NSW Health Influenza Surveillance Report

Week 22: 30 May to 5 June 2016

Summary:

- **The influenza season is likely to commence in the next few weeks.**
- **Influenza activity is increasing but continues to be generally low in most parts of NSW. Influenza A(H3) and influenza A(H1N1) strains are circulating at similar levels.**

In this reporting week:

- Hospital Surveillance – the rate of influenza like illness (ILI) presentations to selected emergency departments increased and is approaching the trigger level for the flu season.
- Laboratory surveillance – the proportion of respiratory samples positive for influenza increased but remained relatively low at 4.5%.
- Community surveillance – influenza notifications increased in a number of Sydney local health districts. Data collected from ASPREN GP surveillance showed higher levels of ILI activity. One new influenza outbreak was reported in a residential care facility.
- Deaths - The NSW Registry of Births, Deaths, and Marriages have recorded 9 deaths in association with influenza in 2016. The rate of deaths classified as "pneumonia and influenza" remained low.
- National and international influenza surveillance – no new national reports have been issued but activity is increasing in a number of states. Influenza activity in the Northern Hemisphere has decreased with influenza B strains now predominant.
- Recommended composition of 2016 influenza vaccines – the World Health Organization (WHO) has provided recommendations for the 2016 southern hemisphere winter influenza season including two strain changes.

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

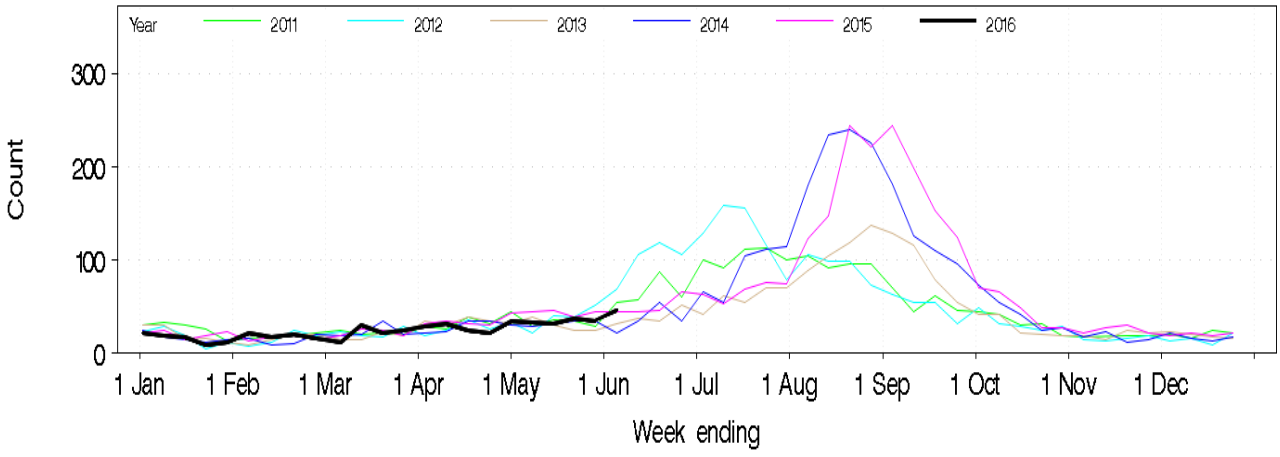
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS [1]

For the week ending 5 June 2016:

- ILI presentations [2] increased this week and are expected to increase further over the coming weeks. Activity is within the usual range of activity seen in recent years (Figure 1 and Table 1).
- The index of increase for ILI presentations was 11.5 on 5 June, an increase on the previous week (8.2) but still below the seasonal threshold of 15.
- The proportion of ILI presentations to all ED presentations remained relatively low at 0.8 per 1000 presentations, and similar to the previous week.
- ED presentations for pneumonia [3] increased but were within the usual range for this time of year (Figure 2).
- Pneumonia or ILI presentations which resulted in admission decreased and were within the usual range for this time of year (Figure 3 and Table 1).
- Bronchiolitis presentations continued to decrease. Presentations were elevated throughout April and May and peaked in the week ending 22 May. Presentations were below the usual range for this time of year (Figure 4).
- The category combining all respiratory, fever and unspecified infection presentations increased and were within the usual range for this time of year (Table 1).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 5 June 2016 (black line), compared with each of the 5 previous years (coloured lines).



[1] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system. Centre for Epidemiology and Evidence, NSW Ministry of Health. Comparisons are made with data for the preceding five years. Recent counts are subject to change. Data from 60 NSW emergency departments are included representing approximately 82% of ED visits in the 2014-15 financial year. The coverage of rural EDs is lower than metropolitan 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 pneumonia, from January – 5 June 2016 (black line), compared with each of the 5 previous years (coloured lines).

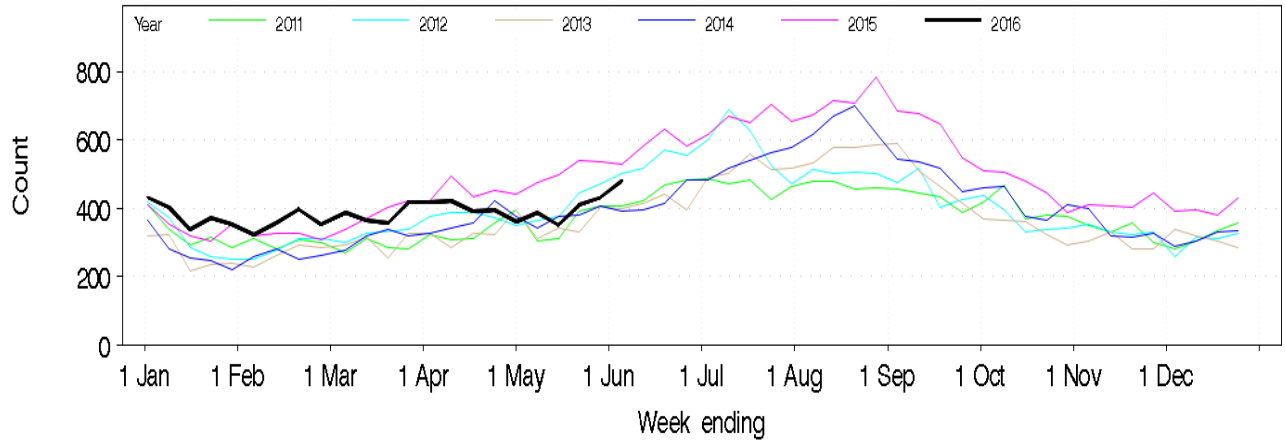


Figure 3: Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – 5 June 2016 (black line), compared with each of the 5 previous years (coloured lines).

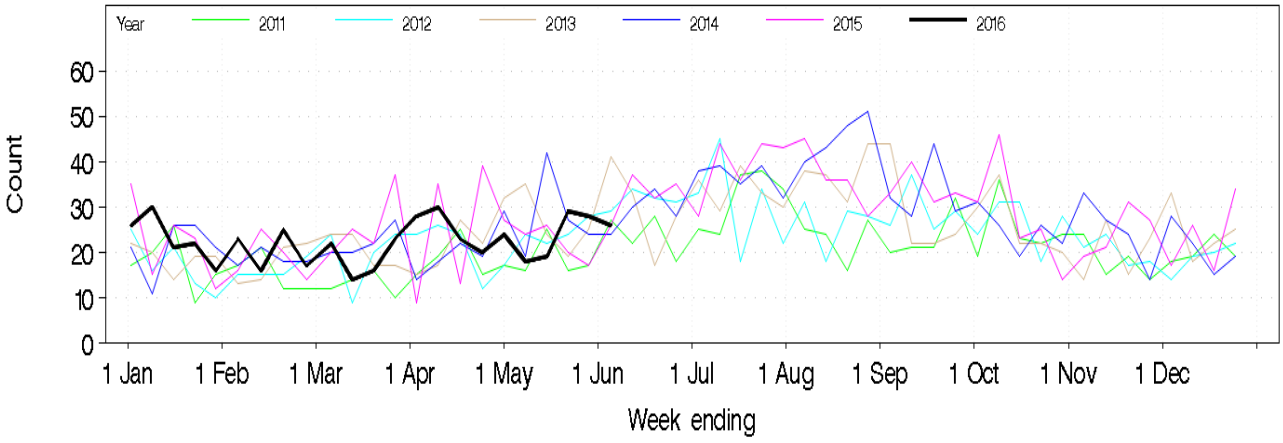


Figure 4: Total weekly counts of ED presentations for bronchiolitis, from January – 5 June 2016 (black line), compared with the 5 previous years (coloured lines).

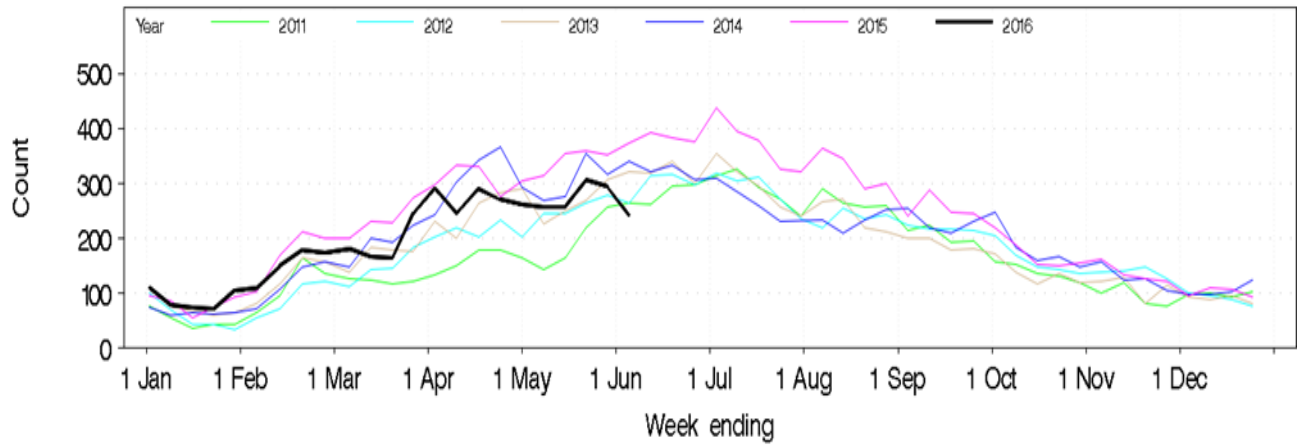


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 5 June 2016. Includes data from 60 NSW EDs and the NSW Ambulance Division. *

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range for time of year*	Statistically significant age groups (if any)	Statistically significant local increase (if any)	Statistically significant severity indicators (if any)	Comment
ED presentations, 60 NSW hospitals	Influenza-like illness (ILI)	Increased	Usual				Daily index of increase = 11.5
	Pneumonia	Increased	Usual				
	Pneumonia and ILI admissions	Increased	Usual				
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Asthma	Increased	Usual				
	Bronchiolitis	Decreased	Below				
	All respiratory illness, fever and unspecified infections	Increased	Usual				
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Increased	Below				

* **Notes on Table 1**: Statistically significant increases are shown in bold. Recent activity counts are subject to change. This is a routine general report for information on respiratory activity and is additional to public health situation reports that advise of unusual increases in activity in particular provisional ED diagnosis groupings or Ambulance problem categories.

FluCAN (The Influenza Complications Alert Network)

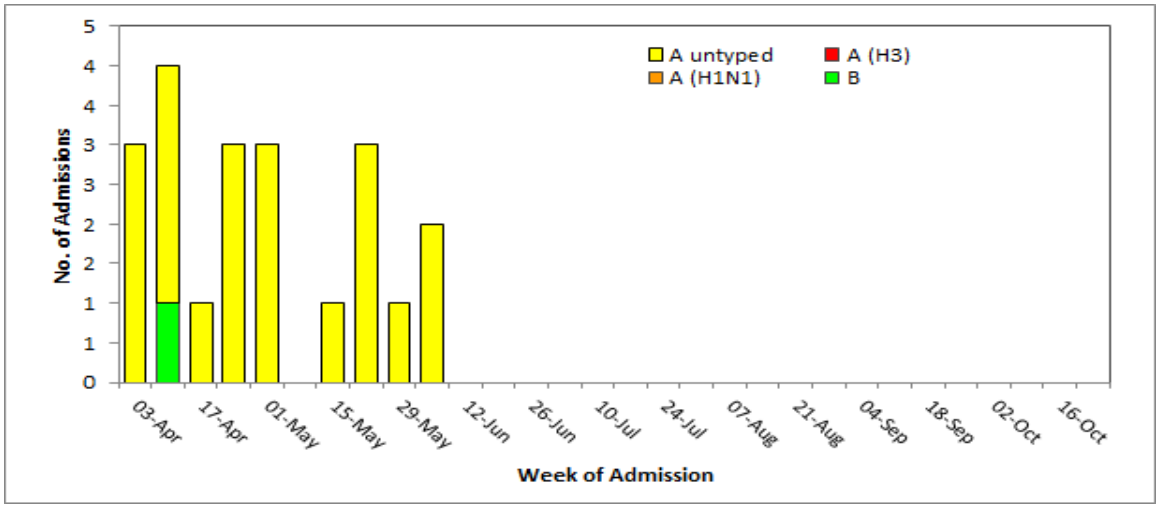
In 2009, the FluCAN surveillance system was created to be a rapid alert system for severe respiratory illness requiring hospitalisation. Data is provided on patients admitted with influenza confirmed by polymerase chain reaction (PCR) testing.

In NSW, three hospitals participate in providing weekly FluCAN data: Westmead Hospital, John Hunter Hospital and the Children's Hospital at Westmead.

Due to delays in data completeness, FluCAN data is only presented up to the previous week.

- During week 22 there were two influenza admissions in NSW sentinel hospitals (Figure 5).
- Since 1 April 2015, there have been 21 hospital admissions reported for influenza; 20 with influenza A, one with influenza B (Figure 5).
- Of these admissions, nine were paediatric (<16 years of age) cases and 12 were in adults. One child has been admitted to ICU/HDU.

Figure 5: FluCAN – weekly number of confirmed influenza hospital admissions in NSW, 3 April – 5 June 2016.



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2. Laboratory Surveillance

For the week ending 5 June 2016 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [4] which tested positive for influenza A or influenza B continued to increase and the start of the influenza season should begin within the next few weeks.

A total of 4,372 tests for respiratory viruses were reported this week with 4.5% testing positive for influenza viruses, up from 3.5% in the previous week. Both influenza A (H1N1) and influenza A (H3) strains are circulating at similar levels. Influenza B activity remains at low levels (Figure 6 and 7).

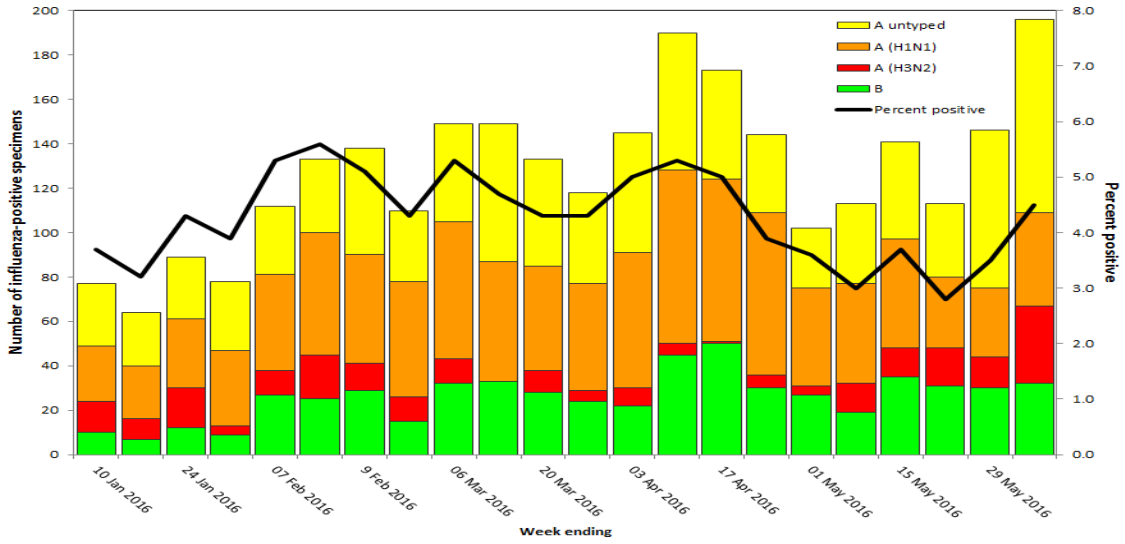
Rhinoviruses and respiratory syncytial virus (RSV) were the leading respiratory viruses reported, with other viruses circulating at usual levels for this time of year (Table 2).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 5 June, 2016.

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	(%)						
31/01/2016	8079	270	(3.3%)	45	(16.7%)	114	(42.2%)	111	(41.1%)	38	(0.5%)	202	179	202	941	73	96
28/02/2016	9810	397	(4.0%)	54	(13.6%)	199	(50.1%)	144	(36.3%)	96	(1.0%)	208	244	323	1484	80	150
03/04/2016*	14699	555	(3.8%)	32	(5.8%)	271	(48.8%)	248	(44.7%)	138	(0.9%)	282	412	937	1862	68	188
01/05/2016	13614	457	(3.4%)	16	(3.5%)	268	(58.6%)	173	(37.9%)	152	(1.1%)	271	371	1189	1470	71	128
29/05/2016	15760	398	(2.5%)	57	(14.3%)	157	(39.4%)	184	(46.2%)	115	(0.7%)	350	358	1488	2211	111	138
Week ending																	
05/06/2016	4372	164	(3.8%)	35	(21.3%)	42	(25.6%)	87	(53.0%)	32	(0.7%)	140	117	444	648	43	93

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 5 June 2016.



[4]: 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:** South Eastern Area Laboratory Services, The Children's Hospital at Westmead, Sydney South West Pathology Service, Pacific Laboratory Medicine Service, Royal Prince Alfred Hospital, Hunter Area Pathology Service, Pathology West (Westmead & Nepean), Douglas Hanley Moir Pathology, VDRLab, Laverty Pathology, SydPath (St Vincent's), Medlab, and Laverty. HAPS data not included for week 41 2015.

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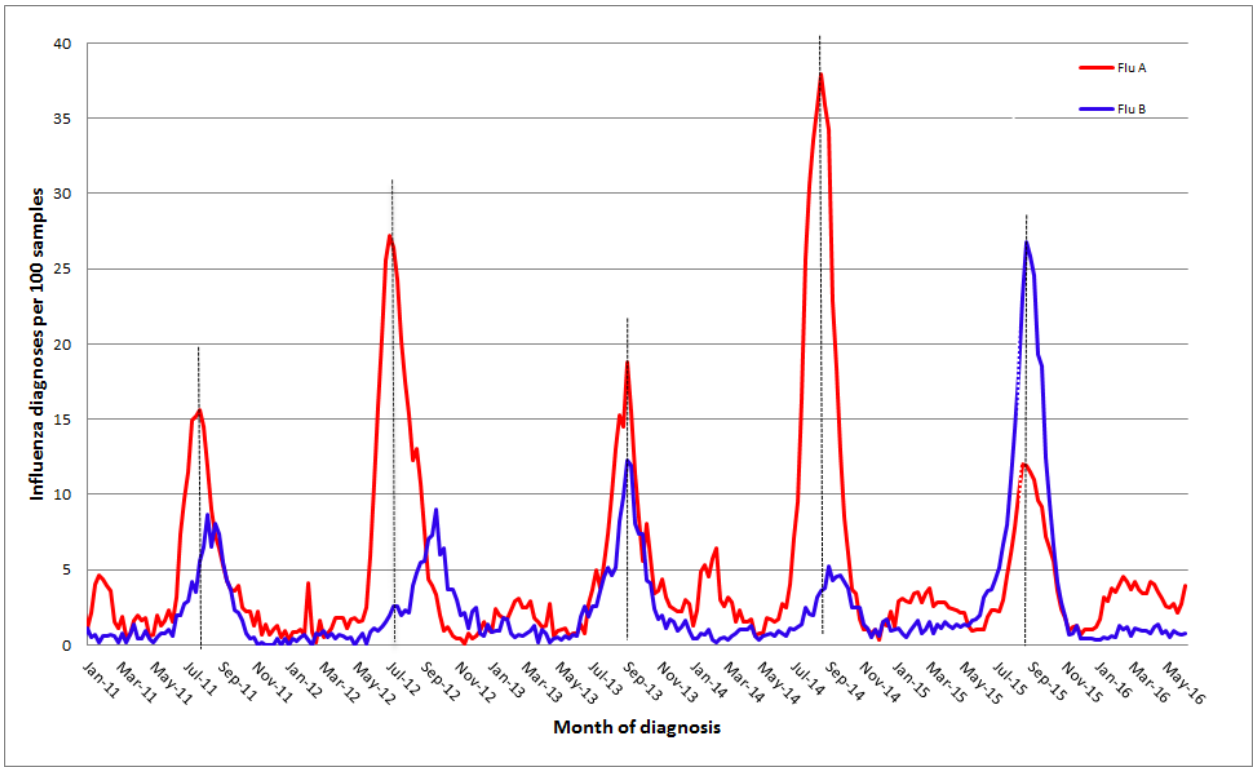
Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2010 – 5 June 2016, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 5 June there were 164 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 132 notifications in the previous week.

Rates were highest in Sydney and Nepean Blue Mountains (Table 3). Compared to the previous week, notifications were similar across the majority of LHDs.

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

Local Health District	Week ending 05 Jun 2016		Weekly average (previous 4	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	6	1.77	3	0.74
Hunter New England	5	0.55	9	0.95
Illawarra Shoalhaven	0	0	2	0.58
Mid North Coast	2	0.92	2	0.92
Murrumbidgee	0	0	3	1.15
Nepean Blue Mountains	14	3.74	9	2.27
Northern NSW	5	1.66	4	1.33
Northern Sydney	27	2.98	26	2.89
South Eastern Sydney	12	1.33	20	2.21
South Western Sydney	32	3.31	11	1.14
Southern NSW	1	0.48	1	0.48
Sydney	31	4.93	13	1.99
Western NSW	0	0	1	0.36
Western Sydney	29	3.06	27	2.85

Notes: * All data are preliminary and may change as more notifications are received. Excludes notifications based on serology.

Influenza outbreaks in institutions

There was one influenza (influenza A) outbreak reported this week in a residential care facility (Table 4).

In the year to date, there have been eight laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): seven have been due to influenza A and 1 was combined A and B. At least 53 residents were reported to have had ILI symptoms and 13 required hospitalisation. Seven 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 influenza A(H3N2) strains than from the influenza A(H1N1) strain. The influenza A(H3N2) strain predominated in 2012 and 2014. 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 5 June 2016.

Year	2010	2011	2012	2013	2014	2015	2016*
No. of outbreaks	2	4	39	12	120	103	8

Notes: * Year to date.

Electronic General Practice Surveillance (eGPS)

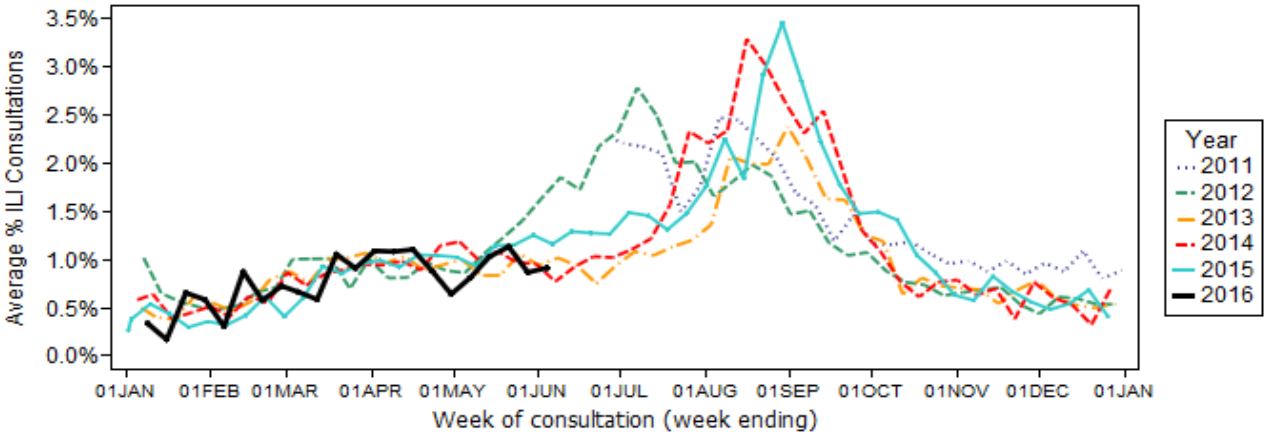
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator of influenza activity. Consultations for ILI are identified each week by an automatic search of electronic records for validated combinations of ILI terms rather than diagnosis codes.

Data generated from eGPS should be interpreted with caution as they are not representative of all practices within the participating LHDs or across NSW.

In Week 22:

- There were six surveillance reports received from eGPS sentinel practices in NSW; no reports were received from South Eastern Sydney and Illawarra Shoalhaven this week.
- The average rate of ILI patient consultations decreased to 0.9% (range 0.0 – 1.9%), the same as the previous week and within the usual range seen for this time of year (Figure 8).

Figure 8. Average rate of influenza-like presentations to sentinel general practices by week of consultation 2011-2016 (year to date).



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 22 there were 43 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 3.3 %, higher lower than the previous week (2.1%).

For further information please see the ASPREN website.

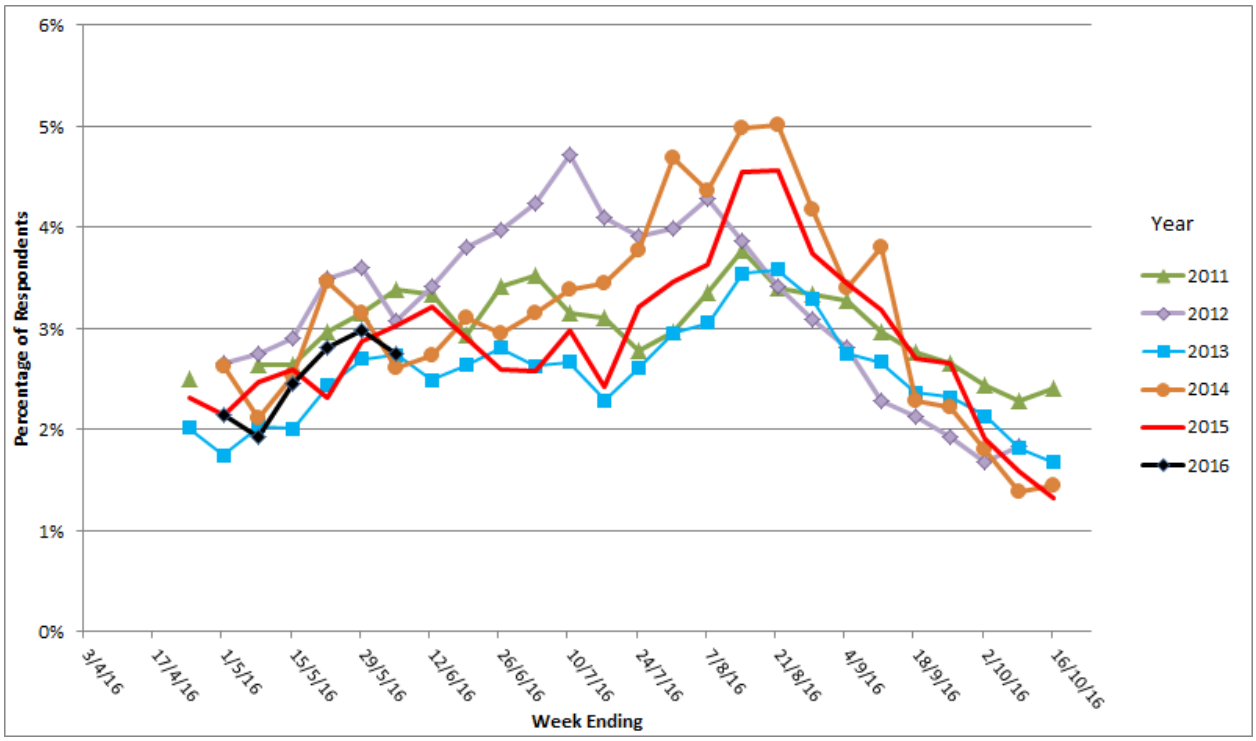
FluTracking.net

FluTracking.net is an online health surveillance system to detect epidemics of influenza. FluTracking is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute. It involves participants from around Australia completing a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

In week 22 FluTracking received reports for 7322 people in NSW with the following results:

- 2.8% of respondents reported fever and cough, similar to the previous week (2.9%) (Figure 9).
- 1.9 % of respondents reported fever, cough and absence from normal duties, up from the previous week (data not shown).

Figure 9: FluTracking – weekly influenza-like illness reporting rate, NSW, 2011 – 2016.



For further information, including national estimates, please see the FluTracking website.

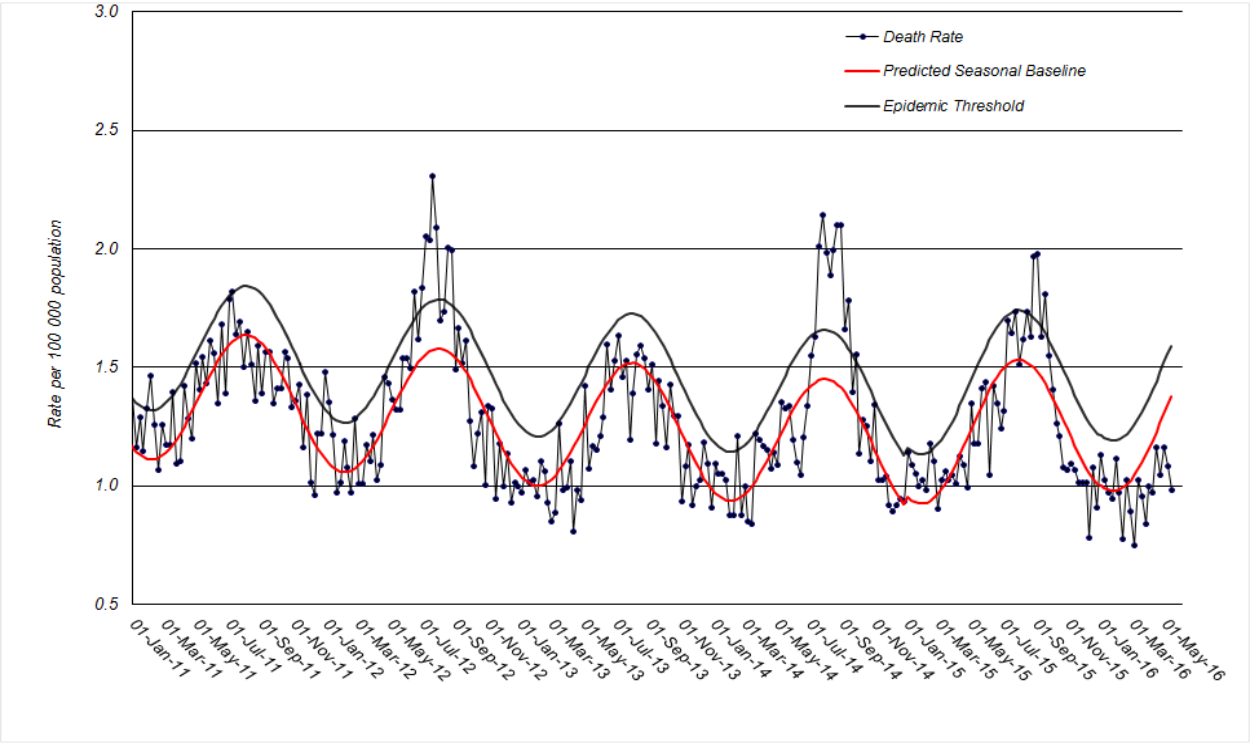
4. Deaths with pneumonia or influenza reported on the death certificate

Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. Pneumonia has many causes; however an increase in the number of death certificates that mention pneumonia or influenza as a cause of death is an indicator of seasonal and pandemic influenza activity. 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 it may be an indication that influenza is circulating at higher than expected levels and/or is affecting more of the people in the community at greater risk of severe influenza complications.

In 2016 up to the week ending 13 May:

- 9 of 17,469 death certificates (0.05%) recorded influenza: deaths were in people aged over 65 years apart from one death in each of the 25-34 and 55-64 years age groups.
- 1,441 of 17,469 death certificates (8.2%) mentioned pneumonia.
- There were 0.98 “pneumonia and influenza” deaths per 100,000 NSW population, which was below the epidemic threshold of 1.59 per 100 000 population (Figure 10).

Figure 10: Rate of deaths classified as “pneumonia and influenza” per 100,000 NSW population, 2011 – 13 May 2016.



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 populations. 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 several weeks 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

National influenza surveillance reports for this winter have not yet commenced. Many jurisdictions are reporting increased influenza activity but still at inter-seasonal levels. Influenza A strains have predominated but influenza B strains are also circulating.

For further information on the National Notifiable Disease Surveillance System, which includes laboratory-confirmed influenza reports, see: http://www9.health.gov.au/cda/source/cda-index.cfm.

Global Influenza Update

The latest WHO global update on 30 May 2016 provides data up to 15 May. Influenza activity in the Northern Hemisphere continued to decrease.

A predominance of influenza B virus activity continued to be reported in most of the northern hemisphere and in some tropical areas. In a few countries in the southern hemisphere, slight increases in influenza-like illness (ILI) activity were reported. Follow the link for the WHO influenza surveillance reports.

Avian Influenza Update:

Human infections with avian influenza viruses

The most recent WHO risk assessment of human infections with avian influenza viruses (see Influenza at the human-animal interface) was published on 9 May 2016. This report provides 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 2016 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the 2016 Southern Hemisphere was held in Memphis on 21-23 September 2015. Following the Consultation, WHO announced its recommendations for the composition of trivalent vaccines for use in the 2016 influenza season (southern hemisphere winter) as follows:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A/Hong Kong/4801/2014 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus (Victoria lineage).

It is recommended that quadrivalent vaccines include two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus.

For the trivalent vaccine this was changed to both the A/H3 (previously A/Switzerland) and B (previously B/Phuket Yamagata lineage) viruses from the vaccine recommendations for the southern hemisphere in 2015 and the northern hemisphere in 2015-2016. More details about the most recent recommendations can be found at: http://www.who.int/influenza/vaccines/virus/recommendations/2016_south/en/.

The Commonwealth Government has announced that trivalent influenza vaccines will be replaced by quadrivalent vaccines in the National Immunisation Program (NIP) for 2016. For further information see: http://www.health.gov.au/internet/ministers/publishing.nsf/Content/health-mediarel-yr2015-ley133.htm.