

NSW Health Influenza Surveillance Report

Week 42: 16 to 22 October, 2017

Summary:

- **Most influenza activity indicators are at or near inter-seasonal levels.**
- **Influenza B activity is declining but it remains the predominant influenza type.**

In this reporting week:

- [Hospital surveillance](#) – emergency department presentations for respiratory illness, including influenza-like illness (ILI), is low. Overall activity is within the usual range for this time of year.
- [Laboratory surveillance](#) – the total number of influenza isolations decreased further, and the influenza-positive test rate was lower at 7.3%. Influenza B strains continued to be more commonly identified than A strains.
- [Community surveillance](#) – influenza notifications decreased further. ASPREN surveillance indicated further declines in ILI activity. The number of outbreaks reported in aged care facilities is low with three reported in the last week.
- [National and international influenza surveillance](#) – the most recent national influenza activity showed a continuing decline in influenza notifications after reaching a peak in mid-August. Worldwide, influenza A(H3N2) viruses are predominating.
- [Recommended composition of 2018 influenza vaccines](#) – new influenza vaccine recommendations for the 2018 southern hemisphere influenza season include a change in the A(H3N2) component of quadrivalent 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

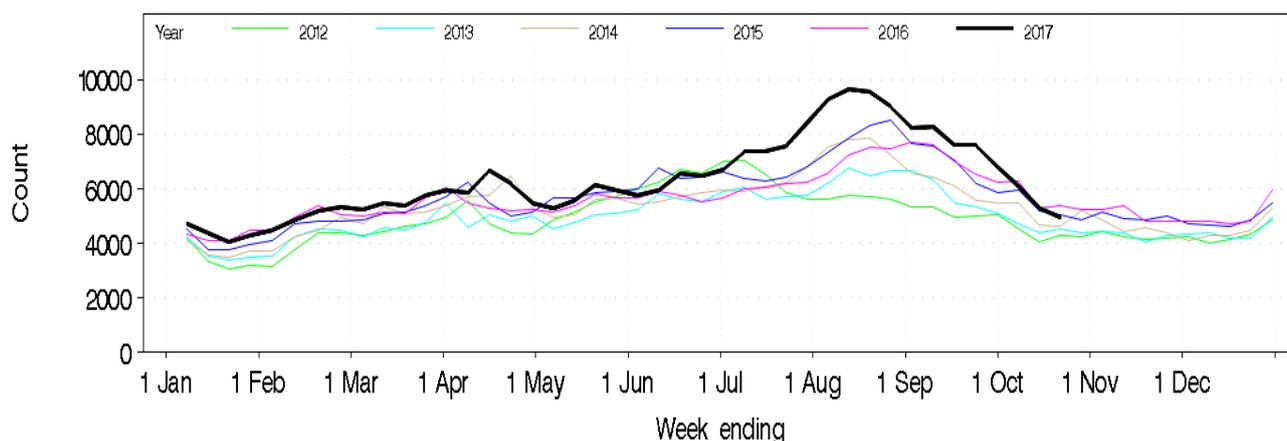
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

For the week ending 22 October 2017:

- Presentations in the *All respiratory illness, fever and unspecified infections* category decreased further and are were within the usual seasonal range. Presentations were elevated at Kempsey Hospital (Figure 1 and Table 1).
- ILI presentations [2] continued to decrease this week but remained slightly above the usual range for this time of year. (Figure 2 and Table 1).
- ILI presentations resulting in admission also decreased and were with the usual range (Figure 3 and Table 1).
- As of 22 October 2017, the daily index of increase for ILI presentations across NSW decreased further and was well below the threshold at 1.3. 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 1.0 per 1000 presentations, lower than the previous week (2.3 per 1000).
- ED presentations for pneumonia were steady but pneumonia admissions increased [3]; however, both 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 4 and Table 1).
- Bronchiolitis presentations were steady and within the usual range for this time of year (Table 1).

Figure 1: Total weekly counts of ED visits for any respiratory illness, fever and unspecified infections, all ages, from 1 January – 22 October, 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 – 22 October, 2017 (black line), compared with each of the 5 previous years (coloured lines).

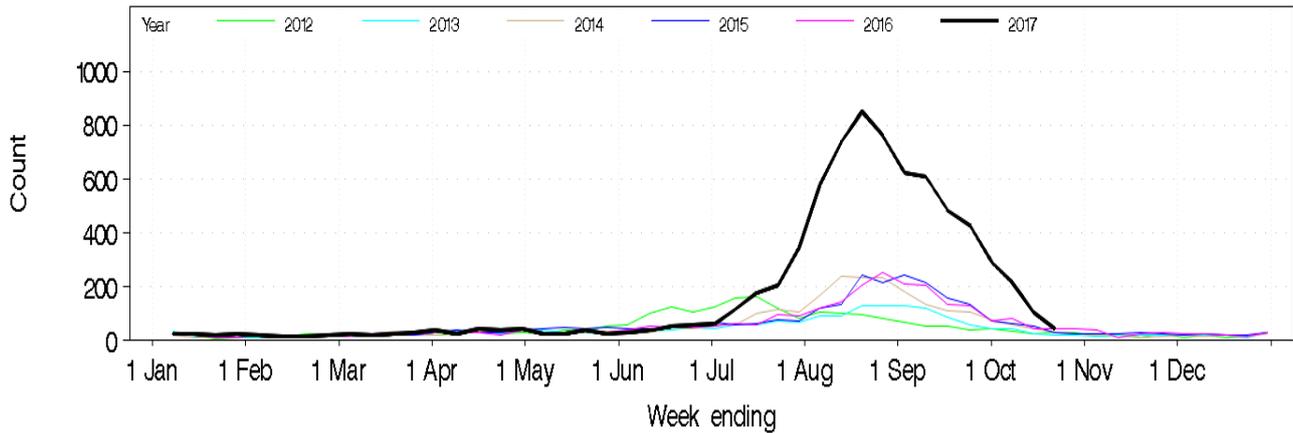


Figure 3: Total weekly counts of ED presentations for influenza-like-illness that were admitted, all ages, from 1 January – 22 October 2017 (black line), compared with each of the 5 previous years (coloured lines).

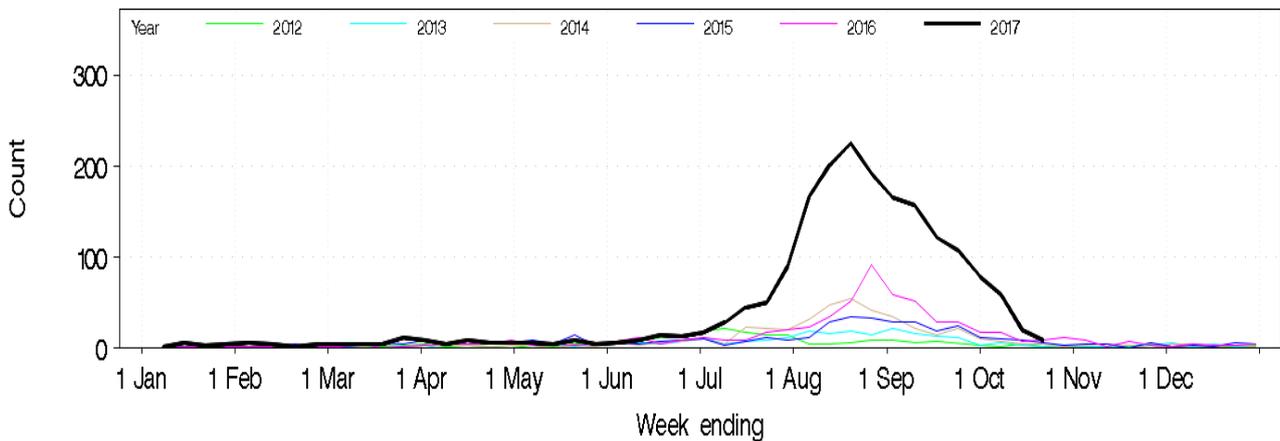


Figure 4: Total weekly counts of ED presentations for influenza-like illness and pneumonia, that were admitted to a critical care ward all ages, from 1 January – 22 October, 2017 (black line), compared with each of the 5 previous years (coloured lines).

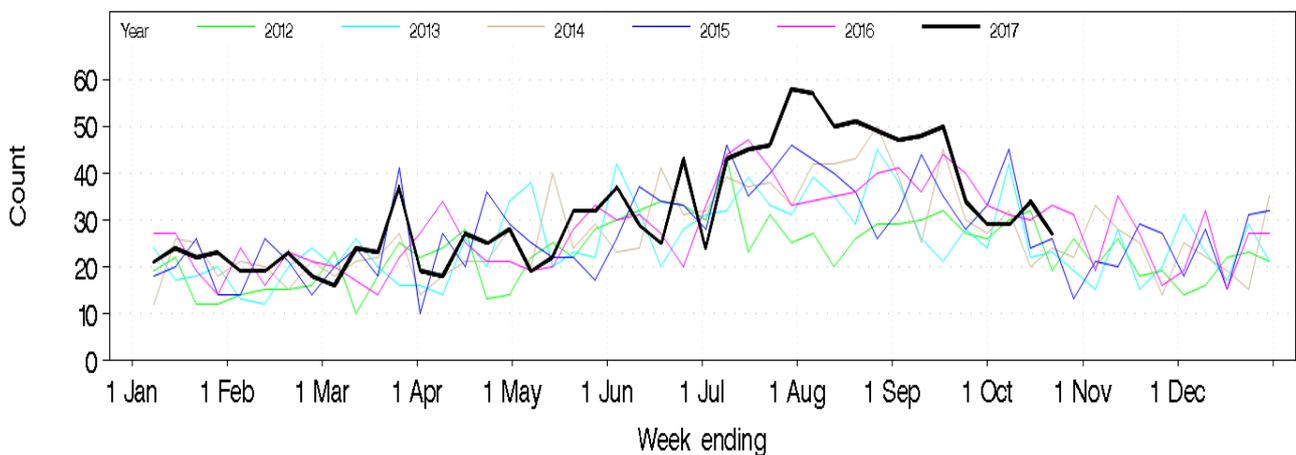


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 22 October 2017. Includes data from 60 NSW EDs and the NSW Ambulance Division. [4]

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 (44)	Above (20-43)				Daily index of increase = 1.3
	ILI admissions	Decreased (9)	Within (1-9)				
	Pneumonia	Steady (402)	Within (317-461)				
	Pneumonia admissions	Increased (299)	Within (244-357)				
	Pneumonia and ILI critical care admissions	Decreased (27)	Within (19-33)				
	Asthma	Increased (368)	Below (405-465)				
	Bronchiolitis	Steady (150)	Within (133-174)				
	All respiratory illness, fever and unspecified infections	Decreased (1,843)	Within (1,593-1,860)		Kempsey Hospital (86)		

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 42 there were five influenza admissions in NSW sentinel hospitals (Figure 5), down from 10 admissions in the previous week. Of the five latest admissions, four were due to influenza A and one was due to influenza B.

Since 1 April 2017 there have been 943 hospital admissions reported for influenza; 614 were due to influenza A, 325 were due to influenza B, three had dual infections and there was one where the influenza type was not recorded (Figure 5).

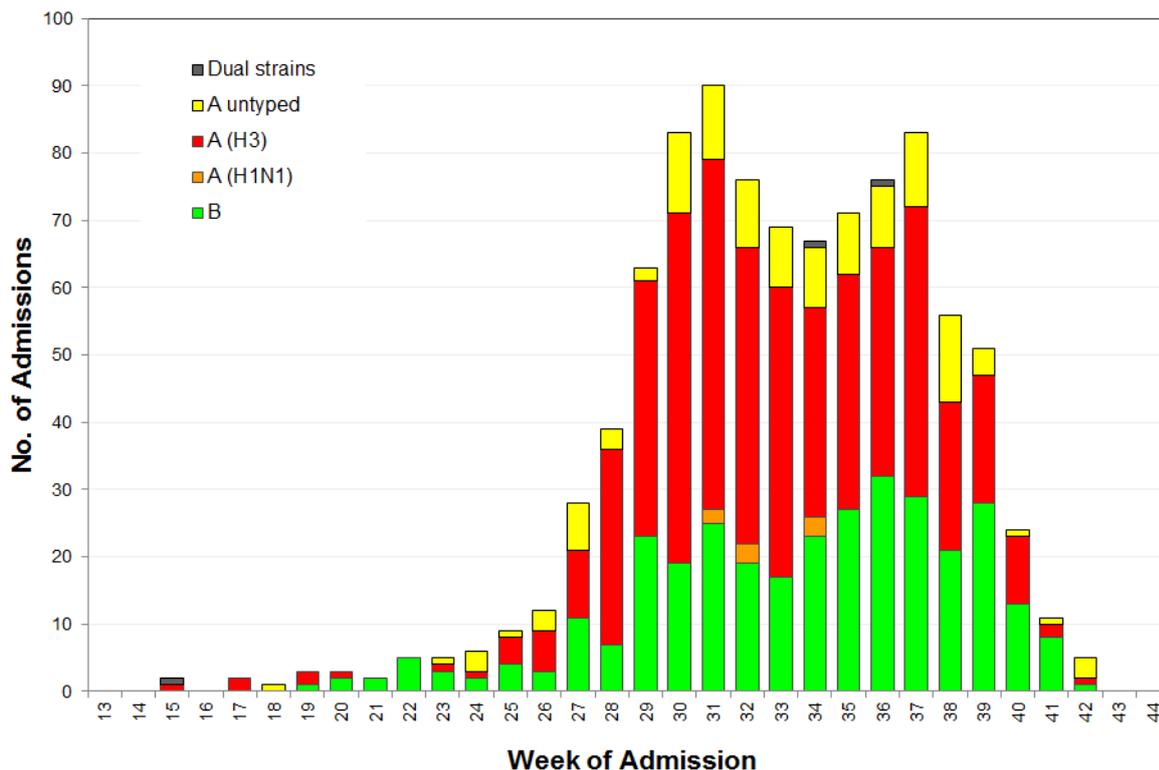
Of these admissions, 250 were paediatric cases (<16 years of age) and 693 were in adults. Of the 943 cases, 81 cases (8.6%) have been admitted to a critical care ward.

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 22 October 2017.*



Notes: * All data are preliminary and may change as more information is received. The Influenza A untyped category indicates no strain sub-typing has been performed. The Influenza A(H3) category includes some influenza A results so categorised on the basis that influenza A(H1N1) was excluded.

2. Laboratory Surveillance

For the week ending 22 October 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 but remain above inter-seasonal activity levels (Table 2, Figure 6).

Overall, 7.3% of tests for respiratory viruses were positive for influenza, lower than the previous week (12.2%, Figure 5). The positive percentage was lower for both influenza A and B strains, with influenza B strains continuing to predominate (Table 2, Figures 6 and 7).

Rhinovirus was the leading respiratory virus reported, with other viruses circulating at usual 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. 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, Laverty Pathology, Medlab, SydPath.

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories by test date, 1 January to 22 October 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	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%)	748	(8.0%)	250	(2.7%)	8330	(89.3%)	4516	(9.7%)	1712	926	4059	6011	709	625
03/09/2017*	108262	31677	(29.3%)	1869	(5.9%)	529	(1.7%)	29474	(93.0%)	19670	(18.2%)	2984	1180	4099	8255	1141	681
01/10/2017	70006	11926	(17.0%)	591	(5.0%)	237	(2.0%)	10558	(88.5%)	12827	(18.3%)	1597	1193	1499	5448	926	305
Week ending																	
08/10/2017	10112	818	(8.1%)	65	(7.9%)	33	(4.0%)	720	(88.0%)	1227	(12.1%)	279	320	221	899	215	51
15/10/2017	9066	360	(4.0%)	27	(7.5%)	12	(3.3%)	321	(89.2%)	747	(8.2%)	312	340	185	1032	192	57
22/10/2017	6423	174	(2.7%)	8	(4.6%)	2	(1.1%)	164	(94.3%)	294	(4.6%)	225	294	143	837	199	63

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

Figure 6: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 22 October 2017.

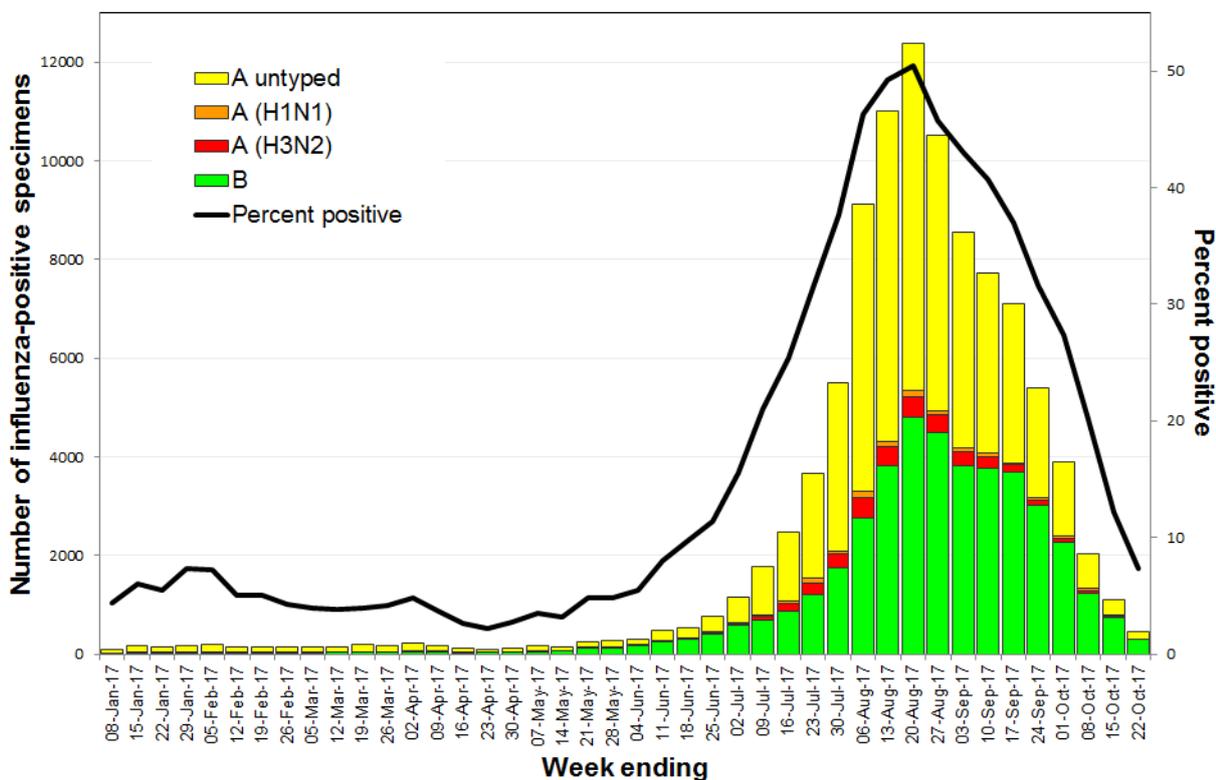
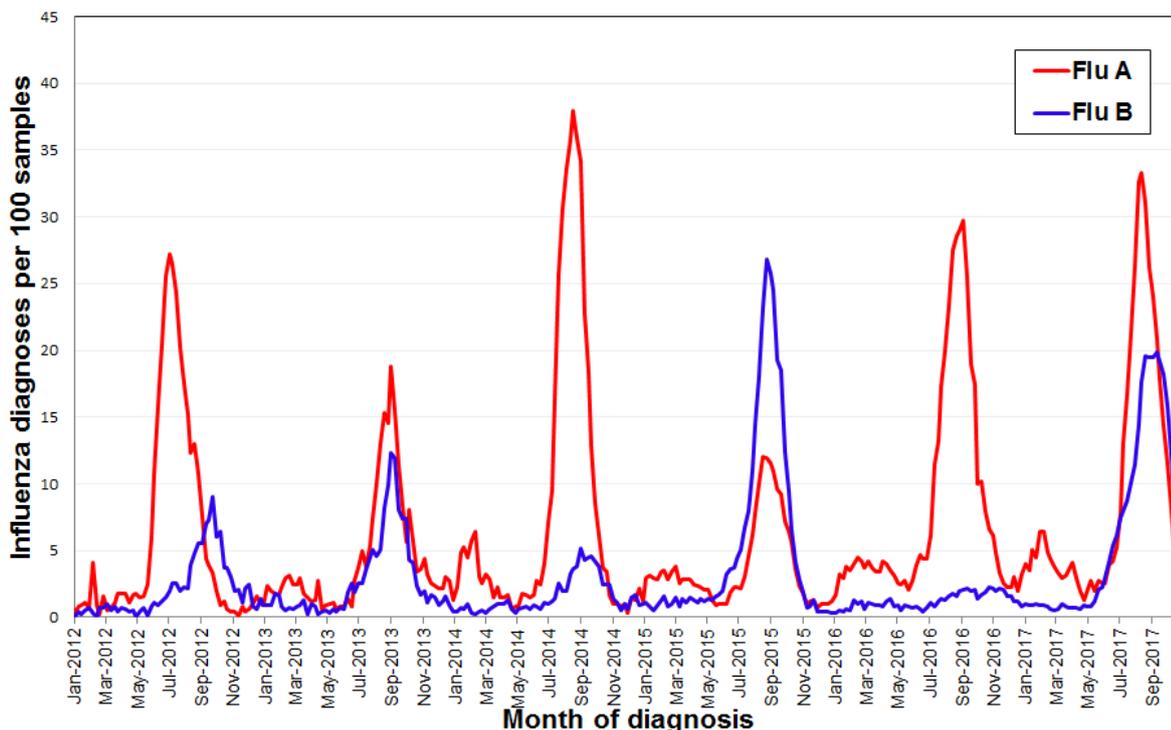


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2012 to 22 October 2017, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

For week 42 there were 1,800 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, slightly higher than the previous week (1,616). Notifications in LHDs were generally lower or steady with the exception of South Western Sydney LHD which reported a marked increase in notifications (Table 3).

Table 3: Weekly notifications of laboratory-confirmed influenza by NSW Local Health District, by earliest report or create date for week 42, 2017.

Local Health District	Week ending 22 Oct 2017		Week ending 15 Oct 2017	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	22	6.37	162	46.91
Far West	1	3.27	4	13.06
Hunter New England	211	22.69	217	23.34
Illawarra Shoalhaven	34	8.32	81	19.82
Mid North Coast	14	6.3	20	9
Murrumbidgee	56	23.13	101	41.71
Nepean Blue Mountains	63	16.37	59	15.33
Northern NSW	21	6.85	50	16.31
Northern Sydney	159	17.37	265	28.95
South Eastern Sydney	264	28.45	118	12.72
South Western Sydney	544	54.94	91	9.19
Southern NSW	14	6.54	54	25.23
Sydney	188	28.71	112	17.11
Western NSW	28	10.02	68	24.33
Western Sydney	181	18.66	214	22.06

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 four influenza outbreaks in institutions reported this week, the same as the previous week. Of these, three were in residential aged care facilities and the other was in a disability centre (Figure 8). Two were due to influenza A and two were due to influenza B.

In the year to date there have been 586 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 424 have been due to influenza A, 115 were due to influenza B, 52 involved both influenza A and B strains, and the strain for one is pending. Four other suspected influenza outbreaks were excluded after investigation.

In outbreaks affecting aged care facilities, at least 7082 residents were reported to have had ILI symptoms and 691 required hospitalisation. Overall, there have been 298 deaths in residents reported linked to these outbreaks, all of whom were noted to have other significant co-morbidities.

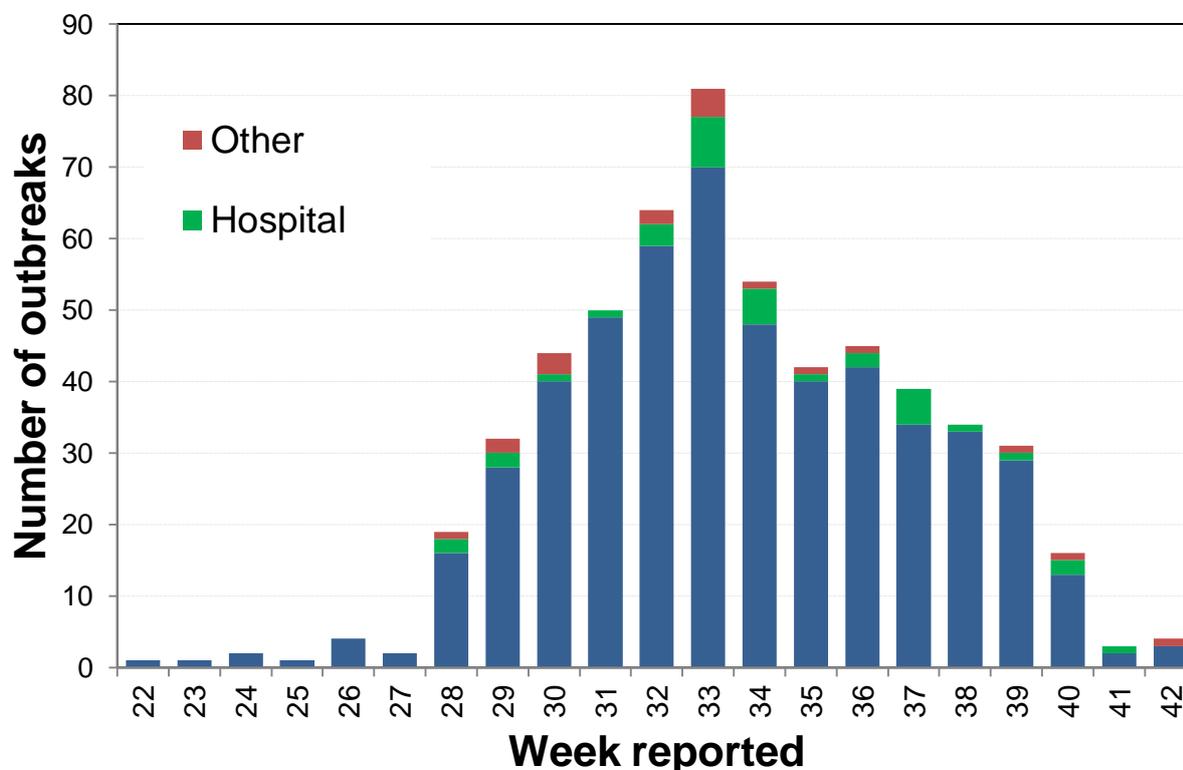
People in older age-groups are at higher risk of infection from the influenza A(H3N2) strain than the influenza A(H1N1) strain. The influenza A(H3N2) strain also predominated in 2012, 2014 and 2016. In 2015, influenza B was the predominant strain, and was also associated with an increase in influenza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

Table 4: Reported influenza outbreaks in NSW institutions, 2010 to 22 October 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	586

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 42 2017.



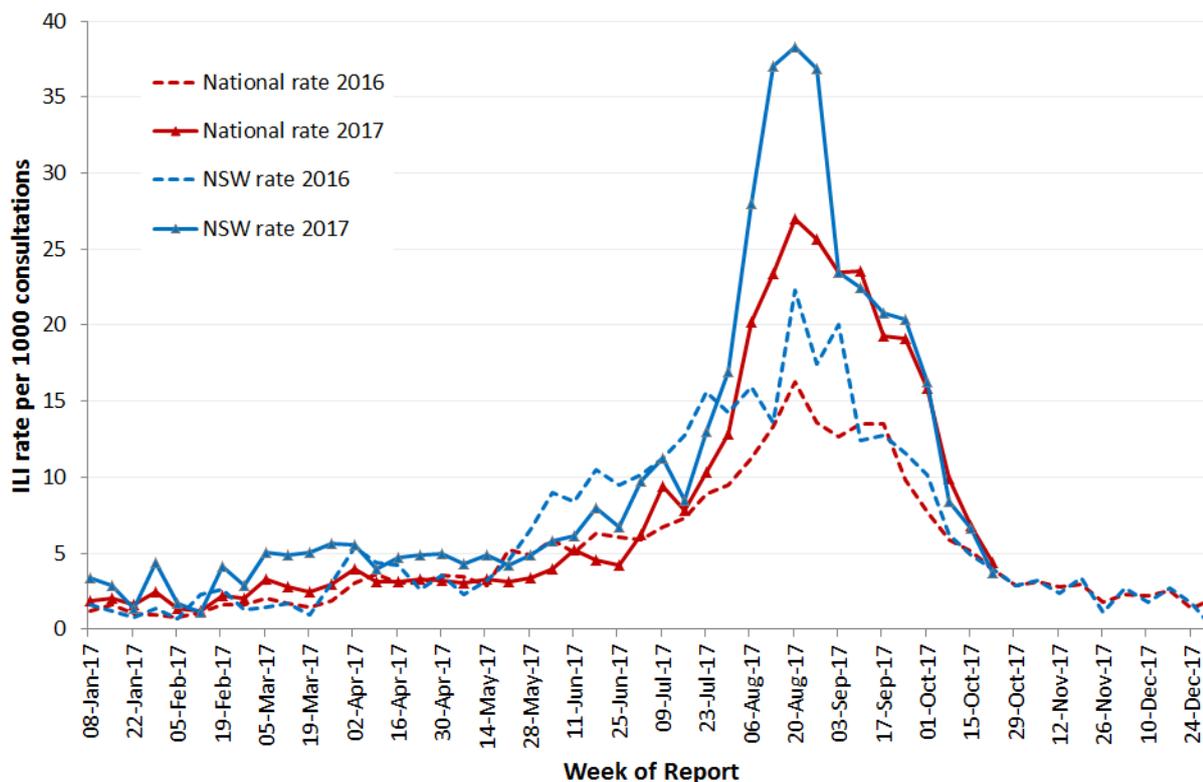
The Australian Sentinel Practices Research Network (ASPREN)

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 42 there were ASPREN reports received from 72 NSW GPs. The reported consultation rate for ILI per 1000 consultations was lower at 3.71 (Figure 9). For further information see the [ASPREN website](#).

Figure 9: ASPREN – NSW and National GP ILI rates per 1000 consultations – 2017 to week 42, compared to 2016.



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.

No Report this week

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

4. National and International Influenza Surveillance

National Influenza Surveillance

The most recent available information is in the *Australian Surveillance Report No. 11*, with data up to 13 October 2017, influenza activity at the national level continued to decline this reporting fortnight after reaching a peak in mid-August. With the exception of the Top End of the Northern Territory, influenza activity declined in all regions of the country.

Of note:

- Low to moderate levels of influenza activity in the community are likely to continue for the next few weeks as the season returns to baseline levels.

- The peak week of national influenza activity this season has been at comparable or higher levels than in recent years, with high activity persisting at the peak of the season for a number of weeks.
- 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. An earlier season onset and introduction of rapid testing have contributed, in part, to this increase. Administrative backlogs in data entry experienced in some jurisdictions are likely to alter the pattern of notifications once the backlog is resolved.
- National indicators of influenza-like illness (ILI) continued to decline in the last fortnight and are within historical ranges for this time of year. The proportion of patients presenting to sentinel general practitioners with ILI and testing positive for influenza declined this fortnight but remained at moderate levels, indicating that influenza remains an important cause of ILI in the community.
- While influenza A(H3N2) was the dominant circulating influenza virus throughout the season, influenza B is currently the dominant circulating influenza virus nationally and in many jurisdictions.
- Notification rates this year to date have been highest in adults aged 80 years and older, with a secondary peak in young children, aged 5 to 9 years. This is consistent with previous seasons where influenza A(H3N2) and influenza B, respectively, have dominated.
- Admissions to sentinel hospitals with confirmed influenza decreased this reporting fortnight, following a peak in late August. The large number of admissions this season is consistent with the higher number of cases in the community, and not necessarily reflecting an increase in severity of infection.
- Clinical severity for the season to date, as measured through the proportion of hospitalised patients admitted directly to ICU, and deaths attributed to pneumonia or influenza, is low to moderate. The proportion of hospitalised patients admitted directly to ICU has been on the lower range reported in recent years. There have been a number of reported deaths due to influenza and pneumonia and the majority have been in the elderly, which is consistent with a season predominated by influenza A(H3N2).
- 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 most recent information is in the latest [WHO global update on 16 October 2017](#) which provides data up to 1 October. WHO reports that influenza activity remained at low levels in the temperate zone of the northern hemisphere. Declining levels of influenza activity were reported in the temperate zone of the southern hemisphere and in some countries of South and South East Asia.

In Central America and the Caribbean, low influenza activity was reported in a few countries. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

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 27 September 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.

Since the last update on 25 July 2017, one new laboratory-confirmed human case of influenza A(H5N1) virus infection was reported to WHO from Indonesia, the first case report from Indonesia

since 2015. The patient was a child who passed away on 10 September. Prior to illness onset, he reportedly had exposure to poultry at his house.

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 2018 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the 2018 Southern Hemisphere was held in Melbourne on 25-27 September 2017.

The consultation report noted that during the period February – September 2017, influenza A(H3N2) viruses were associated with outbreaks in many countries. The majority of recent viruses were antigenically related to 3C.2a clade A/Hong Kong/4801/2014-like viruses but reacted poorly with ferret antisera raised to the egg-propagated A/Hong Kong/4801/2014-like viruses used in current seasonal vaccines. Influenza A(H3N2) viruses within the 3C.2a clade and 3C.2a1 subclade have become genetically diverse.

Recent A(H3N2) viruses were better inhibited by a ferret antiserum raised against the egg-propagated reference virus, A/Singapore/INFIMH-16-0019/2016, compared to ferret antisera raised against other egg-propagated A(H3N2) viruses.

Influenza A(H1N1) and influenza B/Victoria lineage strains identified in the same period were antigenically and genetically closely related to the corresponding strains in the current vaccines.

Following the Consultation, WHO announced its recommendations for the composition of quadrivalent vaccines for use in the 2018 Southern Hemisphere influenza season, which includes changes in the influenza A(H3N2) components, as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus
- an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus⁶
- a B/Phuket/3073/2013-like virus (Yamagata lineage)
- a B/Brisbane/60/2008-like virus (Victoria lineage).⁷

More details about the most recent influenza vaccine recommendations can be found at: <http://www.who.int/influenza/vaccines/virus/en/>.

⁶ This replaces A/Hong Kong/4801/2014 (H3N2)-like virus used in the current 2017 seasonal influenza vaccines.

⁷ This B/Brisbane strain had been part of the WHO recommendations for 2017 southern hemisphere trivalent influenza vaccines but has been replaced by the B/Phuket strain for 2018 trivalent vaccines. All vaccines used in Australia in 2017 were quadrivalent and so contained both B vaccine strains.