

NSW Health Influenza Surveillance Report

Week 35: 24 to 30 August 2015

Summary:

- The majority of influenza surveillance indicators suggest activity peaked last week and that activity is now declining.
- Influenza activity remains high with influenza B strains continuing to predominate.
- The impact on Emergency Departments has decreased but remains high in some districts and in the 5-16 years and 65 years and over age-groups.
- The overall trend in influenza activity is very similar to the high activity seen in 2014.

In this reporting week:

- [Hospital surveillance](#) – presentations to NSW emergency departments for influenza-like illness (ILI) decreased indicating that presentations have reached the peak but still remain above the flu season threshold. Presentations for pneumonia remain high, particularly in the 5-16 and the 65 years and over age-groups.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was moderate to high at 37.3%, the first downward trend since the season began in early July. Influenza B viruses continue to predominate.
- [Community surveillance](#) influenza notifications across the majority of LHDs increased this week but are expected to decline in the coming weeks. Data collected from ASPREN and FluTracking showed declines in seasonal ILI activity, while eGPS showed a rise in activity. There were 10 reports of influenza outbreaks in residential care facilities.
- [National and international influenza surveillance](#) – Across Australia influenza activity continues to increase. All jurisdictions with the exception of WA report increasing activity.

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

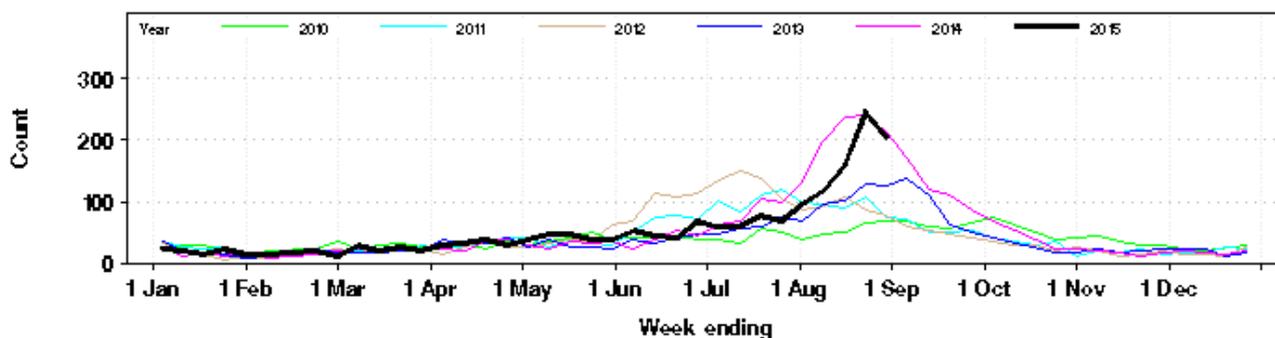
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: NSW PHREDSS [1]

For the week ending 30 August 2015:

- ILI presentations decreased this week but remained above the usual range of activity seen in recent years (Figure 1 and Table 1), although similar to 2014.
- The index of increase for ILI presentations was 48.1 on 30 August, lower than the previous week (59.2). The index crossed the threshold level of 15 on 26 June and peaked at 64.2 on 19 August (higher than the peak of 50.7 seen in 2014).
- The proportion of ILI presentations to all ED presentations decreased this week although it remained high at 4.7 per 1000 presentations. Presentations were particularly elevated in the 5-16 year age-group, in the Western Sydney and South Eastern Sydney Local Health Districts (LHDs), and at the Children's Hospital at Westmead, Maitland Hospital, and The Tweed Hospital (Table 1).
- ED presentations for pneumonia increased slightly and remained above the usual range for this time of year. Presentations were notably elevated in the 5-16 year age-group, in South Western Sydney LHD, and at the Hornsby and Ku-ring-gai Hospital (Figure 2 and Table 1).
- Pneumonia or ILI presentations which resulted in admission decreased, but remained above the usual range for this time of year. Admissions to critical care decreased and were within the usual range (Figure 3 and Table 1).
- The category combining all respiratory, fever and unspecified infection presentations decreased but remained above the usual range for this time of year; presentations were elevated in all age groups. Presentations were increased across most NSW LHDs (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 – 30 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 2: Total weekly counts of ED presentations for pneumonia, from January – 30 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

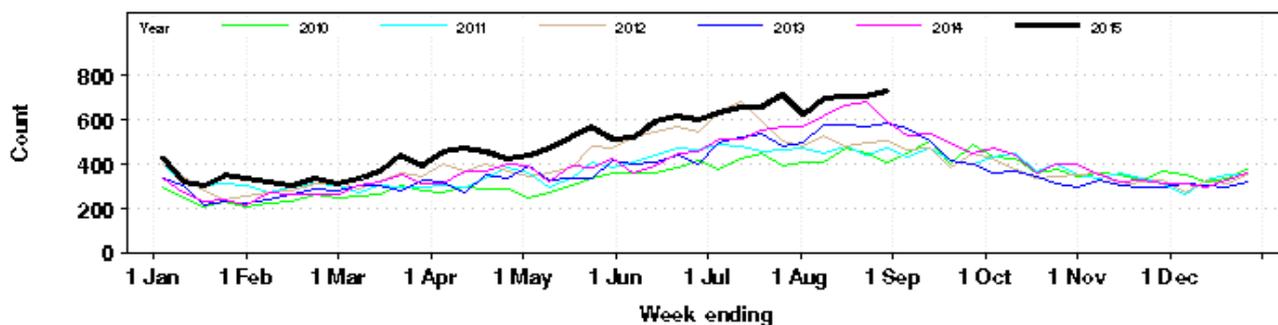


Figure 3: Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – 30 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

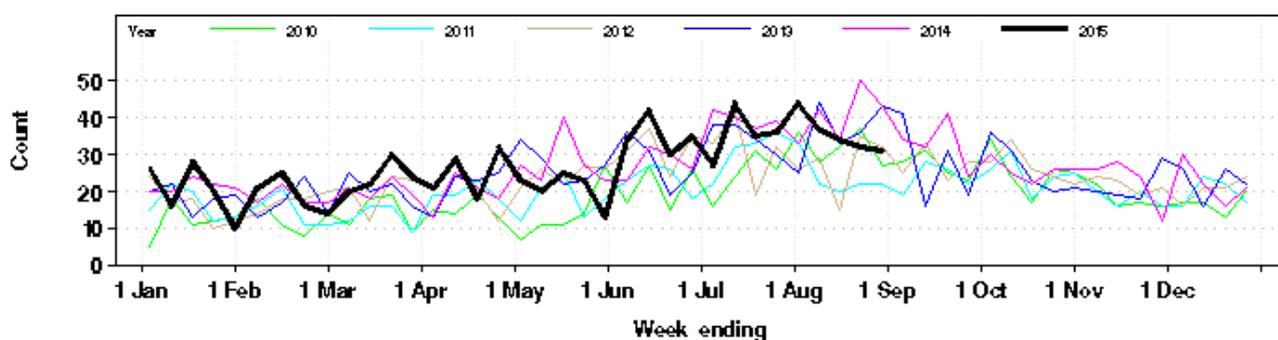


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 30 August 2015. Includes data from 59 NSW EDs and the NSW Ambulance Division. *

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)	Action other than this report (if any)	Comment
ED presentations, 59 NSW hospitals	Influenza like illness (ILI)	Decreased	Above	Ages 5-16	Western Sydney, South Eastern Sydney LHDs, The Children's Hospital at Westmead, Maitland Hospital, and The Tweed Hospital	Daily ILI Situation reports have been sent since 27 August to support LHD planning	
	Pneumonia	Increased	Above	Ages 5-16 and 65+	South Western Sydney LHD, Hornsby and Ku-ring-gai Hospital		
	Pneumonia and ILI admissions	Decreased	Above				
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Bronchiolitis	Decreased	Above				Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Decreased	Above	All age groups	All LHDs except Sydney, Murrumbidgee, and Southern NSW LHDs		
	Asthma	Decreased	Usual				
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Decreased	Above		South Western Sydney LHD		

* **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.

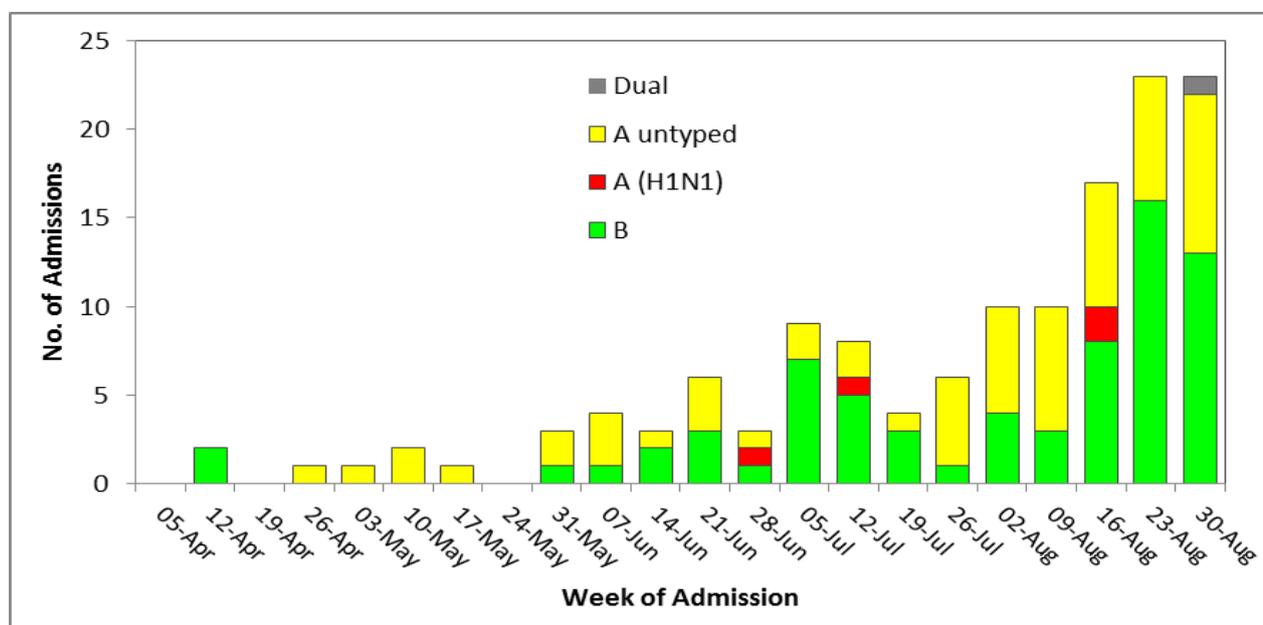
FluCAN (The Influenza Complications Alert Network)

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 35 there were 23 (7 adults and 16 children) influenza admissions in NSW sentinel hospitals (Figure 4).
- Since 1 April 2015, there have been 138 hospital admissions reported for influenza; 65 with influenza A, 70 with influenza B, one dual infection and two results are unknown (Figure 4).
- Of these admissions, 65 were paediatric (<16 years of age) cases and 73 were in adults. Eight 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 30 August 2015 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [2] which tested positive for influenza A or influenza B decreased slightly compared to the activity levels seen in the previous week suggesting that the peak of the season has passed (Table 2 and Figures 5-6).

A total of 9,625 tests for respiratory viruses were reported with 37.3% testing positive for influenza viruses, slightly down from 38.7% 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).

[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.

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 30 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 (%A)	Total (%A)	Total (%)	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		
1/03/2015	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		
02/08/2015*	22771	1125 (4.9%)	332 (29.5%)	141 (12.5%)	654 (58.1%)	2125 (9.3%)	721	273	1878	2484	149	425		
30/08/2015*	32606	3717 (11.4%)	1428 (38.4%)	595 (16.0%)	1728 (46.5%)	7819 (24.0%)	747	295	1014	2369	69	445		

Week ending	Total Tests	Influenza A Total (%)	Influenza A H3N2 (%A)	Influenza A H1N1 pdm09 (%A)	Influenza A (Not typed) Total (%)	Influenza B Total (%)	Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV **
9/08/2015	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
23/08/2015	9453	1122 (11.9%)	417 (37.2%)	189 (16.8%)	516 (46.0%)	2537 (26.8%)	184	82	235	647	18	107
30/08/2015	9625	1111 (11.5%)	487 (43.8%)	179 (16.1%)	481 (43.3%)	2479 (25.8%)	229	92	181	564	10	128

Notes:

* Five-week reporting period.

** Human metapneumovirus

Figure 5: Influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 30 August 2015.

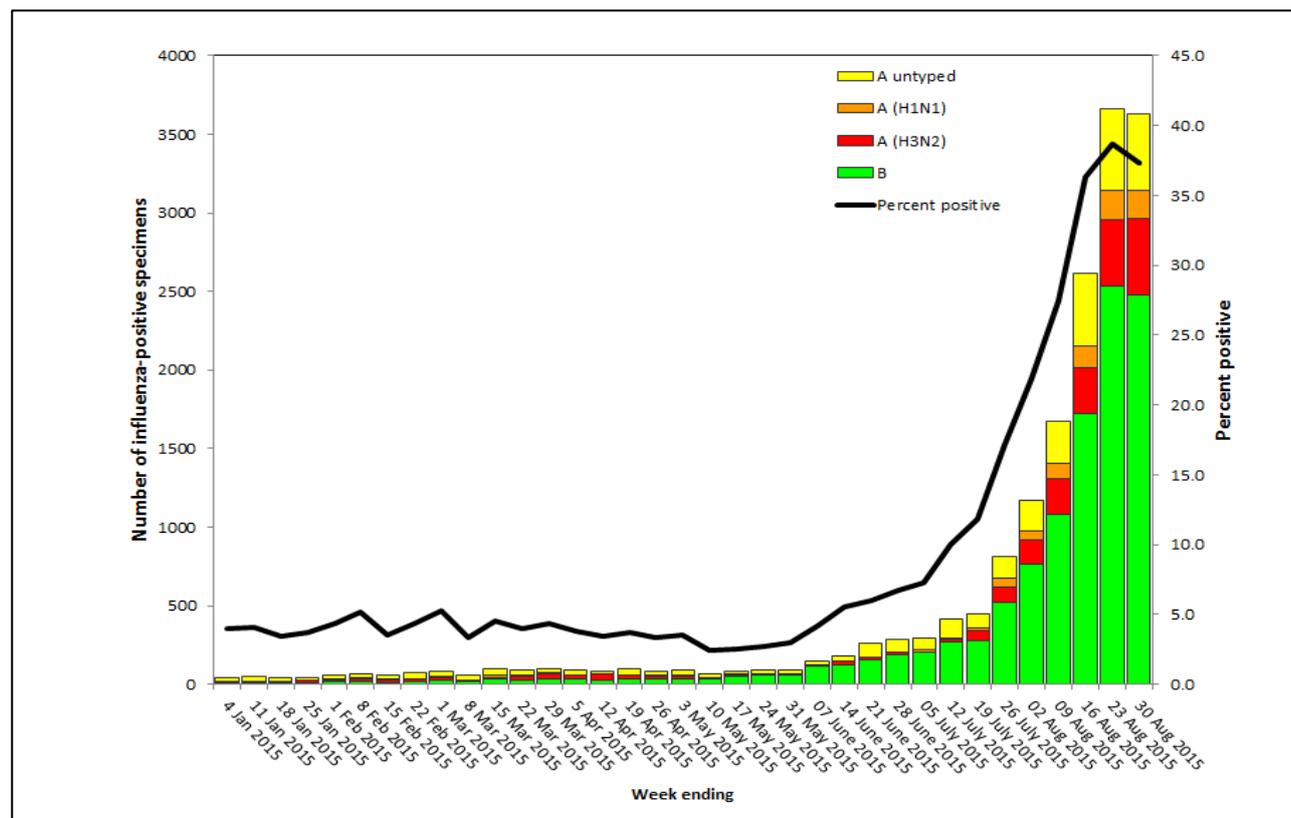
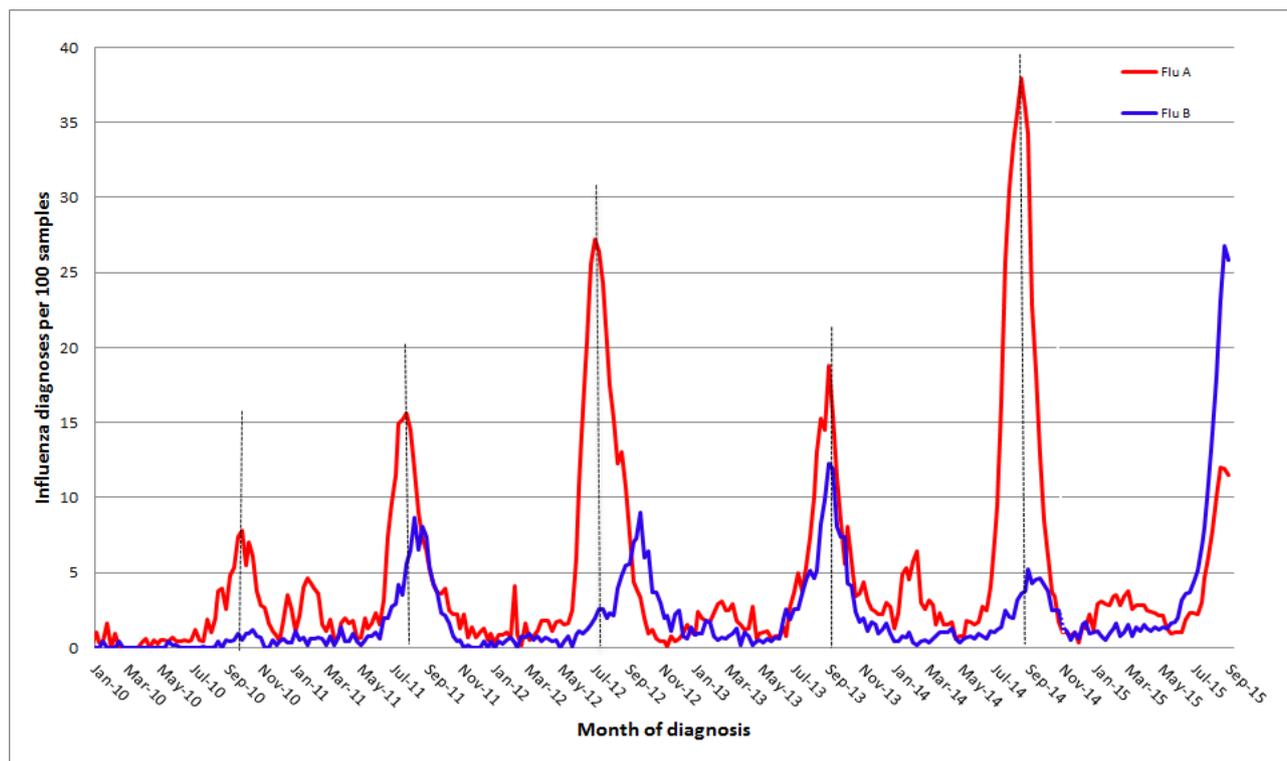


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 30 August 2015, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 30 August there were 3296 notifications of influenza confirmed by polymerase chain reaction (PCR) testing.

Districts with the highest notification rates were Northern Sydney, Western Sydney and Nepean Blue Mountains LHDs (Table 3). Influenza activity remained high across most LHDs.

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

Local Health District	Week ending 30 Aug 2015		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	91	27.2	48	14.35
Far West	0	0	3	9.78
Hunter New England	303	33.31	195	21.44
Illawarra Shoalhaven	115	28.8	72	17.95
Mid North Coast	45	20.94	28	13.19
Murrumbidgee	94	39.35	100	41.86
Nepean Blue Mountains	224	60.85	126	34.32
Northern NSW	75	25.23	62	20.86
Northern Sydney	628	69.94	449	49.97
South Eastern Sydney	389	43.58	299	33.53
South Western Sydney	393	41.59	243	25.75
Southern NSW	60	29.2	32	15.74
Sydney	196	31.6	193	31.06
Western NSW	75	27.04	22	7.93
Western Sydney	608	65.59	426	45.96

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

Influenza outbreaks in institutions

There were 10 influenza outbreaks reported in residential care facilities this week and one outbreak in a military training facility. Six were due to influenza A, four were influenza B, and one had both A and B strains identified.

In the year to date, there have been 65 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4); 39 have been due to influenza A, 19 due to influenza B and seven were combined A and B. At least 597 residents were reported to have had ILI symptoms and 82 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.

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 30 August 2015.

Year	2010	2011	2012	2013	2014	2015 *
No. of outbreaks	2	4	39	12	120	65

* Year to date.

Electronic General Practice Surveillance (eGPS)

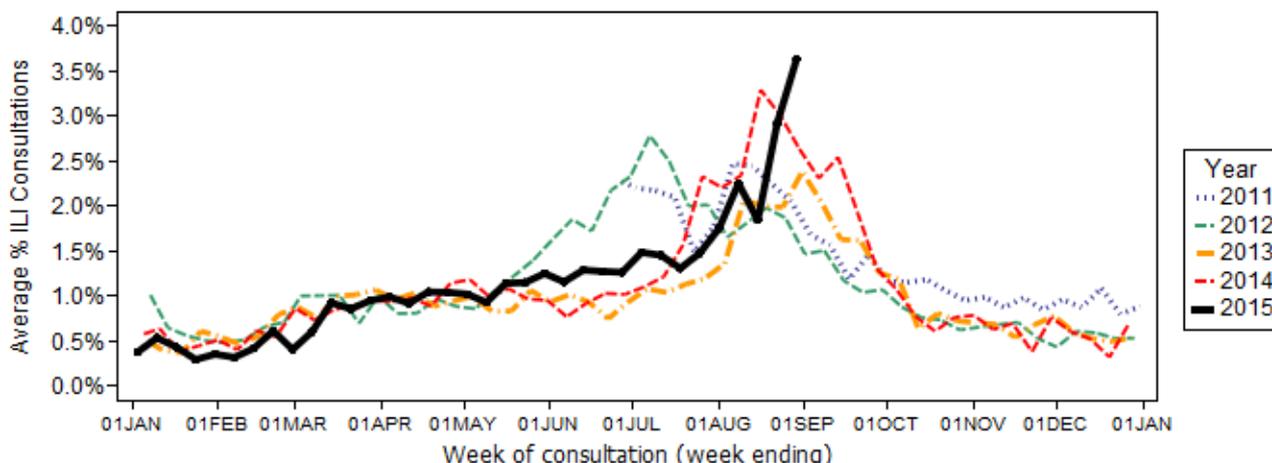
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 35:

- There were 8 surveillance reports received from eGPS sentinel practices in NSW;
- The average rate of ILI patient consultations increased to 3.6% (range 1.3 – 5.2%), up from 2.9% in the previous week, and higher than 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 35 there were 38 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 3.9 % and within the usual range seen for this time of year.

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

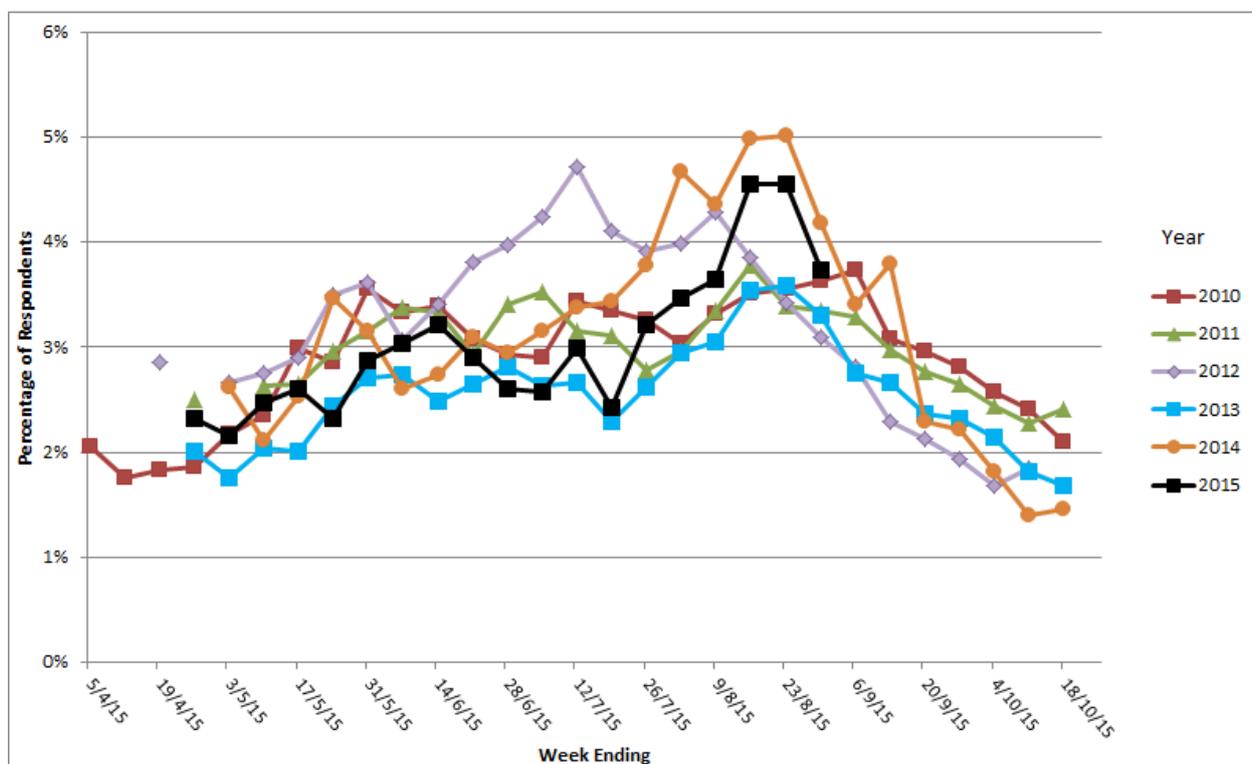
FluTracking.net

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 35 FluTracking received reports for 6342 people in NSW with the following results:

- 3.7% of respondents reported fever and cough, lower than the previous week (4.6%) (Figure 8), and lower than the corresponding week in 2014.
- 2.3 % of respondents reported fever, cough and absence from normal duties, lower than the previous week (3.3%) (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 14 August 2015. Influenza activity continued to increase nationally this fortnight. All jurisdictions with the exception of Western Australia are continuing to increase in activity.

- Influenza notification rates have been highest among those aged between 5 and 9 and over 85 years with a secondary peak in those aged 40-44 years.
- Influenza B continues to be the dominant influenza virus type nationally, comprising two thirds of all notifications. In South Australia, Victoria and Western Australia, the proportion of influenza A has increased.
- All systems that monitor influenza-like illness (ILI) activity are reporting increasing activity while remaining within the range of previous seasons. Influenza is the primary cause of ILI in the community this fortnight.
- Hospitalisations with confirmed influenza increased in the past fortnight. While less severe overall, presentations appear to be more severe in children this year, with 11% 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. However approximately one-quarter of influenza B viruses tested are due to the lineage not contained in the trivalent seasonal vaccine (TIV).

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 24 August 2015 (with data up to 9 August), global surveillance indicated that:

- In the Northern hemisphere countries, respiratory virus activity remained low in general, and influenza activity continued at low, inter-seasonal levels. Influenza type A predominated in sporadic detections. A number of countries have also ceased or reduced surveillance activity during the inter-seasonal period.
- In Eastern Africa, influenza activity remained at low levels. In countries with reported influenza activity, type A predominated. In Western Africa, influenza activity decreased overall, with influenza B predominating in Ghana, and influenza A in Cote d'Ivoire. In tropical countries of the Americas, Central America and the Caribbean, influenza activity remained at low levels, with the exception of Cuba, where high levels of influenza-like illness (ILI) and severe acute respiratory infections (SARI) were reported, associated with influenza A(H1N1)pdm09 and RSV detections.
- In tropical Asia, countries in Southern Asia and South East Asia reported an overall decrease in influenza activity. Influenza activity was still high but decreasing in southern China with influenza A(H3N2) predominating.
- In temperate South America, ILI and SARI activity was peaking or had peaked mainly due to RSV activity. Overall, influenza activity this season was mild with respect to previous seasons. Influenza type A predominated, with type A(H1N1)pdm09 and type A(H3N2) co-circulating.
- In South Africa, influenza activity decreased, with influenza type B predominating in recent weeks.
- In Australia and New Zealand, influenza activity seemed to be still increasing with predominantly influenza B followed by influenza A(H3N2) detections.

WHO reported global influenza laboratory data for the period 27 July to 9 August 2015, which noted:

- Of the 31 403 specimens submitted for testing, 2850 were positive for influenza viruses, of which 2439 (86%) were typed as influenza A and 411 (14%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 47 (2%) were influenza A (H1N1) and 2398 (98%) were influenza A(H3N2).
- Of the characterized B viruses, 118 (94%) belonged to the B/Yamagata lineage and 7 (6%) to the B/Victoria lineage.

Avian influenza Update

Human infection with avian influenza A(H5) viruses

WHO report that from 2003 through to 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](#) .

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/ .