

NSW Health Influenza Surveillance Report

Week 27: 3 to 9 July, 2017

Summary:

- Surveillance data indicates a marked rise in activity over the last week and it is expected to continue to rise throughout July.
- The impact of influenza on the health sector is steadily increasing.
- Influenza A strains were more common than influenza B strains.

In this reporting week:

- [Hospital surveillance](#) – influenza-like illness (ILI) presentations to selected emergency departments continued to increase.
- [Laboratory surveillance](#) – the total number of influenza isolations increased again this week with the proportion of respiratory samples positive for influenza higher at 21.0%. Influenza A strains were predominant.
- [Community surveillance](#) – influenza notifications increased in metropolitan local health districts (LHD). General Practice ILI activity decreased slightly. Seven aged care facilities reported influenza outbreaks.
- [Deaths with pneumonia or influenza reported on the death certificate](#) - The NSW Registry of Births, Deaths, and Marriages have recorded 16 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 is increasing in most of the southern and central regions of Australia. Activity is sporadic and stable in northern parts of the country.
- [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

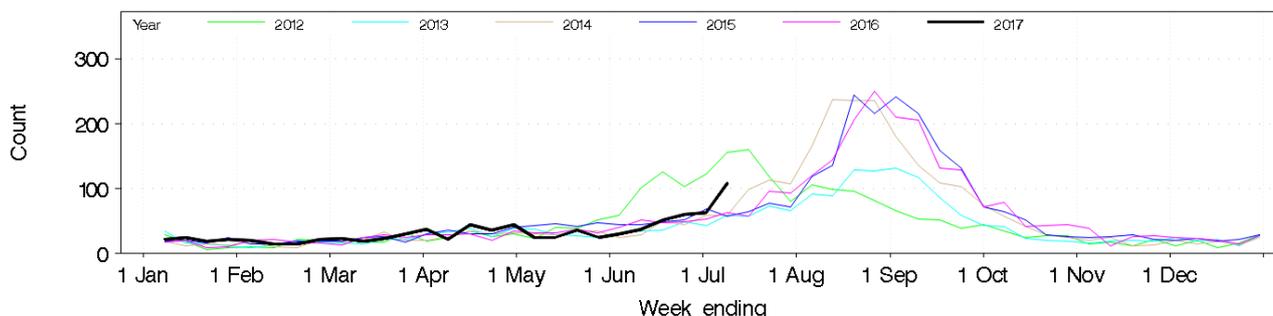
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

For the week ending 9 July 2017:

- ILI presentations [2] increased markedly this week but remained within the usual range for this time of year. Presentations were significantly elevated at Calvary Mater Hospital (Figure 1 and Table 1).
- ILI presentations resulting in admission increased and were above the usual range for this time of year overall. Presentations were significantly elevated at Calvary Mater Hospital (Figure 2 and Table 1).
- As of 9 July 2017, the daily index of increase for ILI presentations across NSW was higher at 33.1. 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 moderate at 2.6 per 1000 presentations, higher than the previous week (1.4 per 1000).
- ED presentations for pneumonia [3] increased but remained within the usual range for this time of year (Table 1.)
- Admissions for pneumonia increased but remained within the usual range for this time of year overall (Table 1). Pneumonia and ILI presentations requiring admission to critical care also increased and were within the usual range for this time of year (Table 1).
- Bronchiolitis presentations increased but 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 – 9 July, 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 presentations for influenza-like-illness that were admitted, all ages, from 1 January – 9 July 2017 (black line), compared with each of the 5 previous years (coloured lines).

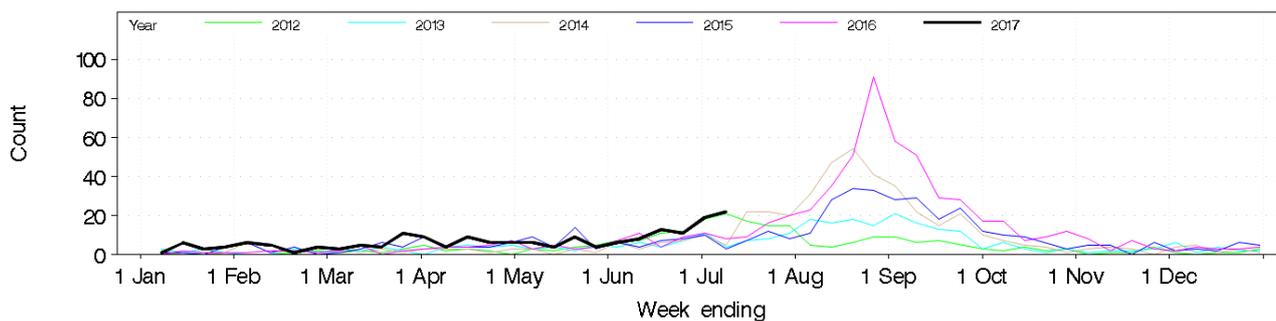


Figure 3 Total weekly counts of ED presentations for bronchiolitis, all ages, from 1 January – 9 July, 2017 (black line), compared with each of the 5 previous years (coloured lines).

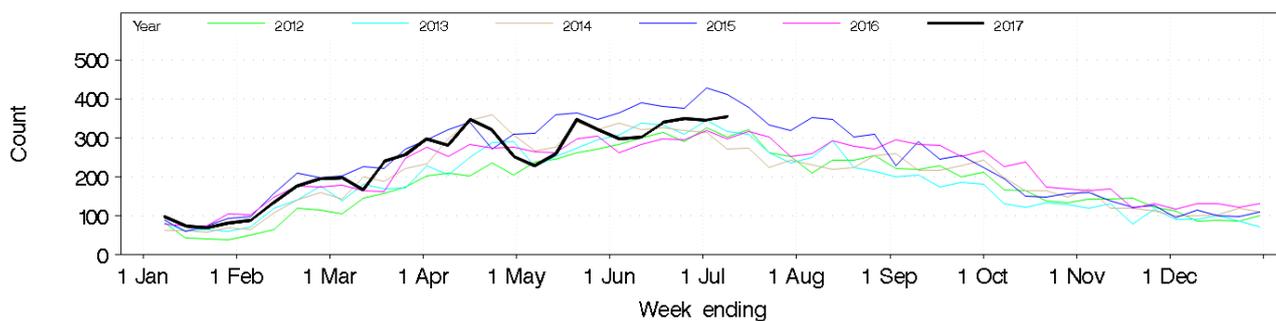


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 9 July 2017. Includes data from 60 NSW EDs and the NSW Ambulance Division. [4]

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range*	Statistically elevated age groups	Statistically significant locations	Significant elevated severity indicators**	Comment
ED presentations, 60 NSW hospitals	Influenza-like illness (ILI)	Increased (108)	Usual (57-155)		Calvary Mater Hospital (7; usually 0-2)		Daily index of increase = 33.1
	ILI admissions	Increased (22)	Above (3-21)		Calvary Mater Hospital (3; usually 0-1)		
	Pneumonia	Increased (590)	Usual (505-678)				
	Pneumonia admissions	Increased (433)	Usual (383-513)				
	Pneumonia and ILI critical care admissions	Increased (38)	Below (32-46)				
	Asthma	Increased (538)	Above (470-504)				
	Bronchiolitis	Increased (355)	Usual (271-411)				
	Breathing problems	Increased (617)	Above (431-515)	< 5yrs (180)	Bowral District Hospital (8)	Admitted (313)	
	All respiratory illness, fever and unspecified infections	Increased (7,132)	Usual (5,912-7,023)	< 5yrs (2,526) 5-16yrs (846) 35-64yrs (1,250) 65+yrs (1,659)	Nepean Blue Mountains LHD (329) Western Sydney LHD (912) Northern Sydney LHD (595) Bathurst Hospital (104)	Admitted (2,580)	

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 27 there were 19 influenza admissions in NSW sentinel hospitals (Figure 4); 12 due to influenza A and 7 due to influenza B. Since 1 April 2017, there have been 58 hospital admissions reported for influenza; 31 due to influenza A, 26 due to influenza B and 1 with a co-infection (Figure 4). Of these admissions, 39 were paediatric cases (<16 years of age) and 19 were in adults. Of the 58 cases, 3 cases have been admitted to a critical care ward.

⁴ **Notes:***The usual range is the range of weekly counts for the same week in the previous five years for ED presentations, and the previous four years for ambulance Triple (000) calls.

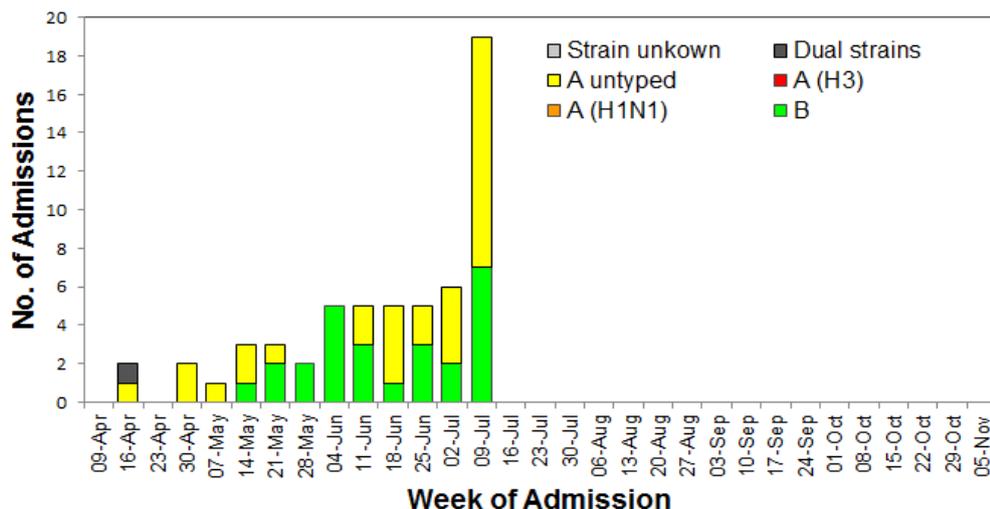
Key for trend since last week: Non-bold and green=decreased or steady; Non-bold and orange=increased

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) or four-year mean (Ambulance).

Counts are statistically significant (shown in **bold**) if they are at least five standard deviations above the five-year mean for ED presentations or four-year mean for ambulance calls. The 'daily index of increase' is statistically significant above a threshold of 15.

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

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



2. Laboratory Surveillance

For the week ending 9 July 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, 21.0% of tests for respiratory viruses were positive for influenza, higher than the 15.5% rate of the previous week (Figure 5). In 2016, the influenza positive rate at the peak of the season was 31.7%. Influenza A strains are now predominant (Table 2, Figure 6).

Influenza was the leading respiratory virus reported. Rhinovirus and respiratory syncytial virus (RSV) activity remains higher than usual for this time of year (Table 2).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 9 July 2017.

Month ending	Total Tests	TEST RESULTS																
		Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Enterovirus			
		Total	(%)	H3N2	(%A)	H1N1 pdm09	(%A)	A (Not typed)	(%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	
Week ending																		
09/07/2017	8283	1070	(12.9%)	64	(6.0%)	35	(3.3%)	976	(91.2%)	662	(8.0%)	366	246	994	1482	160	142	

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: 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

Figure 5: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 9 July 2017.

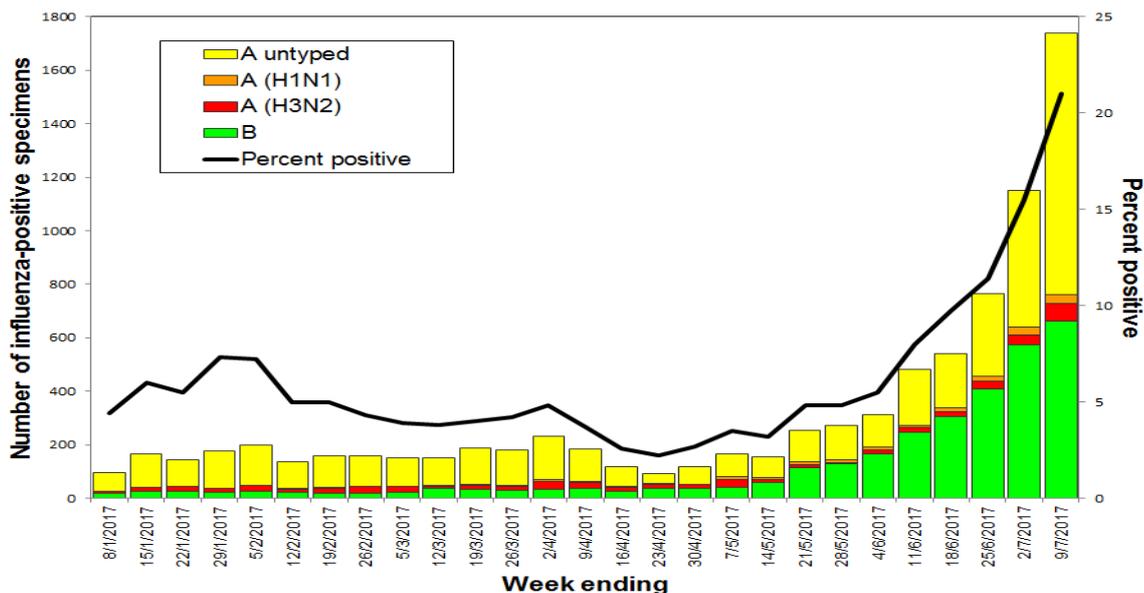
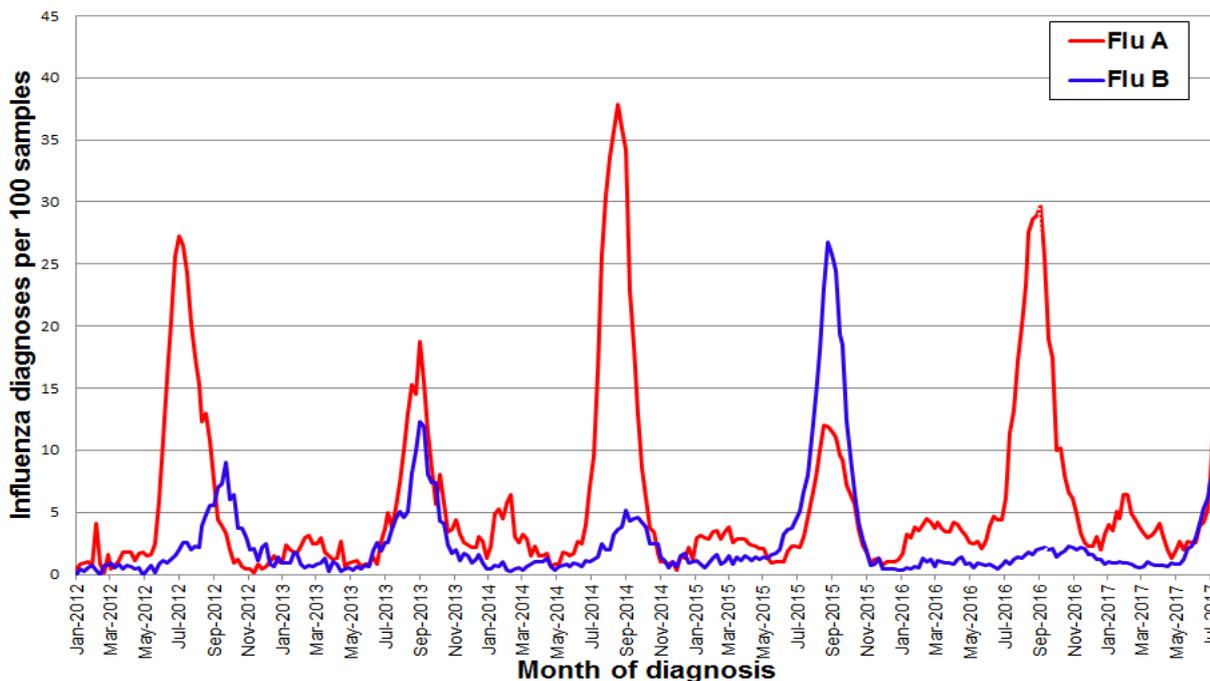


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2012 to 9 July 2017, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 9 July there were 1470 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 946 notifications in the previous week.

Notifications remained highest in Sydney metropolitan LHDs. Population rates remained low in the south and inland parts of the state although increasing (Table 3). Rates increased most in predominantly urban LHDs, particularly Western Sydney and Nepean Blue Mountains

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

Local Health District	Week ending 09 Jul 2017		Average (previous 4 weeks)	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	41	11.87	22	6.23
Far West	1	3.27	1	3.27
Hunter New England	99	10.65	46	4.95
Illawarra Shoalhaven	51	12.48	10	2.51
Mid North Coast	15	6.75	6	2.81
Murrumbidgee	23	9.5	6	2.58
Nepean Blue Mountains	118	30.67	30	7.86
Northern NSW	55	17.94	43	14.11
Northern Sydney	255	27.86	127	13.85
South Eastern Sydney	162	17.46	84	9.05
South Western Sydney	115	11.61	55	5.58
Southern NSW	15	7.01	2	0.93
Sydney	106	16.19	71	10.81
Western NSW	24	8.59	8	2.86
Western Sydney	390	40.21	150	15.41

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

Influenza outbreaks in institutions

There were seven influenza outbreaks reported this week in residential care facilities; six were due to influenza A and the other involved both influenza A and B strains (Table 4).

In the year to date there have been 25 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 23 have been due to influenza A, one was due to influenza B and the other involved both influenza A and B strains.

So far this year all reported outbreaks have been from aged care facilities; at least 301 residents were reported to have had ILI symptoms and 37 required hospitalisation. Twenty-one deaths in residents linked to these outbreaks have been reported, all of whom were noted to have other significant co-morbidities.

Table 4: Reported influenza outbreaks in NSW institutions, January 2010 to 9 July 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	25

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

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 27 there were 33 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was low at 1.8%, lower than the previous week (2.1%). For further information see the [ASPREN](#) website.

FluTracking.net

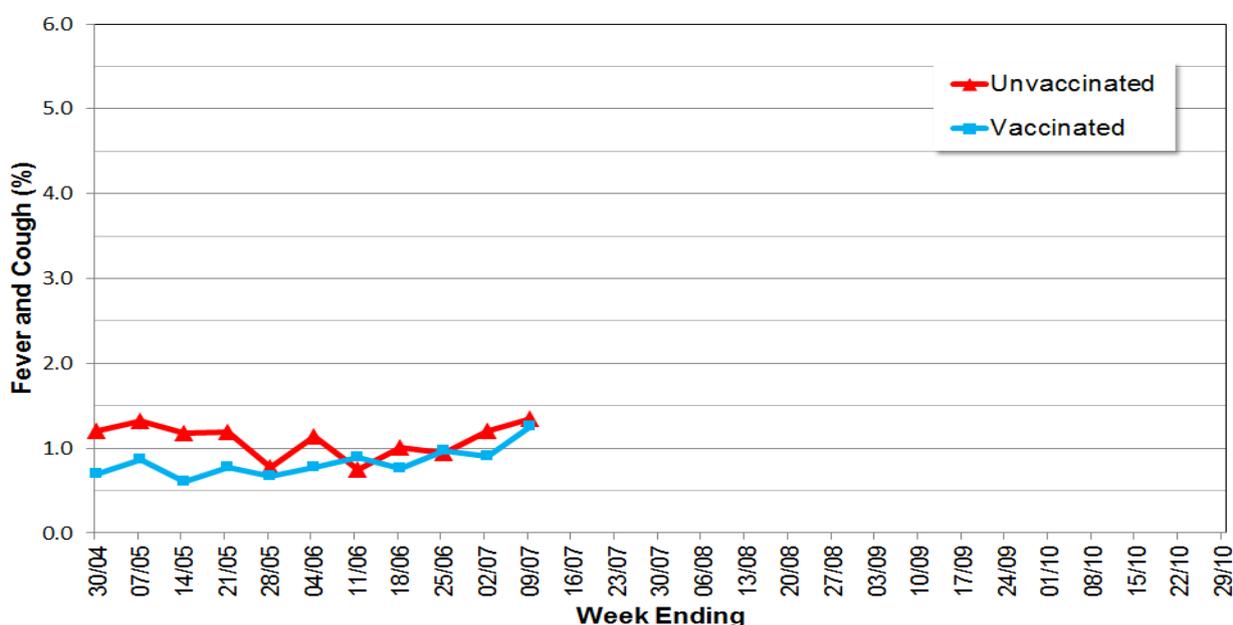
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

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

In week 27 FluTracking received reports for 7,626 people in NSW with the following results:

- 2.6% of respondents reported fever and cough, higher than the previous week (2.1%). Of these, 1.3% reported being vaccinated (Figure 7).
- 1.4% of respondents reported fever, cough and absence from normal duties, higher than the previous week (1.2%).

Figure 7: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status.



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.

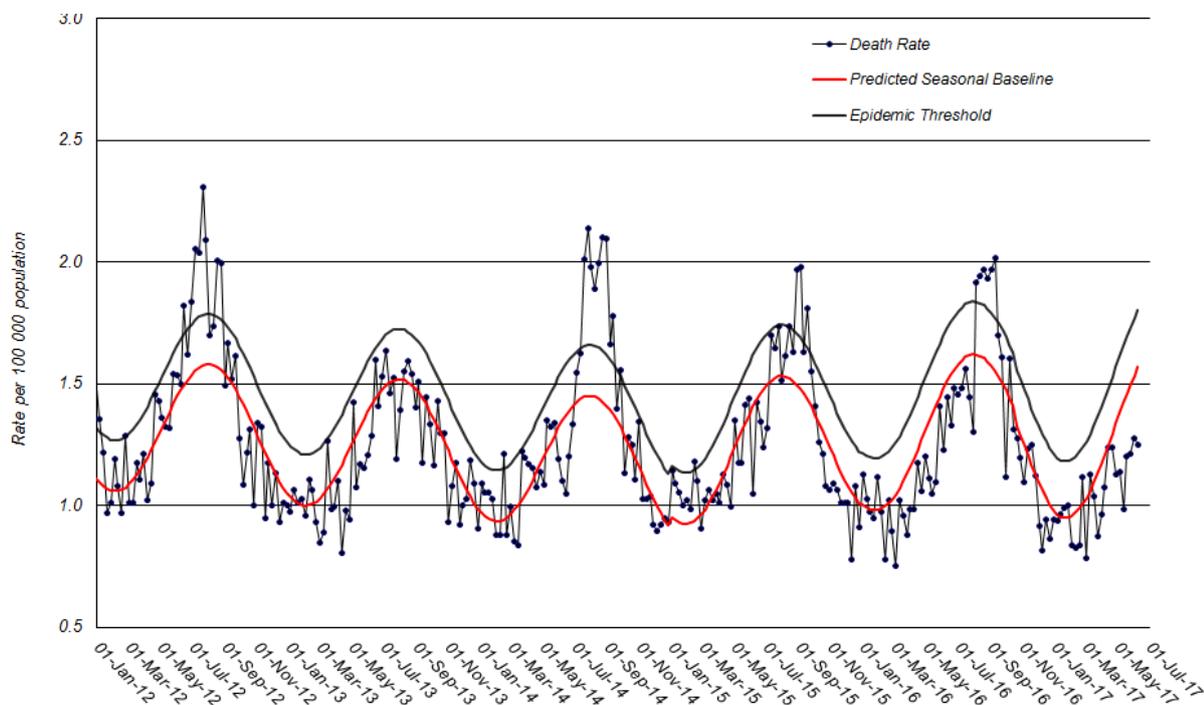
Due to delays in the death registration process, death data for recent weeks are highly variable. For this reason, death data from the three most recent weeks are not included in the report.

For the week ending 9 June 2017:

- There were 1.25 influenza and pneumonia deaths per 100 000 NSW population, which was well below the epidemic threshold of 1.80 per 100 000 population (Figure 8).

For the year up to 9 June 2017, only 16 of the 22,197 death certificates mentioned influenza; all deaths have been in people aged over 65 years. A total of 1,858 (8.3%) of the 22,197 death certificates mentioned pneumonia.

Figure 8: Rate of deaths classified as influenza and pneumonia per 100 000 NSW population, 2012 – 9 June 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.3*, with data up to 23 June 2017, influenza activity was reported to be increasing in most of the southern and central regions of Australia, while activity was sporadic and stable in the northern regions of the country.

Of note:

- While testing for influenza has increased over the reporting fortnight, respiratory viruses other than influenza, in particular rhinovirus, were most commonly detected by sentinel laboratories.
- Nationally, notifications of laboratory confirmed influenza B viruses have continued to increase over the reporting fortnight; however influenza A(H1N1)pdm09 and influenza A(H3N2) are also co-circulating in some parts of the country.
- Influenza-like illness (ILI) in the community was low and relatively stable this reporting fortnight, while ILI presentations to sentinel GPs were also low, but increasing.
- To date, 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 10 July 2017](#) provides data up to 25 June. WHO reports that in the temperate zone of the southern hemisphere, influenza activity continued to increase, especially in temperate South America. A few countries in Central America, the Caribbean and South East Asia also reported increased influenza activity.

Influenza activity in the temperate zone of the northern hemisphere was reported at low levels. Worldwide, influenza A(H3N2) and B viruses co-circulated.

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/recommendations/2017_south/en/.

The WHO consultation on the composition of influenza vaccines for the Northern Hemisphere 2017-18 influenza season was held in February 2017. The recommended composition was unchanged from the composition recommended for the 2017 Southern Hemisphere vaccines.

Information about the Northern Hemisphere vaccine recommendations can be found at: [WHO | Recommended composition of influenza virus vaccines for use in the 2017-2018 northern hemisphere influenza season.](#)