

NSW Health Influenza Surveillance Report

Week 33: 10 to 16 August 2015

Summary:

- The influenza season is continuing with influenza B strains predominating.
- The impact on public hospitals is currently moderate overall but with higher levels of activity in some districts.
- The trend in influenza activity this year is very similar to the average epidemic curve over the past four seasons, although less severe than 2014.
- Based on previous seasons, influenza activity is likely to peak in August then continue at lower levels during September.

In this reporting week:

- [Hospital surveillance](#) – presentations to NSW emergency departments for influenza-like illness (ILI) increased and remain above the flu season threshold. Presentations for pneumonia remain high, particularly in the 5-16 year old age-group.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was moderate to high at 35.1%, continuing the upward trend. Influenza B viruses continue to predominate.
- [Community surveillance](#) – influenza notifications across the majority of LHDs increased further. Data collected from ASPREN and FluTracking show moderate seasonal ILI activity. There were five reports of influenza outbreaks in residential care facilities and one hospital outbreak.
- [National and international influenza surveillance](#) – Across Australia influenza activity continues to increase. Jurisdictional activity varied, suggesting that the season may be close to peaking in some areas but may continue to increase in others.

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: NSW PHREDSS [1]

For the week ending 16 August 2015:

- ILI presentations increased further and were above the range of activity seen in recent years with the exception of 2014 (Figure 1 and Table 1). The index of increase for ILI presentations was 50.3 on 16 August, higher again than the previous week (42.1). The index crossed the threshold level of 15 on 26 June, consistent with the start of the influenza season.
- The proportion of ILI presentations to all ED presentations increased and was moderate at 3.6 per 1000 presentations.
- ED presentations for pneumonia were steady and remained above the usual range for this time of year. Presentations were elevated in persons aged 5-16 years and in South Western Sydney Local Health District (LHD) (Figure 2 and Table 1).
- Pneumonia or ILI presentations which resulted in admission to critical care decreased and were within the usual range for this time of year (Figure 3 and Table 1).
- The combined total of respiratory, fever and unspecified infection presentations increased and was above the usual range for this time of year; presentations were elevated in people aged 0-34 years and people aged 65 plus years. Presentations were also increases across several LHDs as well as the Broken Hill Base, Griffith and Orange Hospital's (Table 1).
- Bronchiolitis presentations continued to trend downwards although remained above the usual range for this time of year (Table 1).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 16 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

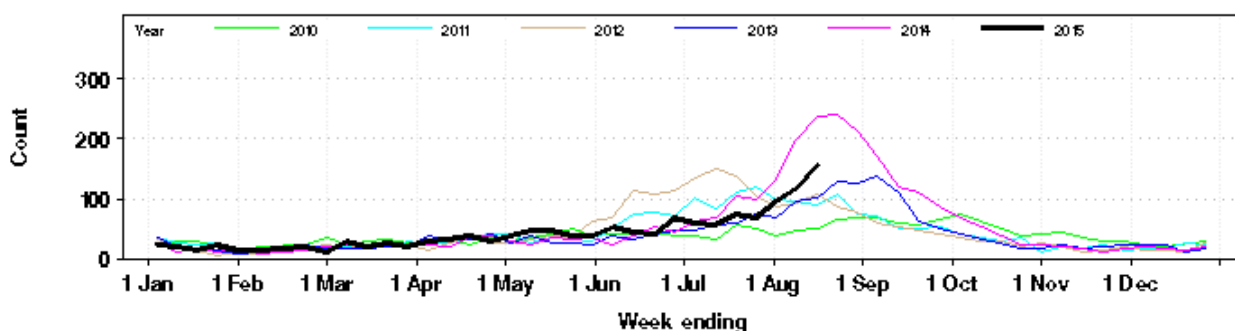
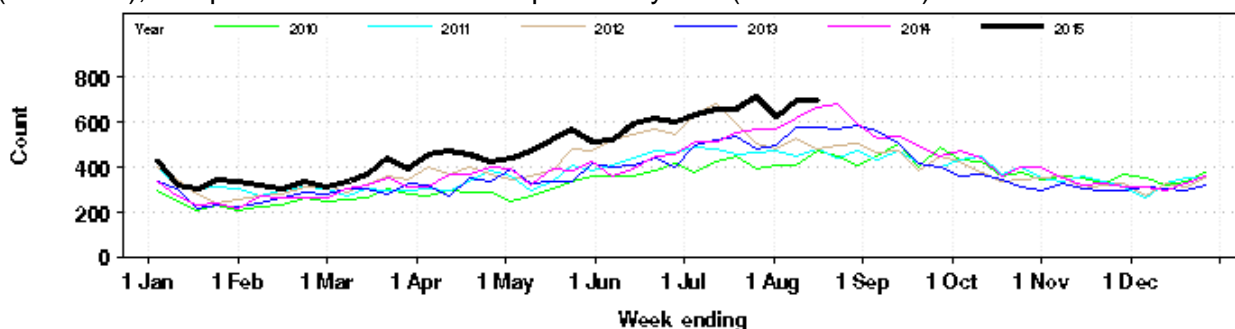


Figure 2: Total weekly counts of ED presentations for pneumonia, from January – 16 August 2015 (black line), compared with each of the 5 previous years (coloured lines).



[1] NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) is managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change.

Figure 3: Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – 16 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

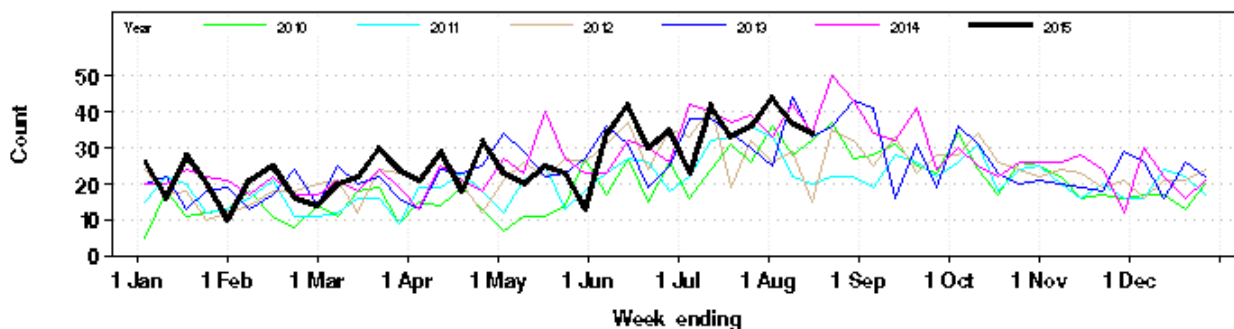


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 16 August 2015. Includes data from 59 NSW EDs and the NSW Ambulance Division. *

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)
ED presentations, 59 NSW hospitals	Influenza like illness (ILI)	Increased	Above		Griffith Base and Belmont Hospitals
	Pneumonia	Steady	Above	5-16 years	South Western Sydney LHD
	Pneumonia and ILI admissions	Increased	Above		
	Pneumonia and ILI critical care admissions	Decreased	Usual		Royal Prince Alfred Hospital
	Bronchiolitis	Decreased	Above		
	Respiratory illness, fever or unspecified infections	Increased	Above	0-34 years 65+ years	South Western Sydney, Western Sydney, Northern Sydney, Illawarra Shoalhaven, Central Coast and South Eastern Sydney LHDs and Broken Hill Base, Griffith and Orange Hospital's
	Asthma	Increased	Above		
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Increased	Above		

* **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.

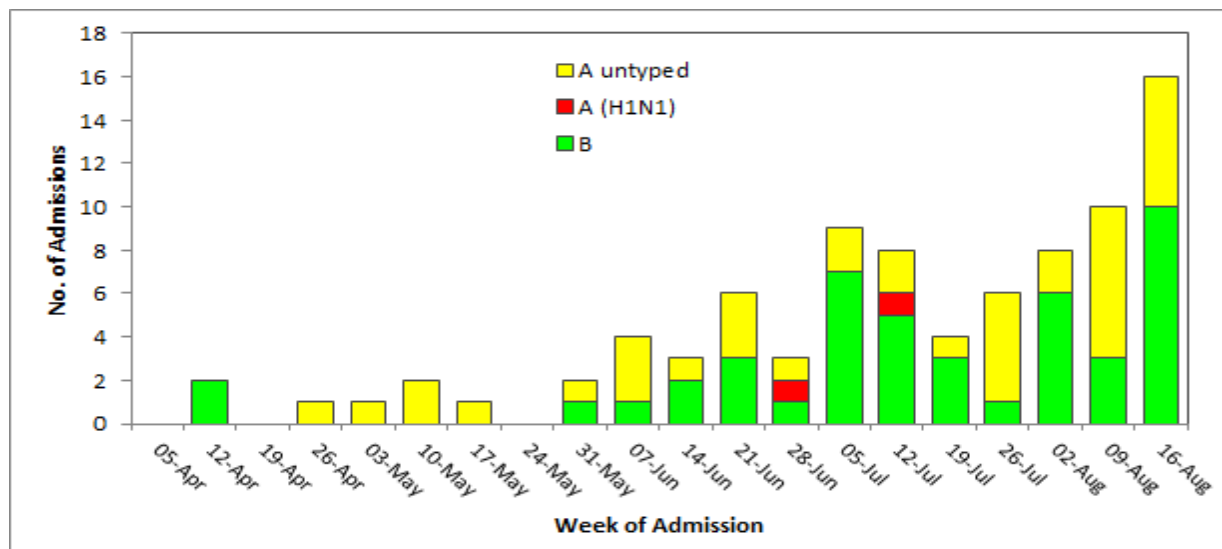
FluCAN (The Influenza Complications Alert Network)

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.

- During week 33 there were 16 (4 adult and 12 children) influenza admissions in NSW sentinel hospitals (Figure 4).
- Since 1 April 2015, there have been 86 hospital admissions reported for influenza; 41 with influenza A and 45 with influenza B (Figure 4).
- Of these admissions, 43 were paediatric (<16 years of age) cases and 43 were in adults. Seven cases were admitted to ICU/HDU.

Figure 4: FluCAN – Number of confirmed influenza hospital admissions in NSW, April – August 2015.



2. Laboratory Surveillance

For the week ending 16 August 2015 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [2] which tested positive for influenza A or influenza B continued to increase compared to the activity levels seen in the previous week (Table 2 and Figures 5-6).

A total of 7,441 tests for respiratory viruses were reported with 35.1% testing positive for influenza viruses, up from 27.6% in the previous week. Of these, Influenza B viruses continued to be identified twice as often as influenza A viruses.

Influenza viruses were the leading respiratory viruses reported. Other viruses are 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 16 August, 2015.

Month ending	Total Tests	TEST RESULTS											
		Influenza A				Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV **
		Total	H3N2	H1N1 pdm09	A (Not typed)	Total	Total						
Total (%)	Total (%A)	Total (%A)	Total (%A)	Total (%)	Total (%)								
01/02/2015*	5920	182 (3.1%)	40 (22.0%)	11 (6.0%)	131 (72.0%)	55 (0.9%)	150	181	181	607	59	49	
01/03/2015	6287	212 (3.4%)	72 (34.0%)	14 (6.6%)	126 (59.4%)	75 (1.2%)	128	83	271	842	24	29	
29/03/2015	8577	242 (2.8%)	87 (36.0%)	21 (8.7%)	135 (55.8%)	108 (1.3%)	181	117	767	1084	52	34	
03/05/2015*	12584	285 (2.3%)	125 (43.9%)	13 (4.6%)	147 (51.6%)	163 (1.3%)	257	187	1351	1443	59	78	
31/05/2015	12244	128 (1.0%)	42 (32.8%)	9 (7.0%)	83 (64.8%)	200 (1.6%)	272	167	1276	1514	64	64	
28/06/2015	15431	297 (1.9%)	56 (18.9%)	16 (5.4%)	225 (75.8%)	581 (3.8%)	378	183	1585	2027	96	135	
28/06/2015*	22771	1125 (4.9%)	332 (29.5%)	141 (12.5%)	654 (58.1%)	2125 (9.3%)	721	273	1878	2484	149	425	
Week ending													
09/08/2015	6087	588 (9.7%)	226 (38.4%)	94 (16.0%)	268 (45.6%)	1084 (17.8%)	153	54	305	521	28	98	
16/08/2015	7441	896 (12.0%)	298 (33.3%)	133 (14.8%)	463 (51.7%)	1719 (23.1%)	181	67	293	637	13	112	

Notes:

* Five-week reporting period.

** Human metapneumovirus

[2]: 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.

Figure 5: Influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 16 August 2015.

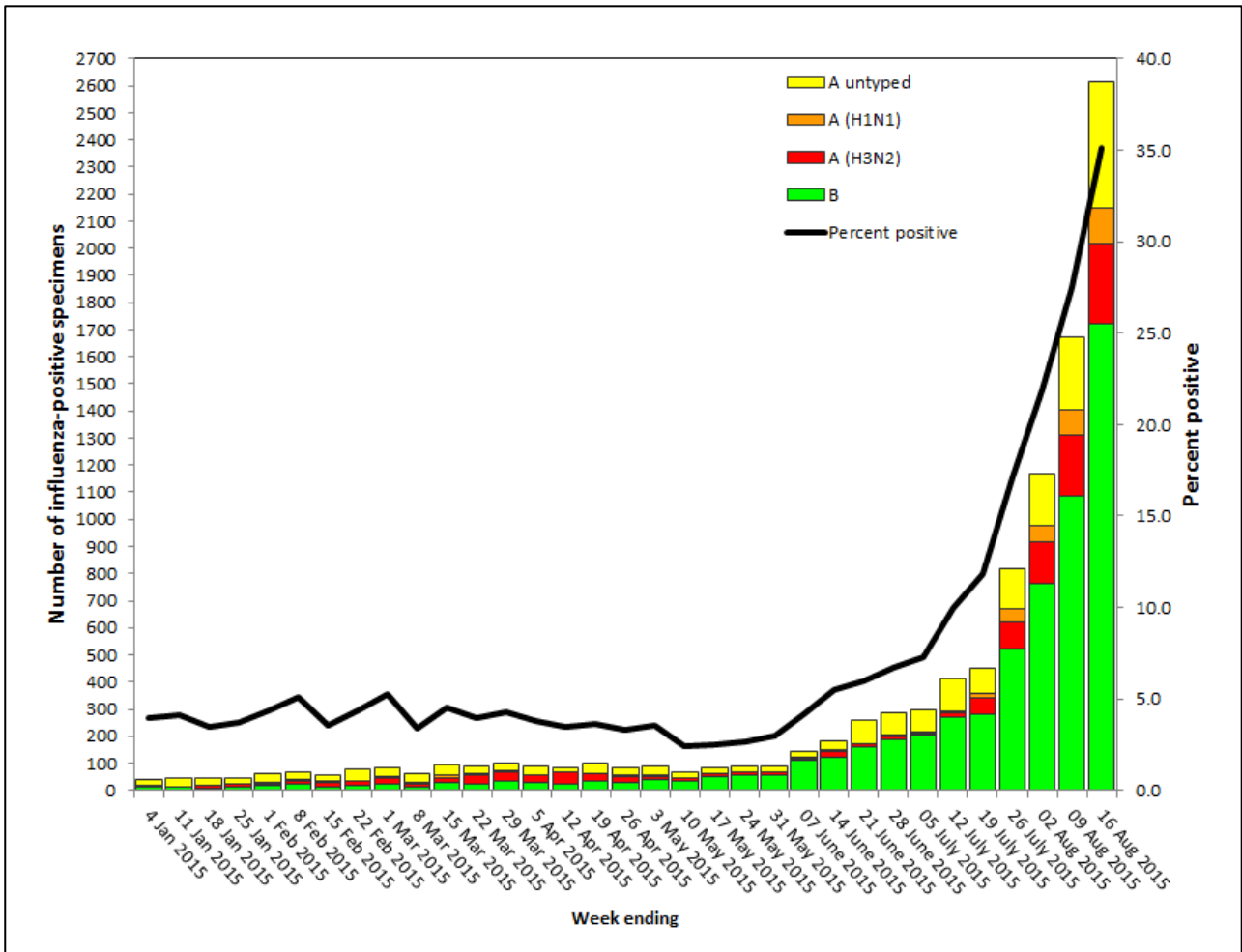
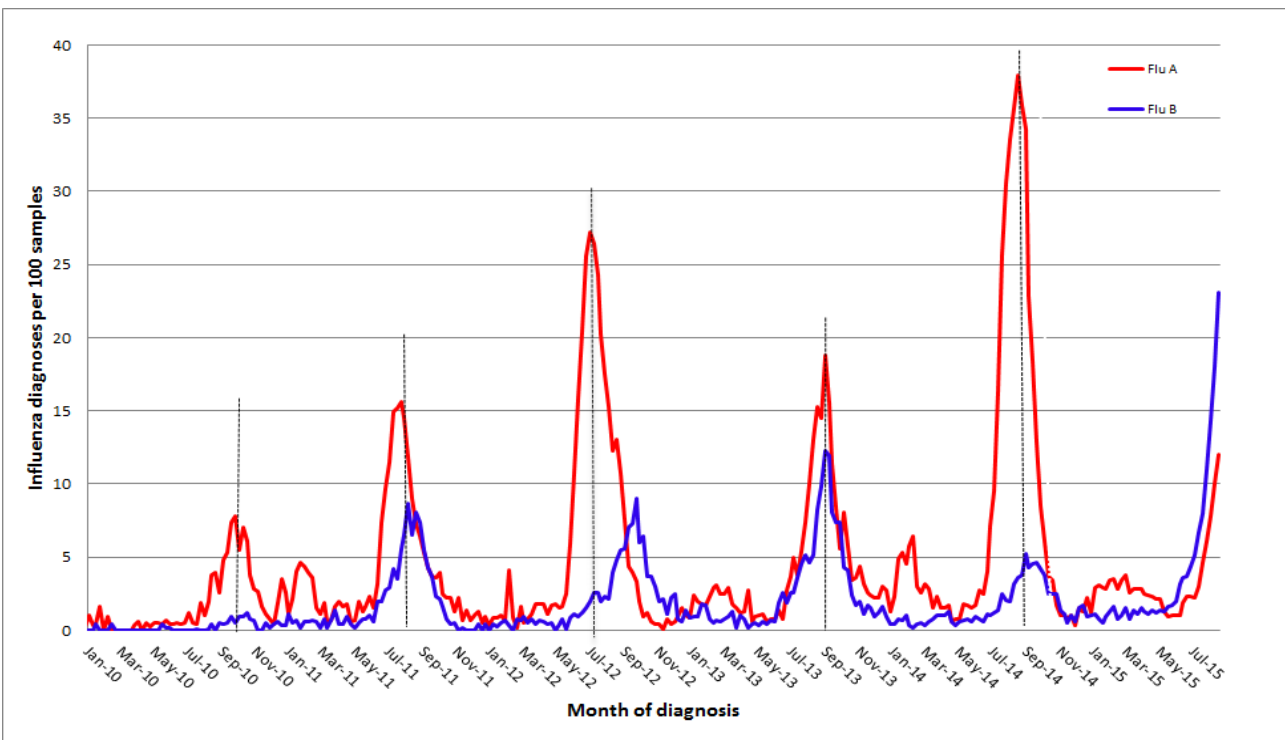


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 16 August 2015, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 16 August there were 1870 notifications of influenza confirmed by polymerase chain reaction (PCR) testing. Districts with the highest notification rates were the Murrumbidgee, Northern Sydney and Western Sydney LHDs (Table 3).

Influenza activity has increased across all LHDs with the exception of Far West.

Table 3: Notifications of laboratory-confirmed influenza by NSW Local Health District of residence.

Local Health District	Week ending 16 Aug 2015		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	34	10.16	20	6.08
Far West	0	0	1	3.26
Hunter New England	182	20.01	78	8.54
Illawarra Shoalhaven	60	15.03	26	6.59
Mid North Coast	23	10.7	11	4.96
Murrumbidgee	109	45.63	47	19.82
Nepean Blue Mountains	94	25.54	62	16.84
Northern NSW	50	16.82	30	9.98
Northern Sydney	391	43.54	215	23.94
South Eastern Sydney	189	21.17	125	13.97
South Western Sydney	146	15.45	107	11.32
Southern NSW	29	14.11	17	8.11
Sydney	146	23.54	96	15.53
Western NSW	19	6.85	7	2.52
Western Sydney	398	42.94	185	19.99

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

Influenza outbreaks in institutions

There were five influenza outbreaks reported in a residential care facilities and one in a hospital this week. Four were due to influenza A, one was influenza B, and the hospital outbreak identified both A and B strains.

In the year to date, there have been 38 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4); 26 have been due to influenza A, nine due to influenza B and three were combined A and B. At least 202 residents were reported to have had ILI symptoms and 29 required hospitalisation. Thirteen 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 and was associated with an increase in influenza outbreaks in institutions, particularly aged care facilities. (Table 4).

Table 4. Reported influenza outbreaks in NSW institutions, 2010 to 16 August 2015.

Year	2010	2011	2012	2013	2014	2015 *
No. of outbreaks	2	4	39	12	120	38

* Year to date.

Electronic General Practice Surveillance (eGPS)

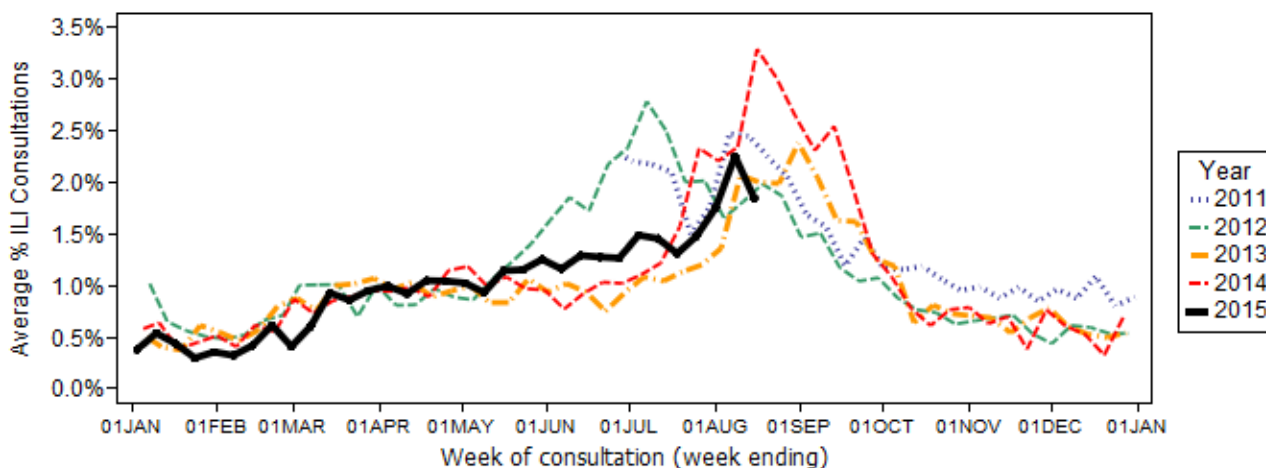
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 33:

- There were 11 surveillance reports received from eGPS sentinel practices in NSW;
- The average rate of ILI patient consultations decreased to 1.8% (range 0.7 – 4.1%), down from 2.2% in the previous week, but similar to previous years. (Figure 7).

Figure 7. Average rate of influenza-like presentations to sentinel general practices by week of consultation 2011-2015 (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 33 there were 26 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 3.4 % and within the usual range seen for this time of year.

For further information please see the [ASPREN](#) website.

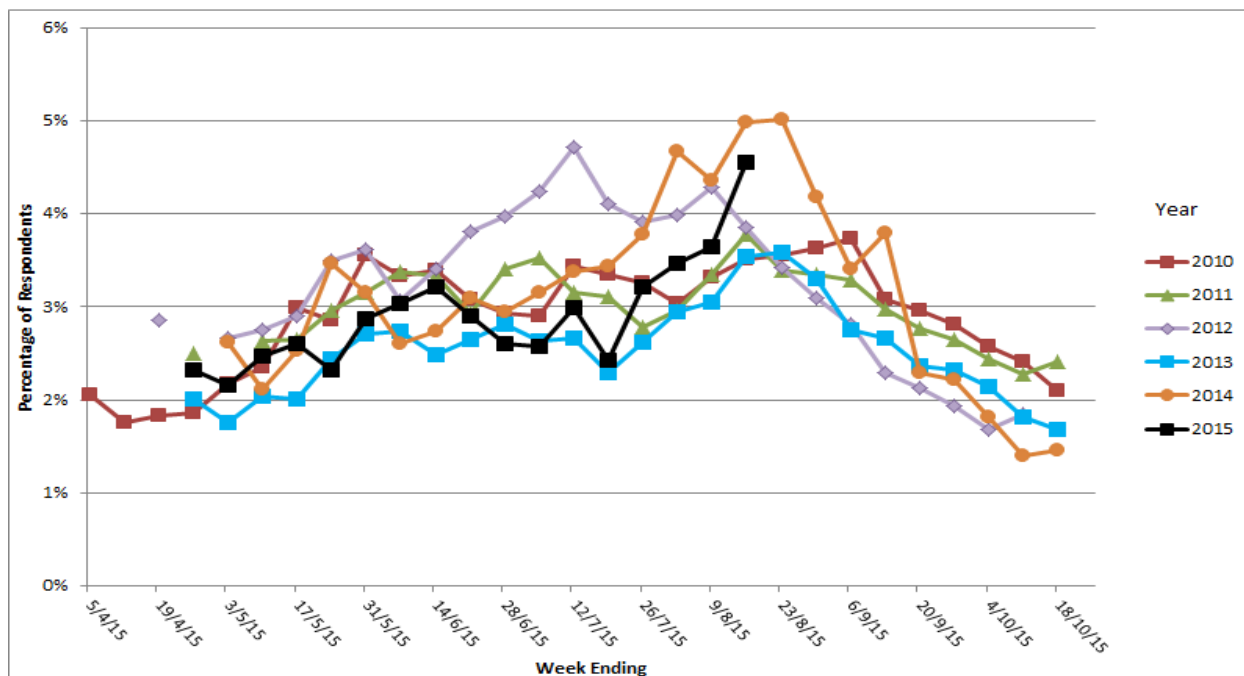
FluTracking.net

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 33 FluTracking received reports for 6501 people in NSW with the following results:

- 4.6% of respondents reported fever and cough, markedly higher than the previous week (Figure 8). This was similar to the corresponding week in 2014.
- 3.1 % of respondents reported fever, cough and absence from normal duties, higher than the previous week (data not shown).

Figure 8: FluTracking – Weekly influenza-like illness reporting rate, NSW, 2010 – 2015.



For further information please see the [FluTracking](#) website.

4. National and International Influenza Surveillance

National Influenza Surveillance

The Australian Department of Health has reported up to 31 July 2015. Influenza activity continued to increase nationally this fortnight. Across jurisdictions activity varied, suggesting that the season may be close to peaking in some areas but may continue to increase in others.

- The 2015 seasonal rise in notifications appears to have started nationally in early June.
- Influenza notification rates have been highest among those aged over 85 years with secondary peaks in those aged 5-9 and 40-44 years.
- Influenza B continues to be the dominant influenza virus type nationally, comprising two thirds of all notifications.
- All systems that monitor influenza- like illness (ILI) activity are reporting increasing activity while remaining within the range of previous seasons. Influenza, RSV and Rhinovirus are all contributing to increasing ILI in the community.
- Hospitalisations with confirmed influenza declined in the past fortnight. Hospitalisations appear to be more severe for children this year with 16% of children presenting to sentinel hospitals with influenza admitted directly to ICU compared with 6% of adults.
- The seasonal influenza vaccines appear to be a good match for circulating strains.

Follow the link for the [Australian Influenza Surveillance Reports](#) which provide the latest information on national influenza activity.

Global Influenza Update

The World Health Organization (WHO) provides [weekly reports](#) of global influenza activity. As of 10 August 2015 (with data up to 26 July), global surveillance indicated that:

- In North America and Europe, influenza activity remained at low, inter-seasonal levels with influenza B predominating in sporadic detections.
- In most of the countries in Africa, where reports were available, influenza activity remained at low levels except in Senegal which had increased detections of influenza B viruses.
- In tropical countries of the Americas/Central America and the Caribbean, influenza activity was reported to be at low, inter-seasonal levels with only Cuba reporting an increase in detections of influenza A(H1N1)pdm09 and parainfluenza viruses.
- In western and temperate countries of Asia, influenza activity was at low, inter-seasonal levels with influenza B predominating with co-circulation of influenza A(H1N1)pdm09 in western Asia.
- In tropical Asia, countries in Southern Asia reported elevated but decreasing influenza activity with influenza A(H3N2) predominating. South-East Asia reported low levels of activity; however, Lao People's Democratic Republic and Viet Nam reported elevated influenza activity.
- In temperate South America, influenza activity decreased with influenza A(H1N1)pdm09 and A(H3N2) predominating. Overall, influenza activity was at lower levels than in previous years.
- In South Africa, influenza activity decreased with influenza A(H1N1)pdm09 and A(H3N2) predominating in recent weeks.
- In Australia and New Zealand, influenza activity increased with both influenza A(H3N2) and B viruses in circulation.

WHO reported global influenza laboratory data for the period 13 to 26 July 2015, which noted:

- Of the 29 591 specimens submitted for testing, 2299 were positive for influenza viruses, of which 2242 (83%) were typed as influenza A and 457 (17%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 61 (3%) were influenza A (H1N1) and 2232 (97%) were influenza A(H3N2).
- Of the characterized B viruses, 143 (91%) belonged to the B/Yamagata lineage and 14 (9%) to the B/Victoria lineage.

Avian influenza Update

Human infection with avian influenza A(H5) viruses

WHO report that from 2003 through 17 July 2015, 844 laboratory-confirmed human cases of avian influenza A(H5N1) virus infection have been officially reported to WHO from 16 countries. Of these cases, 449 have died.

Since the last WHO Influenza update on 23 June 2015, two new laboratory-confirmed human cases of avian influenza A(H5N1) virus infection were reported to WHO from Egypt.

Overall public health risk assessment for avian influenza A(H5) viruses:

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.

Human infections with avian influenza A(H7N9) viruses in China

A total of 677 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 275 deaths have been reported to WHO. The majority of recently reported human cases are associated with exposure to infected live poultry or contaminated environments, including markets where live poultry are sold. WHO advises that further sporadic human cases of avian influenza A(H7N9) infection are expected in affected and possibly neighbouring areas.

WHO is assessing the epidemiological situation and conducting further risk assessment based on the latest information. Overall, the public health risk from avian influenza A(H7N9) viruses has not changed.

Human infections with avian influenza A(H5N6) viruses in China

One laboratory-confirmed case of human infection with avian influenza A(H5N6) virus was reported to WHO from China. The case developed symptoms on 6 July and was admitted to hospital on 9 July and, despite medical treatment, died on 10 July.

Overall public health risk assessment for avian influenza A(H9N2) viruses:

Further human cases and small clusters could occur as this virus is circulating in poultry populations across Asia and Middle East. This virus does not seem to transmit easily between humans and tends to result in mild clinical disease; therefore the current likelihood of community-level spread and public health impact of this virus is considered low.

The latest WHO monthly risk assessment report for human infections with avian influenza A strains H5, H7, H9 is available here: [WHO Avian influenza monthly summary](#) .

Other sources of information on avian influenza and the risk of human infection include the following:

- US CDC [Avian influenza](#)
- European CDC (ECDC) [Avian influenza](#)
- Public Health Agency of Canada [Avian influenza H7N9](#) .

Recommended composition of 2015 Australian influenza vaccines

WHO changed its recommendations for the composition of trivalent vaccines for use in the 2015 influenza season (southern hemisphere winter) as follows:

- A/California/7/2009 (H1N1)pdm09-like virus;
- A/Switzerland/9715293/2013 (H3N2)-like virus ^a;
- B/Phuket/3073/2013-like virus (B/Yamagata lineage).

^a A/South Australia/55/2014, A/Norway/466/2014 and A/Stockholm/6/2014 are A/Switzerland/9715293/2013-like viruses

It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like (i.e. B/Victoria lineage) virus.

These changes from the previous vaccine recommendations (for the southern hemisphere in 2014 and the northern hemisphere in 2014-2015) reflect observed antigenic drift in circulating A(H3N2) and B/Yamagata lineage viruses. More details about the most recent recommendations can be found at: http://www.who.int/influenza/vaccines/virus/recommendations/2015_south/en/ .