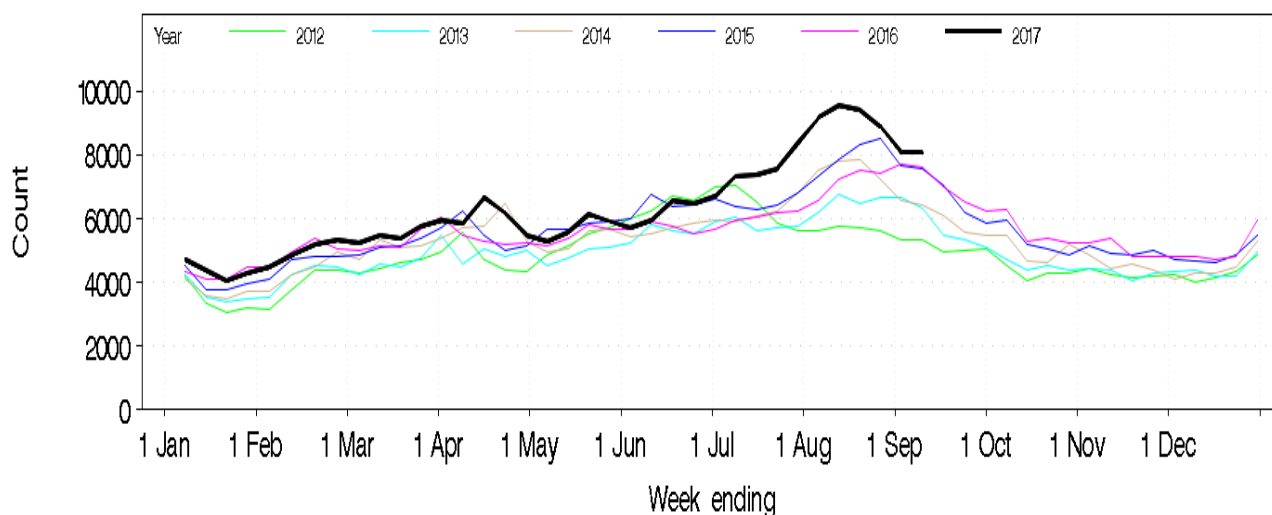
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

For the week ending 10 September 2017:

- All respiratory illness, fever and unspecified infections presentations were steady but remained above the usual seasonal range (Figure 1 and Table 1).
- ILI presentations [2] decreased further this week but levels remained high for most age groups and many NSW local health districts (LHDs) (Figure 2 and Table 1).
- ILI presentations resulting in admission also decreased but remained above the usual range (Figure 3 and Table 1).
- As of 10 September 2017, the daily index of increase for ILI presentations across NSW was lower again at 35.6. 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 12.7 per 1000 presentations, slightly lower than the previous week (13.0 per 1000).
- ED presentations for pneumonia [3] decreased while admissions increased. Both were within the usual range for this time of year (Table 1).
- Pneumonia and ILI presentations requiring admission to critical care increased and were just above usual range for this time of year (Figure 4 and Table 1).

Figure 1: Total weekly counts of ED visits for any respiratory illness, fever and unspecified infections, all ages, from 1 January – 10 September, 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 2: Total weekly counts of ED visits for influenza-like illness, all ages, from 1 January – 10 September, 2017 (black line), compared with each of the 5 previous years (coloured lines).

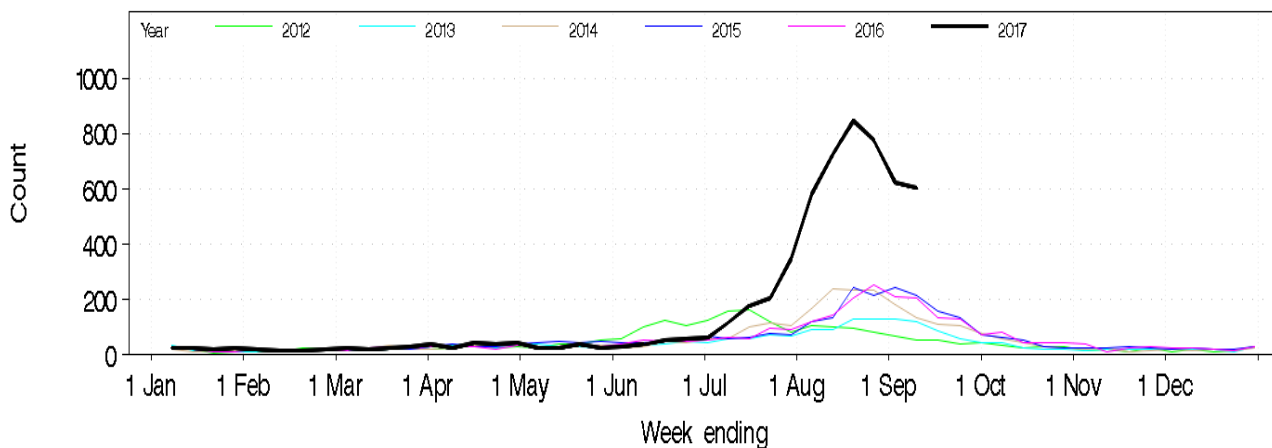


Figure 3: Total weekly counts of ED presentations for influenza-like-illness that were admitted, all ages, from 1 January – 10 September 2017 (black line), compared with each of the 5 previous years (coloured lines).

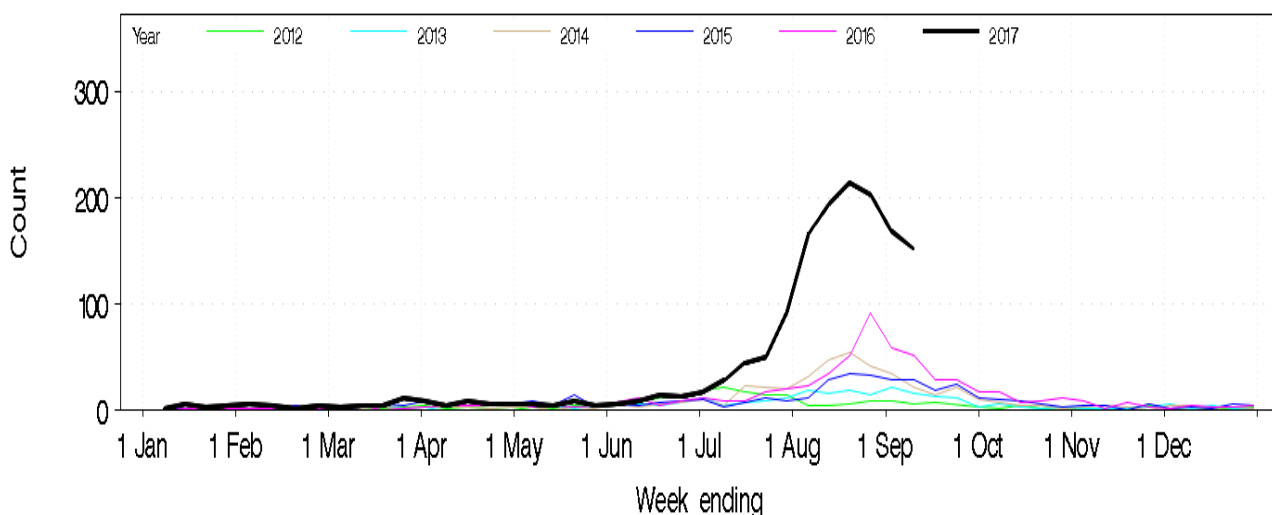


Figure 4: Total weekly counts of ED presentations for influenza-like illness and pneumonia, that were admitted to a critical care ward all ages, from 1 January – 10 September, 2017 (black line), compared with each of the 5 previous years (coloured lines).

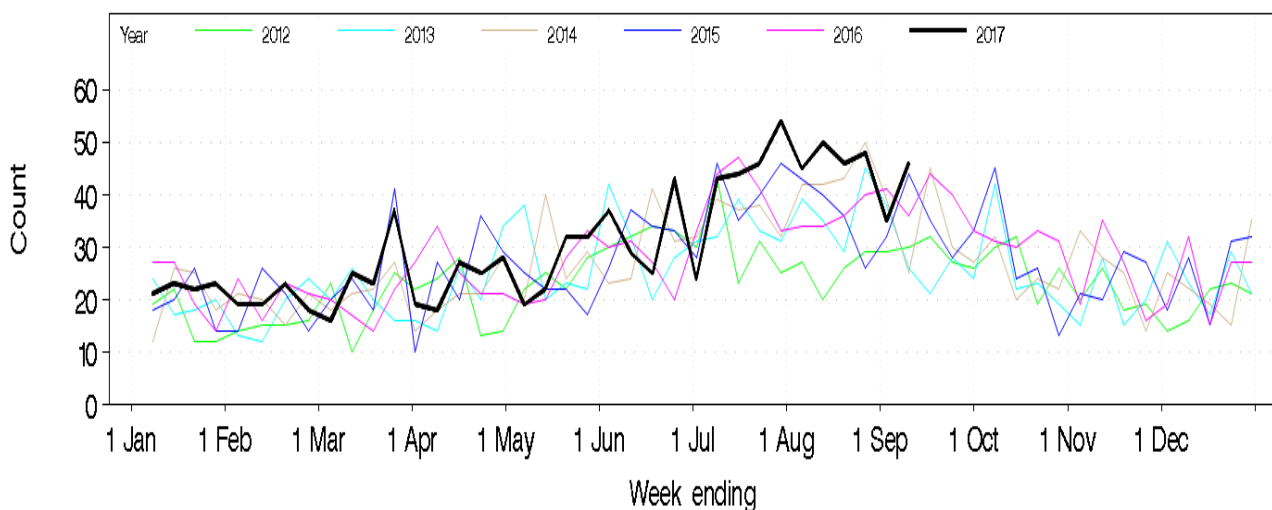


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 10 September 2017. Includes data from 60 NSW EDs and the NSW Ambulance Division. [4]

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 (602)	Above (53-215)	65+ years (175) 35-64 years (192) 5-16 years (70) 0-4 years (53) 17-34 years (112)	Central Coast (48), Hunter New England (104), South Eastern Sydney (87), Northern Sydney (59), Nepean Blue Mountains (27), Murrumbidgee (38), Western NSW (36), Illawarra Shoalhaven (37), Mid North Coast (32), Northern NSW (30), Southern NSW (14), South Western Sydney (35)	Ambulance arrival (137)	Daily index of increase = 35.6
	ILI admissions	Decreased (152)	Above (6-51)	65+ years (93) 35-64 years (35) 0-4 years (11)	Hunter New England (39), Central Coast (13), Murrumbidgee (13), South Eastern Sydney (24), Northern Sydney (15)	Ambulance arrival (74)	
	Pneumonia	Decreased (633)	Within (503-700)				
	Pneumonia admissions	Increased (474)	Within (369-531)		Central Coast (54)		
	Pneumonia and ILI critical care admissions	Increased (46)	Above (25-44)				
	Asthma	Increased (424)	Within (421-531)				
	Bronchiolitis	Decreased (190)	Below (204-290)				
	Breathing problems	Increased (601)	Above (423-592)			Admitted (306)	
All respiratory illness, fever and unspecified infections	Steady (8,072)	Above (5,332-7,591)	65+ years (2,027) 35-64 years (1,634) 5-16 years (1,135)	Mid North Coast (394), Northern NSW (388), Western NSW (386), Central Coast (496), Nepean Blue Mountains (366), Murrumbidgee (379), Hunter New England (1,181), South Western Sydney (961), Illawarra Shoalhaven (439)	Admitted (2,602), ambulance arrival (1,832)		

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 36 there were 68 influenza admissions in NSW sentinel hospitals (Figure 5). Of these, 40 were due to influenza A and 28 were due to influenza B.

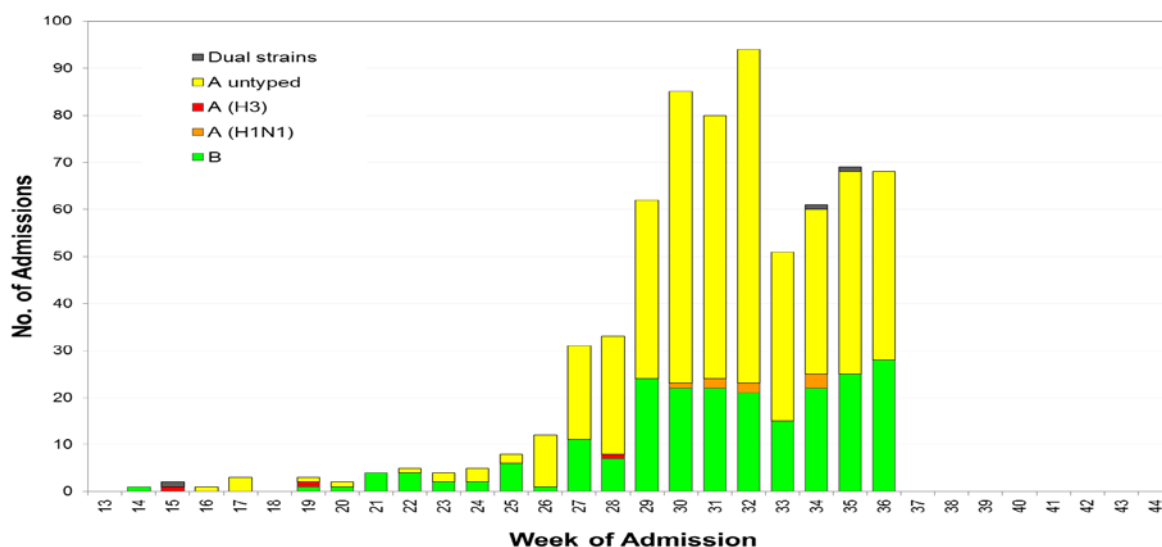
Since 1 April 2017, there have been 686 hospital admissions reported for influenza; 464 due to influenza A, 219 due to influenza B, and two with dual infections (Figure 5). Of these admissions, 194 were paediatric cases (<16 years of age) and 492 were in adults. Of the 686 cases, 48 cases (7.0%) have been admitted to a critical care ward.

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.

Figure 5: FluCAN – Number of confirmed influenza hospital admissions in NSW, 1 April 2017 to 10 September 2017.*



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

2. Laboratory Surveillance

For the week ending 10 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 6), with a continuation of the decreasing trend in testing for respiratory viruses overall.

Overall, 40.7% of tests for respiratory viruses were positive for influenza, lower than the previous week (Figure 5). The influenza B strain positive percentage was 19.9%, a slight increase over the previous week (19.4%) while for influenza A strains the positive percentage continued its decline and was only slightly higher than for B strains (Table 2, Figures 6 and 7).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories by test date, 1 January to 10 September 2017.

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	(%)							
29/01/2017	10112	497	(4.9%)	53	(10.7%)	4	(0.8%)	440	(88.5%)	93	(0.9%)	375	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*	21262	725	(3.4%)	83	(11.4%)	16	(2.2%)	626	(86.3%)	158	(0.7%)	684	1000	1830	5427	290	530	
30/04/2017	18089	373	(2.1%)	63	(16.9%)	15	(4.0%)	295	(79.1%)	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	25688	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	
03/09/2017*	108026	31685	(29.3%)	1858	(5.9%)	526	(1.7%)	29492	(93.1%)	19678	(18.2%)	2984	1180	4099	8255	1141	681	
Week ending																		
10/09/2017	18983	3961	(20.9%)	215	(5.4%)	98	(2.5%)	3648	(92.1%)	3774	(19.9%)	444	264	503	1404	223	81	

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

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: NSW Health Pathology (Hunter New England, North Sydney, Western Sydney, South Eastern Sydney, South West Sydney, The Children’s Hospital at Westmead, Australian Clinical Labs, Douglas Hanly Moir Pathology, Lavery Pathology, Medlab, SydPath.

Figure 6: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 10 September 2017.

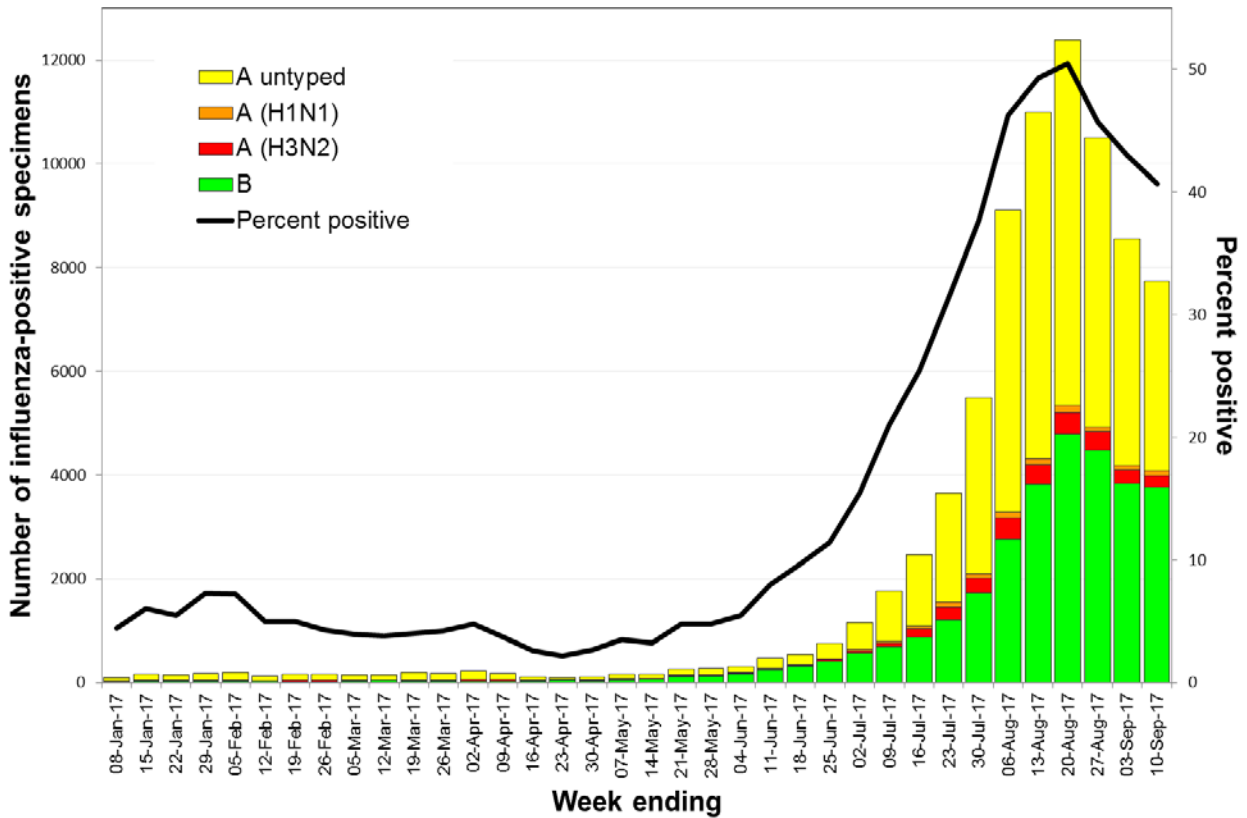
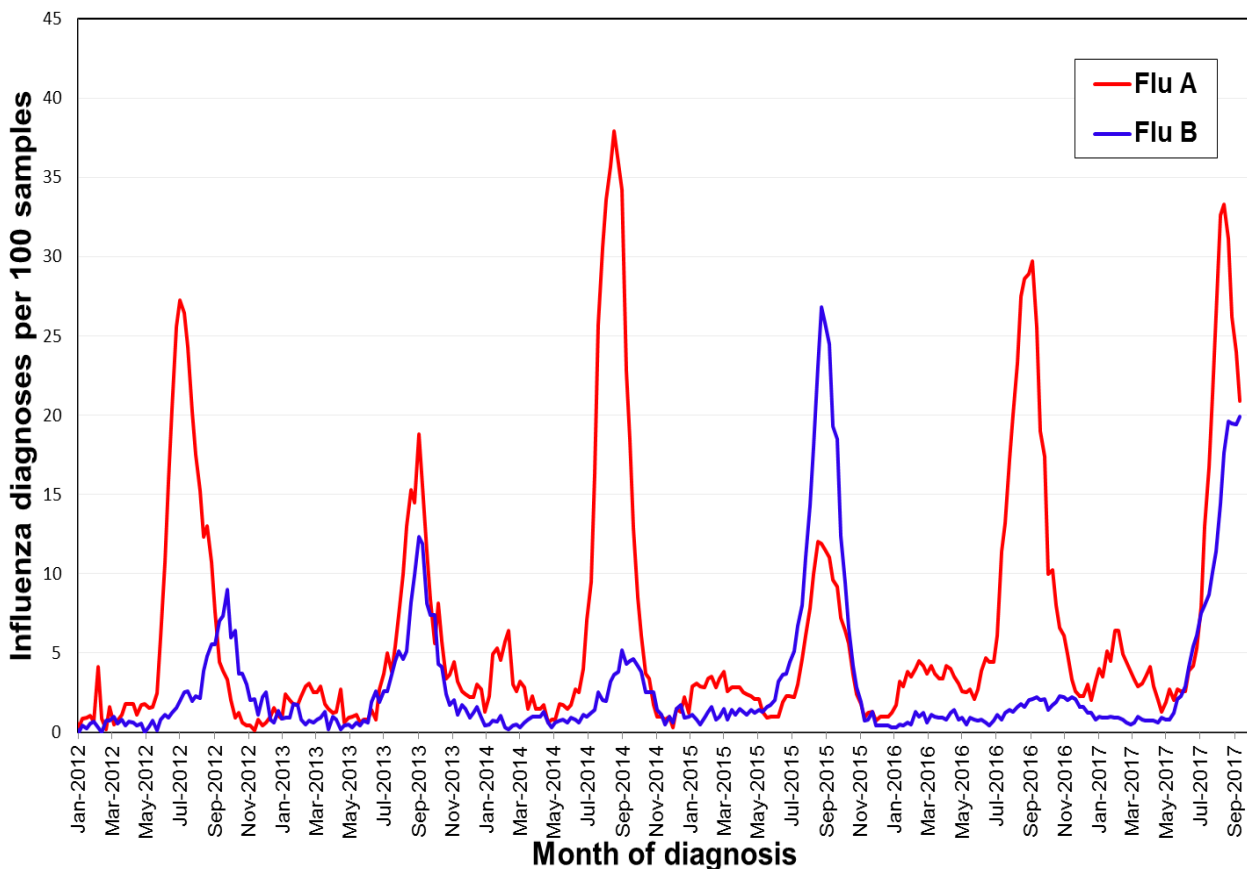


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2012 to 10 September 2017, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

For week 36 there were 9,039 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, lower than for the previous week (10,151).

Notifications were steady or decreased in most LHDs compared to the previous week, but were notably increased in the Hunter New England and Northern NSW LHDs (Table 3).

Table 3: Weekly notifications of laboratory-confirmed influenza by NSW Local Health District, by earliest report or create date for week 36, 2017.

Local Health District	Week ending 10 Sep 2017		Week ending 03 Sep 2017	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	398	115.24	368	106.55
Far West	6	19.59	9	29.39
Hunter New England	1140	122.61	938	100.88
Illawarra Shoalhaven	388	94.94	518	126.75
Mid North Coast	173	77.81	147	66.12
Murrumbidgee	339	139.99	354	146.18
Nepean Blue Mountains	511	132.8	620	161.13
Northern NSW	271	88.42	123	40.13
Northern Sydney	1184	129.36	1161	126.84
South Eastern Sydney	876	94.41	1020	109.93
South Western Sydney	1193	120.48	1835	185.31
Southern NSW	158	73.81	253	118.19
Sydney	646	98.66	745	113.78
Western NSW	387	138.48	438	156.73
Western Sydney	1369	141.15	1622	167.23

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, slightly more than the previous week (43). Of these, 42 were in residential aged care facilities, two were in hospitals and one was in a residential mental health facility (Figure 8). A total of 34 outbreaks were due to influenza A, 10 were due to influenza B and one involved both influenza A and B strains.

In the year to date there have been 461 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 358 have been due to influenza A, 72 were due to influenza B, and 31 involved both influenza A and B strains.

In outbreaks affecting aged care facilities, at least 5573 residents were reported to have had ILI symptoms and 533 required hospitalisation. Overall, there have been 215 deaths in residents reported linked to these outbreaks, all of whom were noted to have other significant co-morbidities.

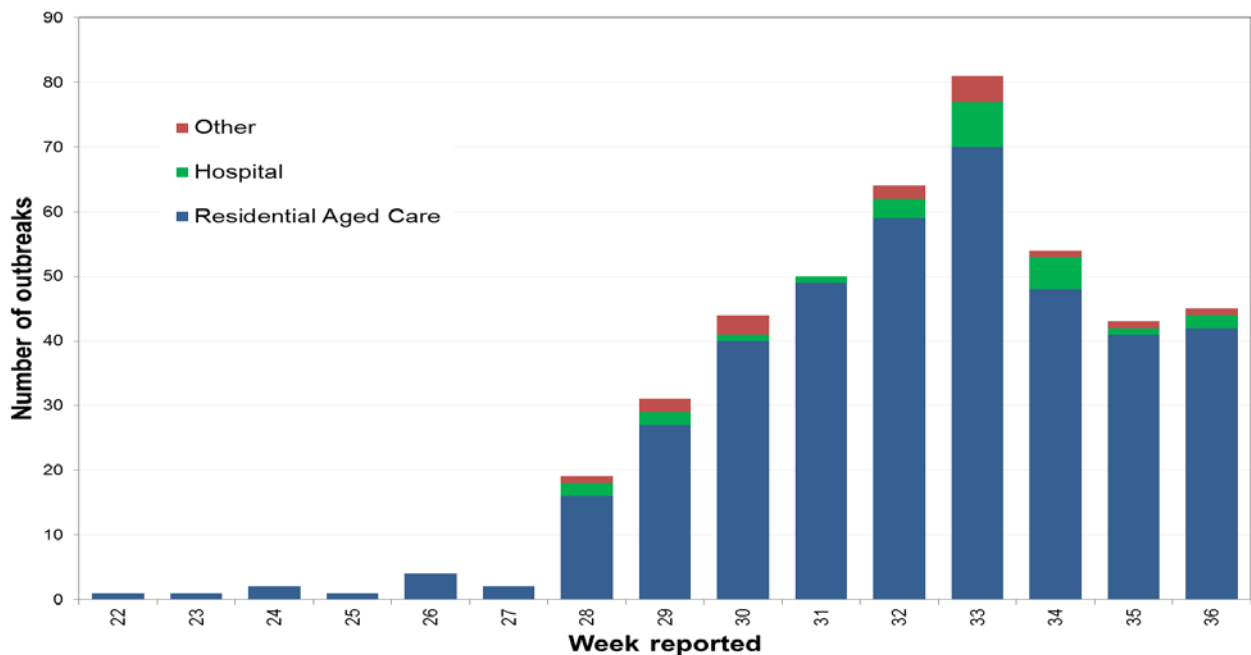
People in older age-groups are at higher risk of infection from the influenza A(H3N2) strain than the influenza A(H1N1) strain. The influenza A(H3N2) strain also predominated in 2012, 2014 and 2016. In 2015, influenza B was the predominant strain, and was also associated with an increase in influenza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

Table 4: Reported influenza outbreaks in NSW institutions, 2010 to 10 September 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	461

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

Figure 8: Reported influenza outbreaks in NSW institutions by week and institution type, week 22 to week 36, 2017.



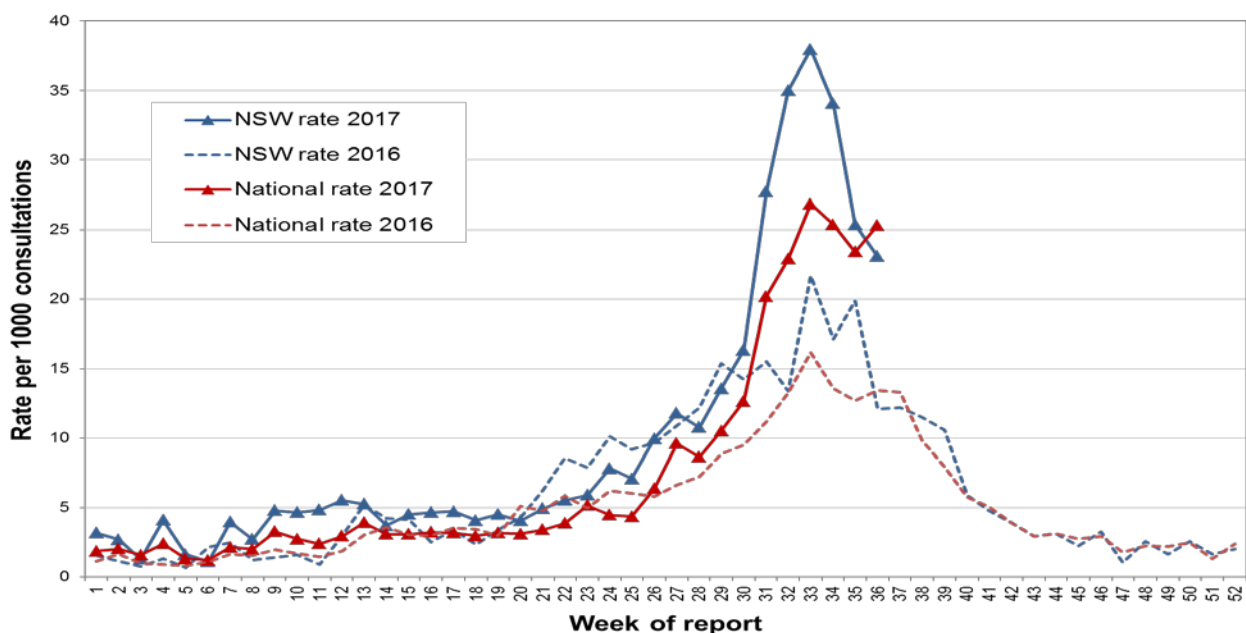
The Australian Sentinel Practices Research Network (ASPREN)

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 36 there were ASPREN reports received from 45 NSW GPs. The reported consultation rate for ILI per 1000 consultations was lower at 23.1, and now below the national rate (Figure 9). For further information see the [ASPREN](#) website.

Figure 9: ASPREN – NSW and National GP ILI rates per 1000 consultations – 2016 to week 36, 2017.



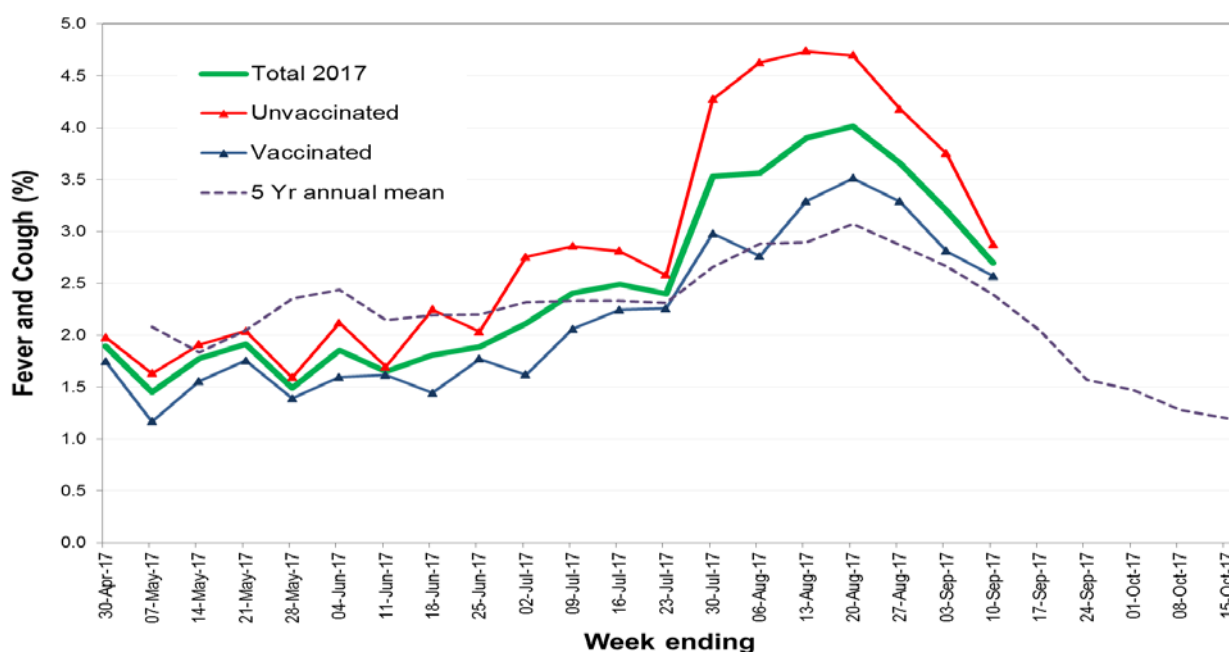
FluTracking.net

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 36 FluTracking received reports for 8,315 people in NSW with the following results:

- 2.7% of respondents reported fever and cough, down from the previous week (3.2%) but still above the 5 year annual mean (Figure 10).
- Among respondents who reported being vaccinated for influenza in 2017, 2.6% reported fever and cough compared to 2.9% for unvaccinated respondents (Figure 10).
- Overall, 1.9% of respondents reported fever, cough and absence from normal duties, lower than the previous week (2.4%).

Figure 10: 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 website.

4. National and International Influenza Surveillance

National Influenza Surveillance

In the *Australian Surveillance Report No.8*, with data up to 1 September 2017, influenza activity at the national level decreased this reporting fortnight after reaching a peak in weeks 32 and 33. However, high levels of activity continued to be reported in a majority of regions. Of note:

- There has been more than two and a half times the number of laboratory confirmed notifications of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) this year when compared with the same period last year.
- Influenza A(H3N2) is the predominant circulating influenza A virus nationally. Influenza B viruses also continue to circulate, with the proportion of influenza B increasing.

- Notification rates 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 decreased, following a peak in week 32. The proportion of patients admitted directly to ICU has been lower than recent years.
- Antigenic characterisation of circulating influenza viruses suggests the seasonal influenza vaccines are a moderate to good match for circulating virus strains, depending on the strain.

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](#).

Influenza at the human-animal interface

WHO publishes regular updated risk assessments of human infections with avian and other non-seasonal influenza viruses at [Influenza at the human-animal interface](#), with the most recent report published on 25 July 2017. These reports provide information on human cases of infection with non-seasonal influenza viruses, such as H5 and H7 clade viruses, and outbreaks among animals.

A report entitled *Human cases of influenza at the human-animal interface, January 2015–April 2017* has also been recently published in the [WHO Weekly Epidemiological Record](#). Of note, there has been no sustained human-to-human transmission identified in any of the events; there has been a considerable surge in human cases of A(H7N9) virus infection; there has been a sharp decrease in reported human infections with A(H5N1) viruses; and approximately one quarter of cases of human infections with swine influenza variant viruses were severe and one case was fatal.

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

In Australia, all influenza vaccines included in the National Immunisation Program in 2017 are quadrivalent influenza vaccines and have the following composition:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus (changed from the 2016 vaccines)
- 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).

More details about the most recent influenza vaccine recommendations can be found at:

<http://www.who.int/influenza/vaccines/virus/en/>.