

NSW Health Influenza Surveillance Report

Week 31: 31 July to 6 August, 2017

Summary:

- **Seasonal influenza activity continues to rise above its predicted peak. Influenza activity is expected to remain high for at least the next few weeks.**
- **Influenza A strains are predominating, particularly the A(H3N2) strain.**

In this reporting week:

- [Hospital surveillance](#) – influenza-like illness (ILI) presentations to selected emergency departments continued to increase. Admissions for pneumonia remain high.
- [Laboratory surveillance](#) – the total number of influenza isolations increased again this week with the proportion of respiratory samples positive for influenza higher at 46.3%. Influenza A strains remain predominant.
- [Community surveillance](#) – influenza notifications increased in all local health districts (LHD) except Western NSW, and community ILI indicators were notably increased. Fifty-one institutions, including 49 aged care facilities, reported new influenza outbreaks.
- [Deaths with pneumonia or influenza reported on the death certificate](#) – the NSW Registry of Births, Deaths, and Marriages has recorded 21 deaths in association with influenza in 2017. The rate of deaths classified as “pneumonia and influenza” remained low.
- [National and international influenza surveillance](#) – influenza activity at the national level continued to increase this reporting fortnight indicating that the season is underway in a majority of regions across Australia.
- [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 6 August 2017:

- ILI presentations [2] continued to increase this week. Presentations were 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 further and remained above the usual range in all ages and in many LHDs (Figure 2 and Table 1).
- As of 6 August 2017, the daily index of increase for ILI presentations across NSW was very high at 90.1. The index of increase first exceeded the ED seasonal threshold of 15 on 23 June.
- The proportion of ILI presentations to all ED presentations was high at 12.0 per 1000 presentations, and higher than the previous week (7.4 per 1000).
- ED presentations for pneumonia [3] decreased but remained above the usual range for this time of year, particularly in people aged 65 years and over (Table 1.) Pneumonia admissions from ED decreased but were above the usual range for this time of year (Table 1).
- Pneumonia and ILI presentations requiring admission to critical care decreased but remained 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 – 6 August, 2017 (black line), compared with each of the 5 previous years (coloured lines).

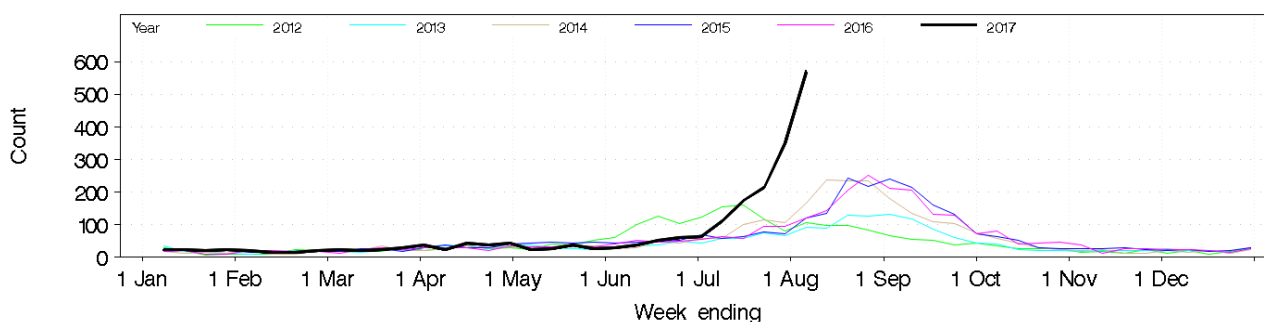
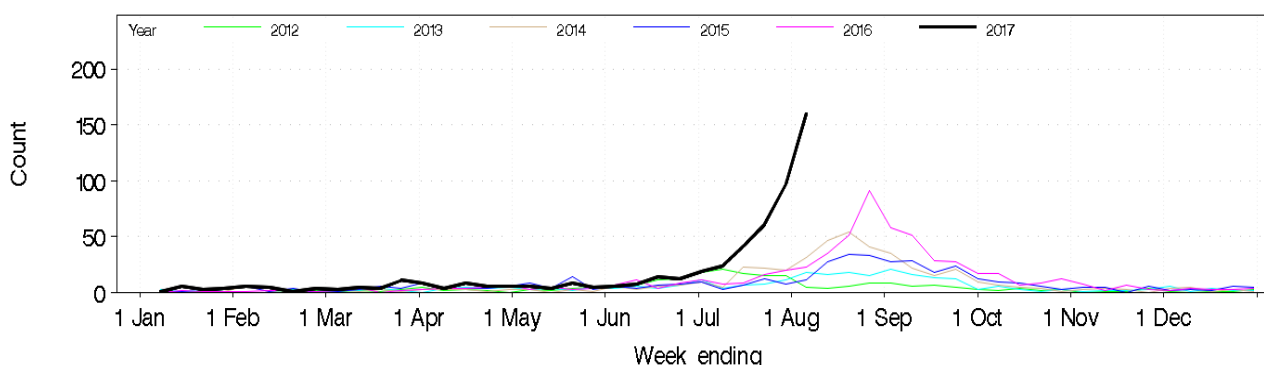


Figure 2: Total weekly counts of ED presentations for influenza-like-illness that were admitted, all ages, from 1 January – 6 August 2017 (black line), compared with each of the 5 previous years (coloured lines).



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

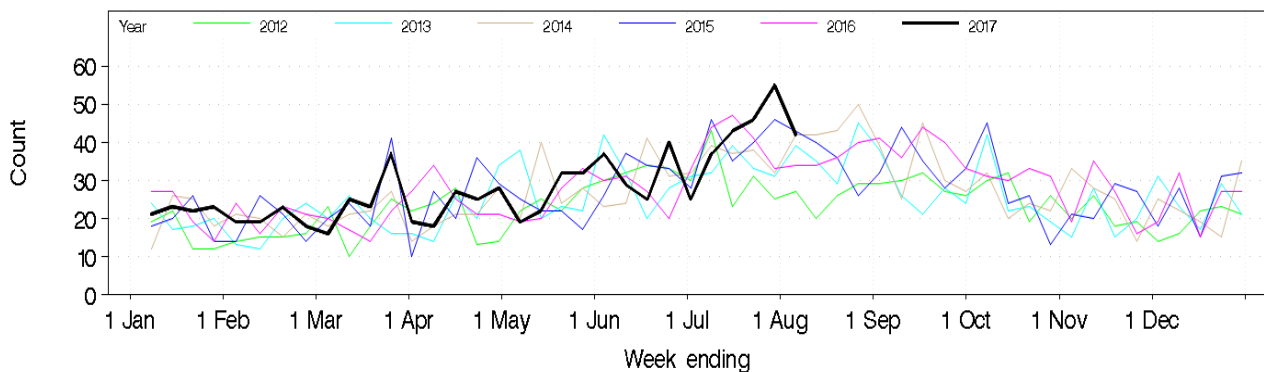


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 6 August 2017. Includes data from 60 NSW EDs and the NSW Ambulance Division. [4]

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 (570)	Above (92-165)	65+ years (136) 35-64 years (179) 5-16 years (80) 0-4 years (53) 17-34 years (122)	Northern NSW (53), South Eastern Sydney (86), Northern Sydney (65), Western Sydney (76), Central Coast (29), Western NSW (34), Hunter New England (62), Nepean Blue Mountains (22), Mid North Coast (20), South Western Sydney (49), Illawarra Shoalhaven (28) LHDs	Ambulance arrival (114),	Daily index of increase = 90.1	
	ILI admissions	Increased (160)	Above (5-31)	65+ years (82) 35-64 years (34) 5-16 years (12) 0-4 years (14) 17-34 years (18)	Hunter New England (28), Central Coast (10), Northern NSW (13), Northern Sydney (19), Western Sydney (25), Illawarra Shoalhaven (11), South Eastern Sydney (24)	Ambulance arrival (63)		
	Pneumonia	Decreased (671)	Above (493-662)	65+ years (365)				
	Pneumonia admissions	Decreased (487)	Above (360-484)					
	Pneumonia and ILI critical care admissions	Decreased (42)	Within (27-43)					
	Asthma	Decreased (472)	Usual (449-565)					
	Bronchiolitis	Increased (297)	Within (209-351))	
All respiratory illness, fever and unspecified infections	Increased (9,090)	Above (5,591-7,535)	65+ years (2,052) 35-64 years (1,517) 5-16 years (1,105) 17-34 years (1,103) <5 years (2,434)	South Western Sydney (1,073), Northern Sydney (717), Nepean Blue Mountains (400), South Eastern Sydney (1,018), Sydney (588), Hunter New England (1,114), Illawarra Shoalhaven (462), Western Sydney (948), Mid North Coast (329), Northern NSW (349) LHDs	Admitted (2,893) ambulance arrival (2,095)			

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.

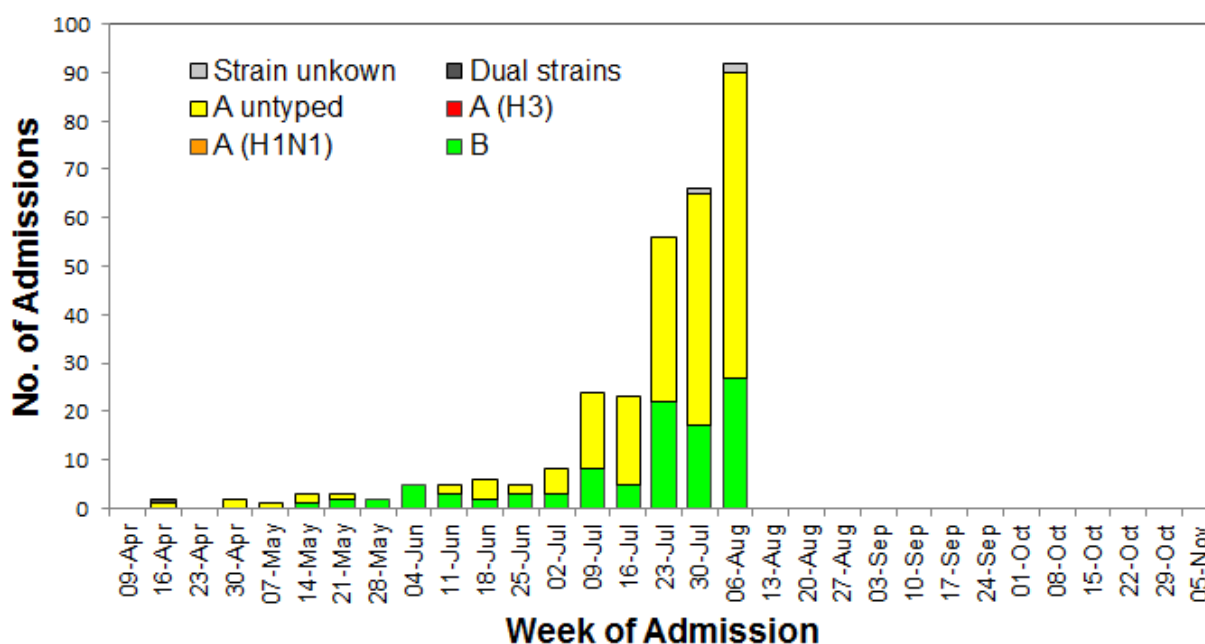
FluCAN (The Influenza Complications Alert Network)

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 31 there were 92 influenza admissions in NSW sentinel hospitals (Figure 4); 63 due to influenza A and 27 due to influenza B and 2 were unknown.

Since 1 April 2017, there have been 303 hospital admissions reported for influenza; 199 due to influenza A, 100 due to influenza B and 1 with a co-infection and 3 unknown (Figure 4). Of these admissions, 92 were paediatric cases (<16 years of age) and 211 were in adults. Of the 303 cases, 20 cases (6.7%) have been admitted to a critical care ward.

Figure 4: FluCAN – Number of confirmed influenza hospital admissions in NSW, 9 April – 6 August, 2017.



2. Laboratory Surveillance

For the week ending 6 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 (Table 2, Figure 5).

Overall, 46.3% of tests for respiratory viruses were positive for influenza, higher than the 37.7% rate of the previous week (Figure 5). This is one of the highest influenza positivity rates recorded since sentinel laboratory monitoring began.

In 2016, the influenza positive rate at the peak of the season was 31.7%. Influenza A strains are now predominant, particularly A(H3N2) (Table 2, Figure 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 6 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	43539	8853 (20.3%)	745 (8.4%)	249 (2.8%)	7864 (88.8%)	4281 (9.8%)	1712	926	4059	6011	709	625
Week ending												
06/08/2017	18452	5960 (32.3%)	421 (7.1%)	117 (2.0%)	5422 (91.0%)	2586 (14.0%)	575	245	990	1654	216	157

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 6 August 2017.

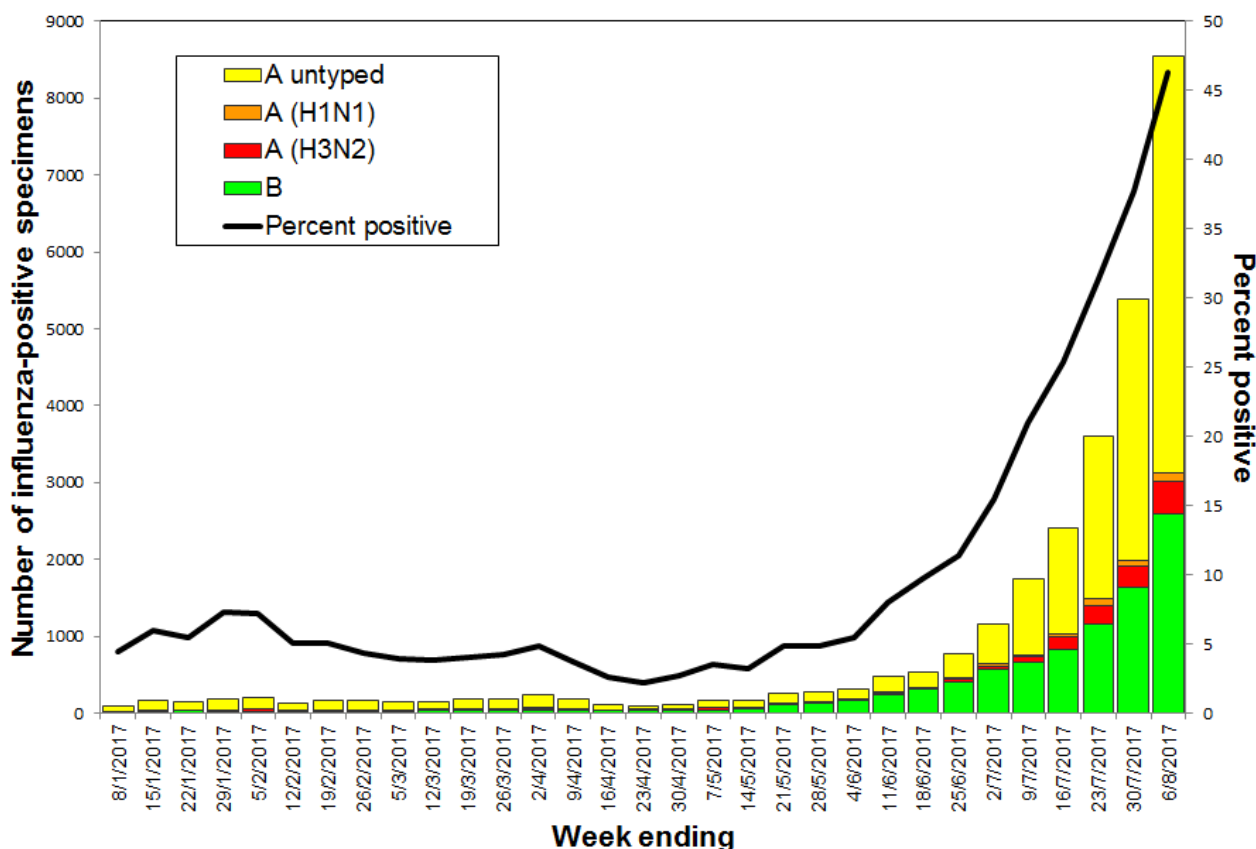
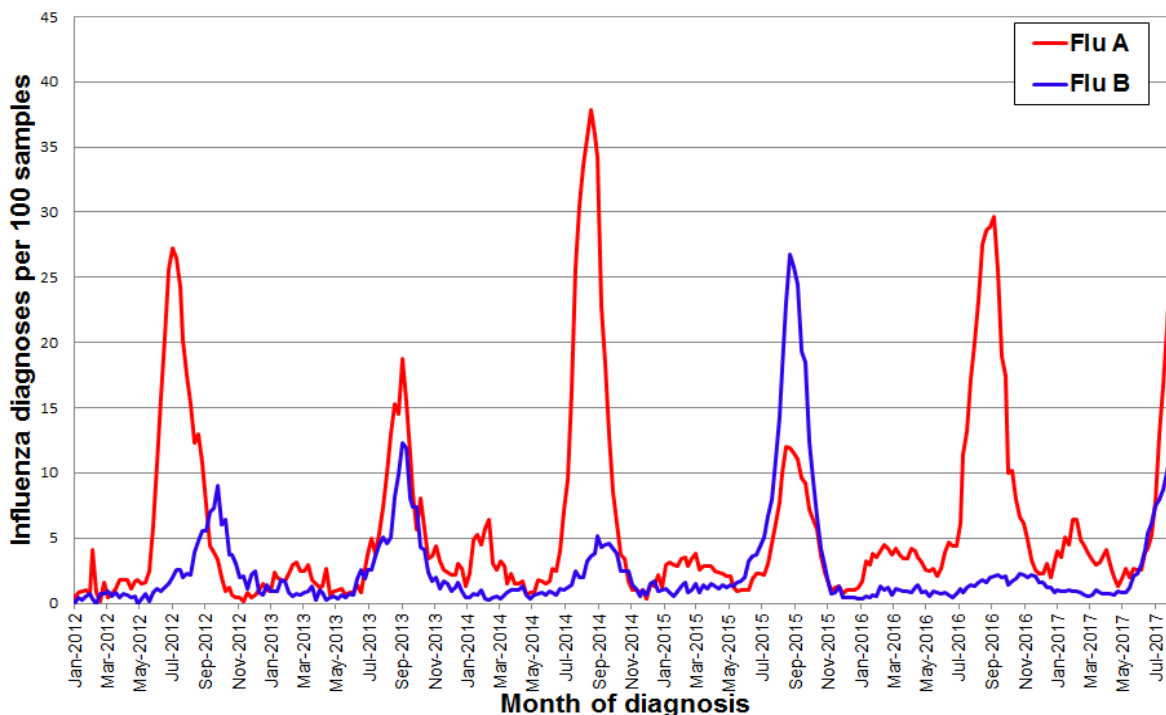


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2012 to 6 August 2017, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 6 August there were 6449 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than in the previous week (4690).

Notifications remained highest in Sydney metropolitan LHDs. Population attack rates remained lower in the south and inland parts of the state although increasing (Table 3). Rates were significantly higher in urban LHDs, particularly Nepean Blue Mountains, Western Sydney, and Northern Sydney.

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

Local Health District	Week ending 06 Aug 2017		Average (previous 4 weeks)	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	214	61.96	84	24.25
Far West	5	16.33	1	3.27
Hunter New England	740	79.59	266	28.58
Illawarra Shoalhaven	347	84.9	125	30.59
Mid North Coast	88	39.58	31	13.94
Murrumbidgee	77	31.8	31	12.59
Nepean Blue Mountains	495	128.64	219	56.85
Northern NSW	179	58.4	85	27.73
Northern Sydney	1154	126.08	482	52.66
South Eastern Sydney	864	93.12	333	35.84
South Western Sydney	551	55.64	337	34.01
Southern NSW	127	59.33	50	23.24
Sydney	517	78.96	228	34.82
Western NSW	63	22.54	51	18.34
Western Sydney	1028	105.99	652	67.25

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 51 influenza outbreaks reported this week in institutions; 49 of these were in residential care facilities, one outbreak each in a multi-purpose centre and on a hospital ward. A total of 47 outbreaks were due to influenza A alone, three were due to influenza B and one involved both influenza A and B strains (Table 4).

In the year to date there have been 173 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 145 have been due to influenza A, 17 were due to influenza B and 11 involved both influenza A and B strains.

In outbreaks affecting aged care facilities, at least 1954 residents were reported to have had ILI symptoms and 180 required hospitalisation. Sixty-six deaths in residents linked to these outbreaks have been reported, all of whom were noted to have other significant co-morbidities.

People in older age-groups are at higher risk of infection from 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 6 August 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	173

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 31 there were 50 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was high at 3.7%, higher than the previous week (2.6%). For further information see the [ASPREN](#) website.

FluTracking.net

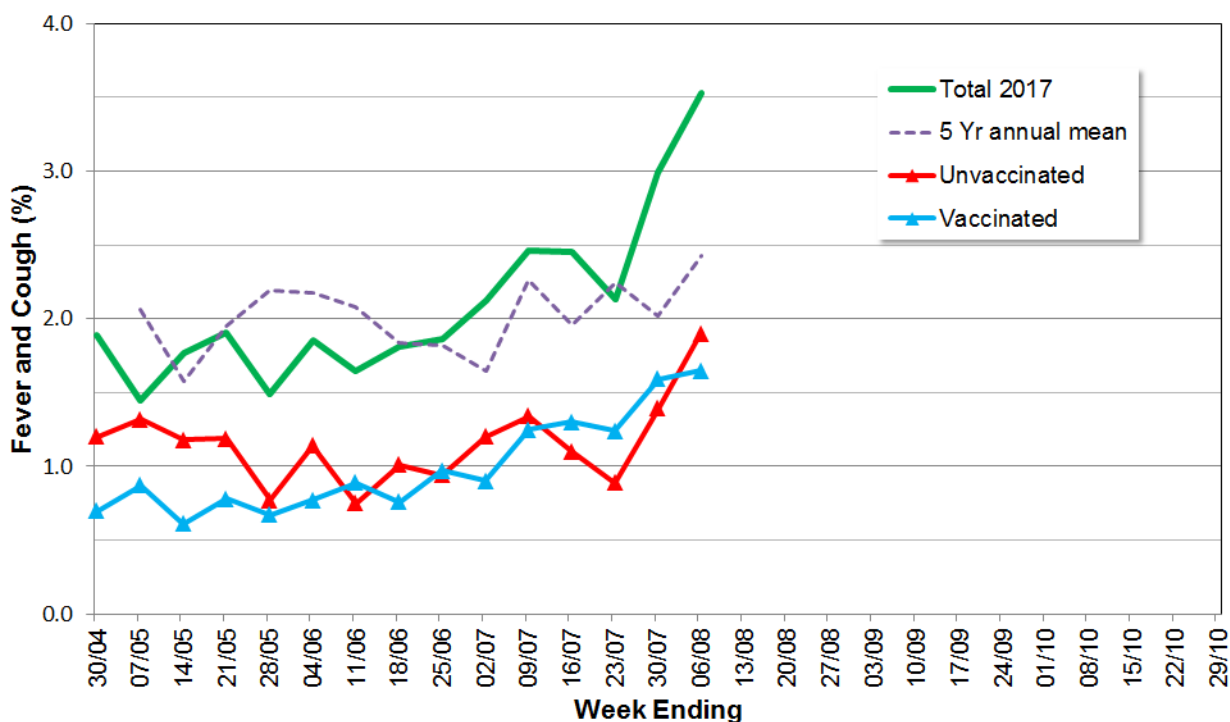
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

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

In week 31 FluTracking received reports for 8,298 people in NSW with the following results:

- 3.7% of respondents reported fever and cough, higher than the previous week (3.0%); this is well above the 5 year annual mean (Figure 7). Of these, 1.7% reported being vaccinated for influenza in 2017;
- 2.7% of respondents reported fever, cough and absence from normal duties, higher than the previous week (2.2%).

Figure 7: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status, 2017 and 5 Year annual mean.



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.

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

4. Deaths with pneumonia or influenza reported on the death certificate

Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death.

The predicted seasonal baseline estimates the predicted rate of influenza or pneumonia deaths in the absence of influenza epidemics. If deaths exceed the epidemic threshold, then it may be an indication that influenza is beginning to circulate widely.

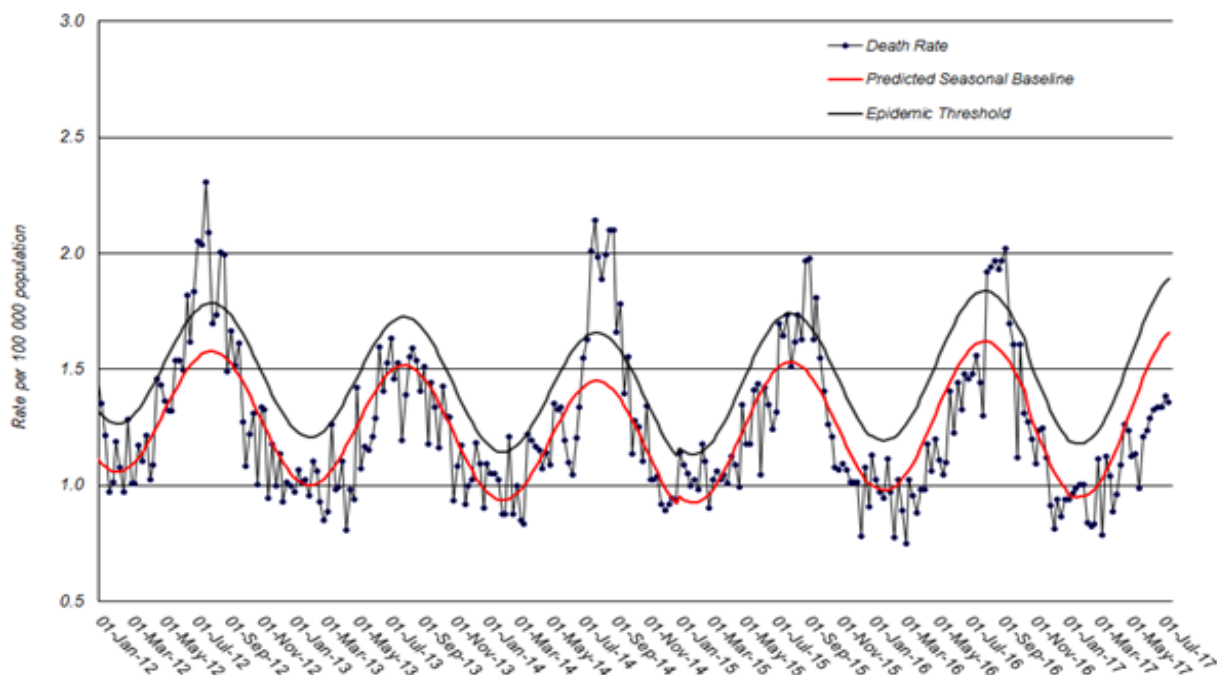
Due to delays in the death registration process, death data for recent weeks are highly variable. For this reason, death data from the three most recent weeks are not included in the report.

For the week ending 14 July 2017:

- There were 1.36 influenza and pneumonia deaths per 100 000 NSW population, which was well below the epidemic threshold of 1.89 per 100 000 population (Figure 8).

For the year up to 14 July 2017, only 21 of the 27,504 death certificates mentioned influenza; all deaths have been in people aged over 65 years. A total of 2,398 (8.7%) of the 22,197 death certificates mentioned pneumonia.

Figure 8: Rate of deaths classified as influenza and pneumonia per 100 000 NSW population, 2012 – 14 July 2017.



Source: NSW Registry of Births, Deaths and Marriages.

*** Notes on interpreting death data:**

- 1) The number of deaths mentioning “Pneumonia or influenza” is reported as a rate per 100,000 NSW population. Using the NSW population provides a more stable and reliable denominator than deaths from all causes. This is because pneumonia and influenza are known to contribute to increases in deaths from non-respiratory illnesses, such as deaths due to ischaemic heart disease. As the number of these deaths will increase with rises in influenza activity, the actual effect of influenza on mortality rates will be obscured if all-cause mortality is used as the denominator. This limitation is avoided by using the NSW population, which is relatively constant throughout the year, as the denominator.
- 2) Deaths referred to a coroner during the reporting period may not be available for analysis. Deaths in younger people may be more likely to require a coronial inquest. Therefore influenza-related deaths in younger people may be under-represented in these data.
- 3) The interval between death and death data availability is usually at least 7 days, and so these data are one week behind reports from emergency departments and laboratories. In addition, previous weekly rates may also change due to longer delays in reporting some deaths.

5. National and International Influenza Surveillance

National Influenza Surveillance

In the *Australian Surveillance Report No.5*, with data up to 23 July 2017, influenza activity at the national level continued to increase this reporting fortnight indicating that the season is underway in a majority of regions across Australia. This increase in activity occurred approximately one month earlier than in 2016.

Of note:

- Influenza was detected at increasing levels by the majority of sentinel laboratories this reporting fortnight. For the first time since reporting for 2017 began, influenza A was the most common respiratory virus detected by a majority of sentinel laboratories, followed by respiratory syncytial virus (RSV).
- Influenza A(H3N2) is currently the predominant circulating A subtype in the majority of jurisdictions. Nationally, notifications of laboratory confirmed influenza B viruses reached a plateau this reporting fortnight.

- Notification rates this year to date have been highest in adults aged 85 years or older, with a secondary peak in young children, aged less than 10 years.
- Influenza-like illness (ILI) in the community and ILI presentations to sentinel GPs this fortnight continued the overall increasing trend; however remain within the range of recent seasons.
- Hospitalisations with confirmed influenza have increased in recent weeks in line with the seasonal increase in community level activity.
- To date, the seasonal influenza vaccines appear to be a good match for circulating virus strains.

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

Global Influenza Update

The latest [WHO global update on 7 August 2017](#) provides data up to 23 July. WHO reports that in temperate zone of the southern hemisphere and in some countries of South East Asia, high levels of influenza activity continued to be reported. In Central America and the Caribbean increased influenza activity was reported in a few countries. Influenza activity in the temperate zone of the northern hemisphere was reported at low levels. 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](#).

6. 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/>.