

# NSW Health Influenza Surveillance Report

Week 32: 3 to 9 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.
- Influenza activity is expected to continue to increase in coming weeks. Influenza seasons typically last from 8 to 17 weeks.
- On current trends, influenza activity is likely to peak in late August.

## In this reporting week:

- [Hospital surveillance](#) – presentations to NSW emergency departments for influenza-like illness (ILI) increased and remain above the flu season threshold. Bronchiolitis presentations decreased this week but remained higher than usual for this time of year.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was moderate to high (27.5%), 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 six reports of influenza outbreaks in residential care facilities.
- [Deaths](#) - The NSW Registry of Births, Deaths, and Marriages have recorded 13 pneumonia and influenza deaths in 2015; deaths remain below the epidemic threshold.
- [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

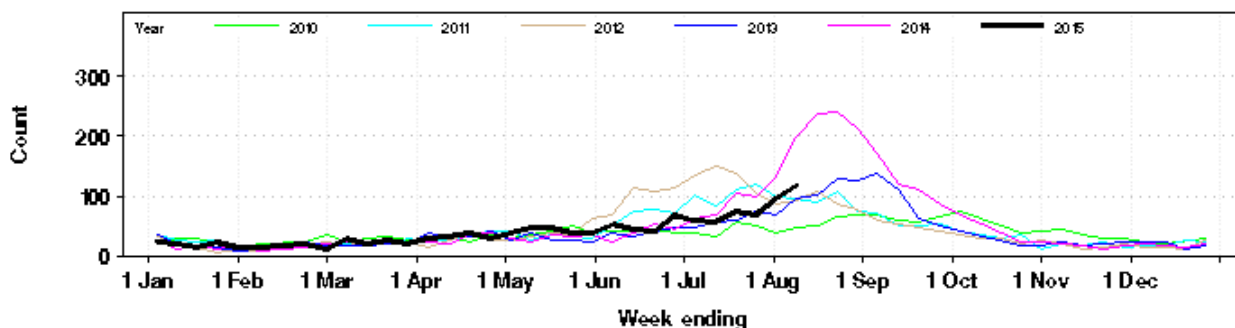
## NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: NSW PHREDSS [1]

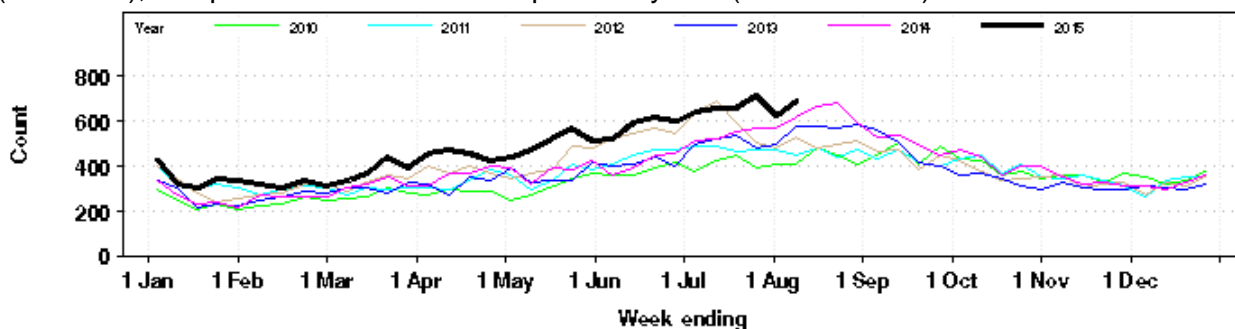
For the week ending 9 August 2015:

- ILI presentations increased slightly and were within the range of activity seen in previous years (Figure 1 and Table 1). The index of increase for ILI presentations was 42.1 on 2 August, significantly higher than the previous week. The index crossed the threshold 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 2.7 per 1000 presentations.
- ED presentations for pneumonia were increased but were above the usual range for this time of year. Presentations were elevated in persons aged 5-16 years and 65 years and older, and South Western Sydney and Central Coast LHDs (Figure 2 and Table 1).
- Pneumonia or ILI presentations which resulted in admission to critical care decreased and were above within the usual range for this time of year (Figure 3 and Table 1).
- The overall numbers of respiratory, fever and unspecified infection presentations increased and were above the usual range for this time of year; presentations were and several LHDs as well as Broken Hill Hospital (Table 1).
- Bronchiolitis presentations decreased this week but remained above the usual range for this time of year. Presentations for bronchiolitis were elevated at Campbelltown, Broken Hill Base and Coffs Harbour Base Hospitals (Figure 4 and Table 1).

**Figure 1:** Total weekly counts of ED visits for influenza-like illness, from January – 9 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

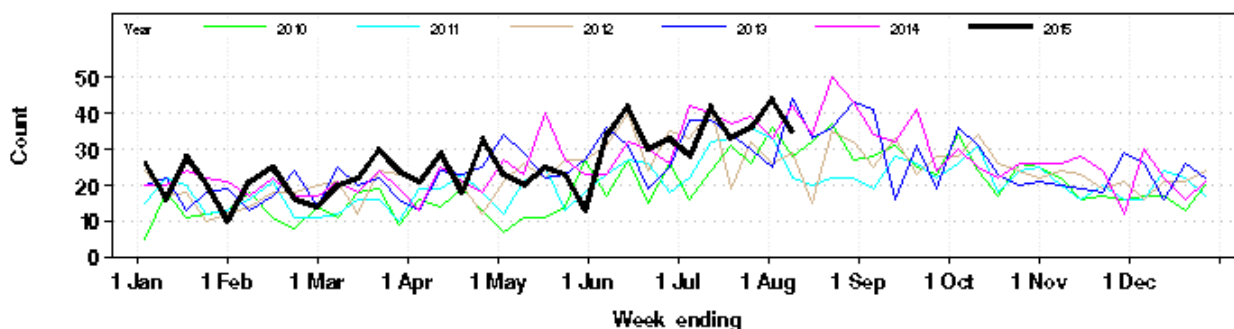


**Figure 2:** Total weekly counts of ED presentations for pneumonia, from January – 9 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

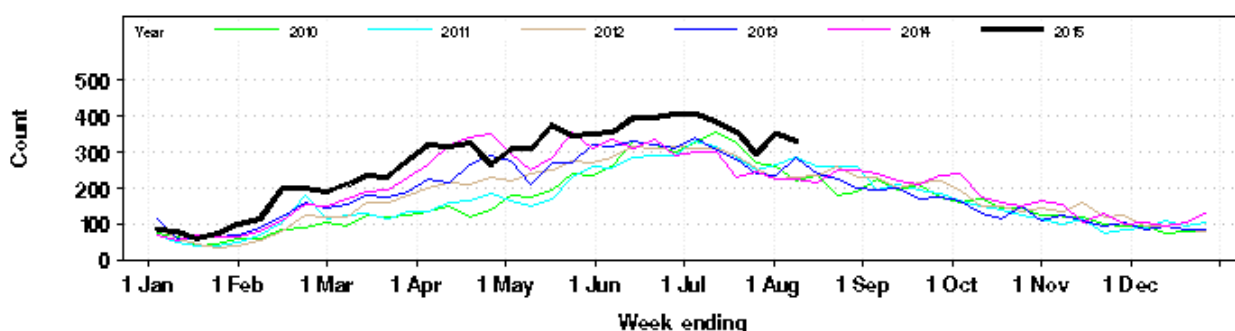


[1] NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) is managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts 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 – 9 August 2015 (black line), compared with each of the 5 previous years (coloured lines).



**Figure 4:** Total weekly counts of ED visits for bronchiolitis, from January – 9 August 2015 (black line), compared with the 5 previous years (coloured lines).



**Table 1:** Weekly ED and Ambulance Respiratory Activity Summary for the week ending 9 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)	Increased	Usual		Murrumbidgee LHD		
	Pneumonia	Increased	<b>Above</b>	5-16 years 65+ years	South Western Sydney LHD Central Coast LHD		
	Pneumonia and ILI admissions	Increased	Usual				
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Bronchiolitis	Decreased	<b>Above</b>		Campbelltown Hospital Broken Hill Base Hospital Coffs Harbour Base Hospital	Sent sitrep to SWS LHD on 10 August 2015	Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Increased	<b>Above</b>	All age groups	South Western Sydney LHD Western Sydney LHD Murrumbidgee LHD Central Coast LHD Northern Sydney LHD Broken Hill Base Hospital	Sent sitrep to Murrumbidgee LHD on 6 August 2015	
	Asthma	Decreased	Usual				
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Increased	<b>Above</b>				

\* **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.

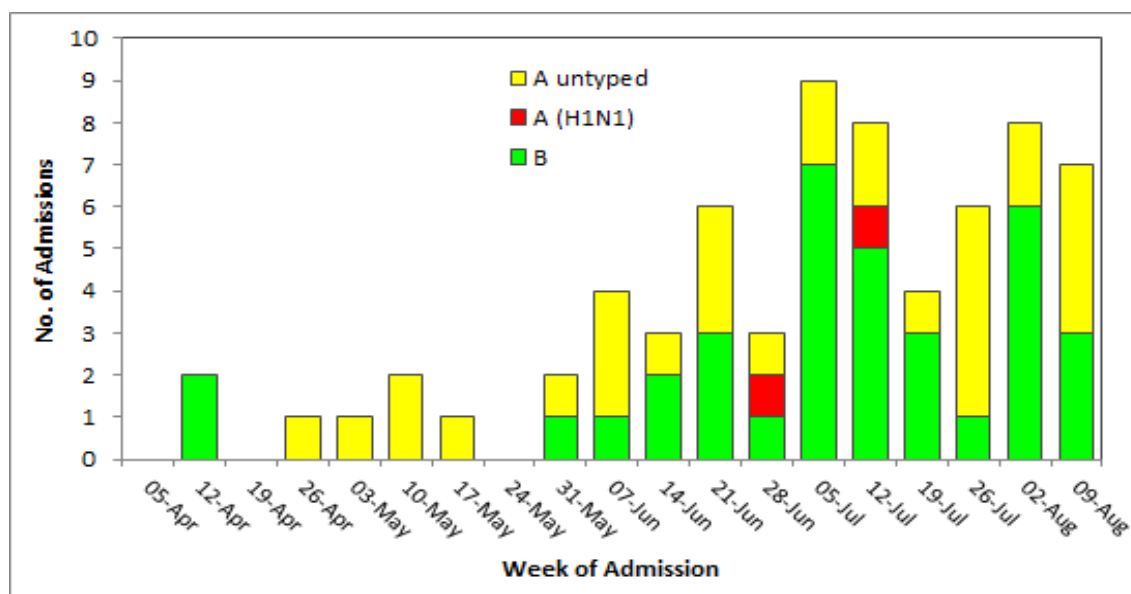
## FluCAN (The Influenza Complications Alert Network)

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 32 there were seven (1 adult and 6 children) influenza admissions in NSW sentinel hospitals (Figure 5).
- Since 1 April 2015, there have been 67 hospital admissions reported for influenza; 35 with influenza A and 32 with influenza B (Figure 5).
- Of these admissions, 31 were paediatric (<16 years of age) cases and 36 were in adults. Six cases were admitted to ICU/HDU.

**Figure 5:** FluCAN – Number of confirmed influenza hospital admissions in NSW, April – August 2015.



## 2. Laboratory Surveillance

For the week ending 9 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 6 and 7).

A total of 6,087 tests for respiratory viruses were reported with 1672 specimens (27.5%) testing positive for influenza viruses. Of these, Influenza B viruses continued to be identified more commonly identified than influenza A, at a ratio of 2:1.

Influenza was the leading respiratory virus 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.

As reported in the previous week, researchers from the Institute of Clinical Pathology and Medical Research (ICPMR) have recently reported that 28% of influenza B strains tested belong to the B/Victoria lineage. This lineage is not contained in the southern hemisphere's 2015 trivalent influenza vaccine but is covered in the quadrivalent vaccine. See the full report published online at Eurosurveillance: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21201>

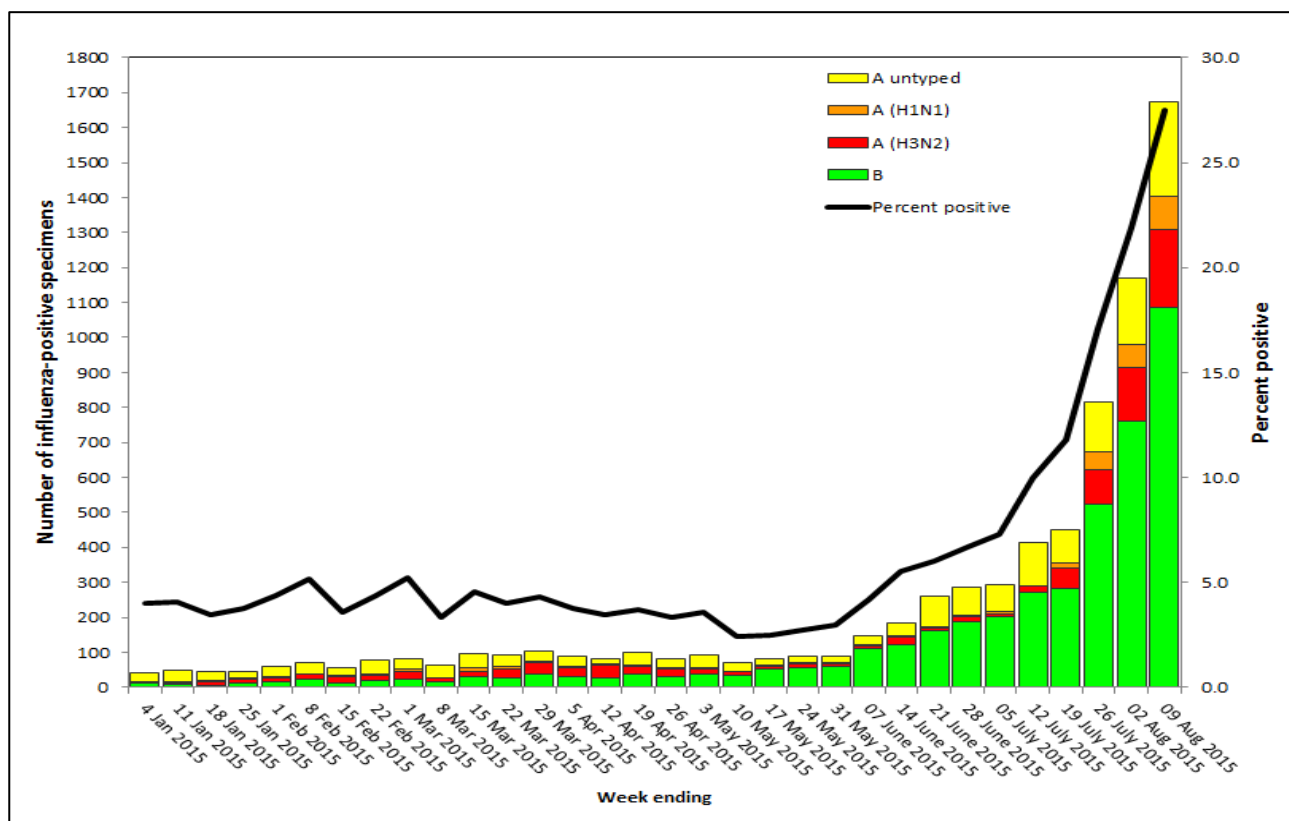
**Table 2:** Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 9 August, 2015.

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			
<b>Week ending</b>															
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			

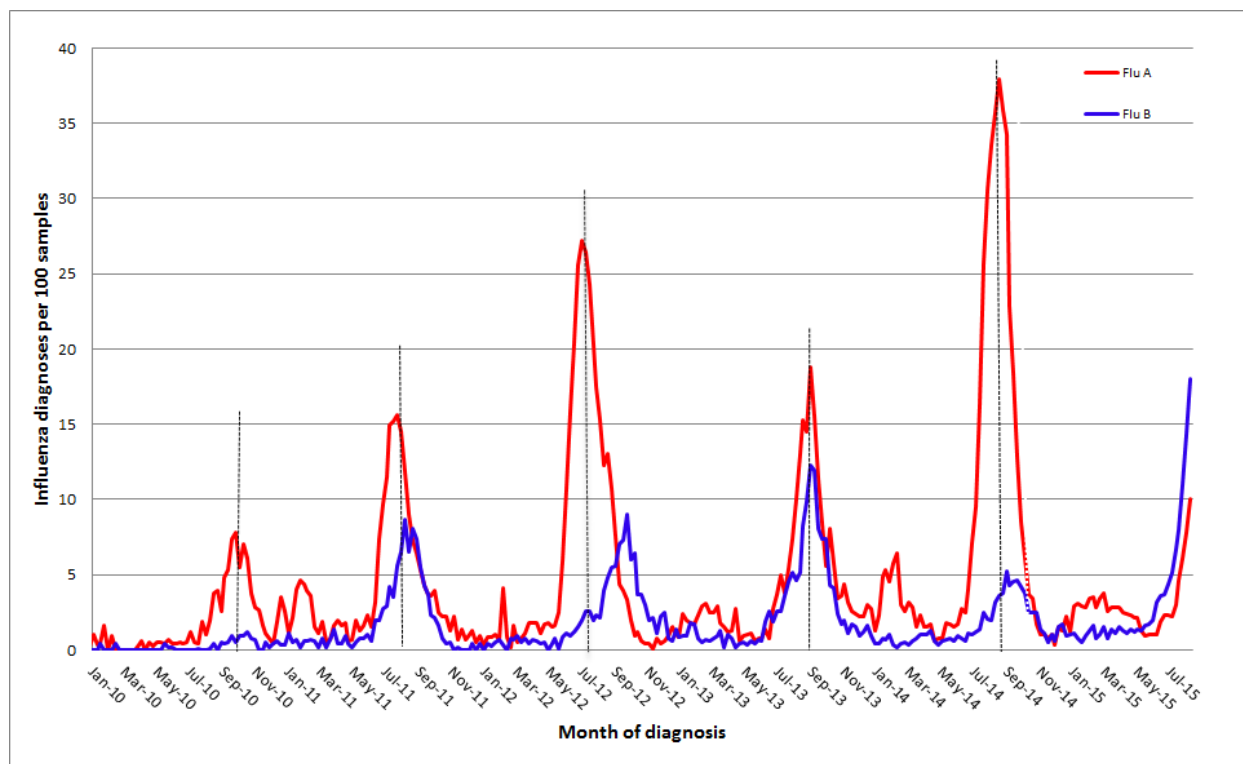
**Notes:**

- \* Five-week reporting period.
- \*\* Human metapneumovirus

**Figure 6:** Influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 9 August 2015.



**Figure 7:** Percentage of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 9 August 2015, New South Wales.



### 3. Community Surveillance

#### Influenza notifications by Local Health District (LHD)

In the week ending 9 August, there were 1422 notifications of influenza confirmed by polymerase chain reaction (PCR) testing. Districts with the highest notification rates were the Murrumbidgee, Northern Sydney, Western Sydney, and 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 09 Aug 2015		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	24	7.17	17	4.98
Far West	0	0	1	3.26
Hunter New England	116	12.75	52	5.68
Illawarra Shoalhaven	41	10.27	16	4.01
Mid North Coast	19	8.84	10	4.81
Murrumbidgee	92	38.51	21	8.65
Nepean Blue Mountains	61	16.57	51	13.76
Northern NSW	47	15.81	18	6.17
Northern Sydney	288	32.07	139	15.48
South Eastern Sydney	167	18.71	78	8.7
South Western Sydney	156	16.51	66	6.95
Southern NSW	27	13.14	12	5.68
Sydney	133	21.44	64	10.26
Western NSW	7	2.52	6	2.28
Western Sydney	244	26.32	129	13.95

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

## Influenza outbreaks in institutions

There were six influenza outbreaks reported in a residential care facilities this week; five were due to influenza A and one was influenza B.

In the year to date, there have been 32 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4); 22 have been due to influenza A, eight due to influenza B and two were combined A and B. At least 134 residents were reported to have had ILI symptoms and 25 required hospitalisation. Eleven 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 9 August 2015.

Year	2010	2011	2012	2013	2014	2015 *
No. of outbreaks	2	4	39	12	120	32

\* Year to date.

## Electronic General Practice Surveillance (eGPS)

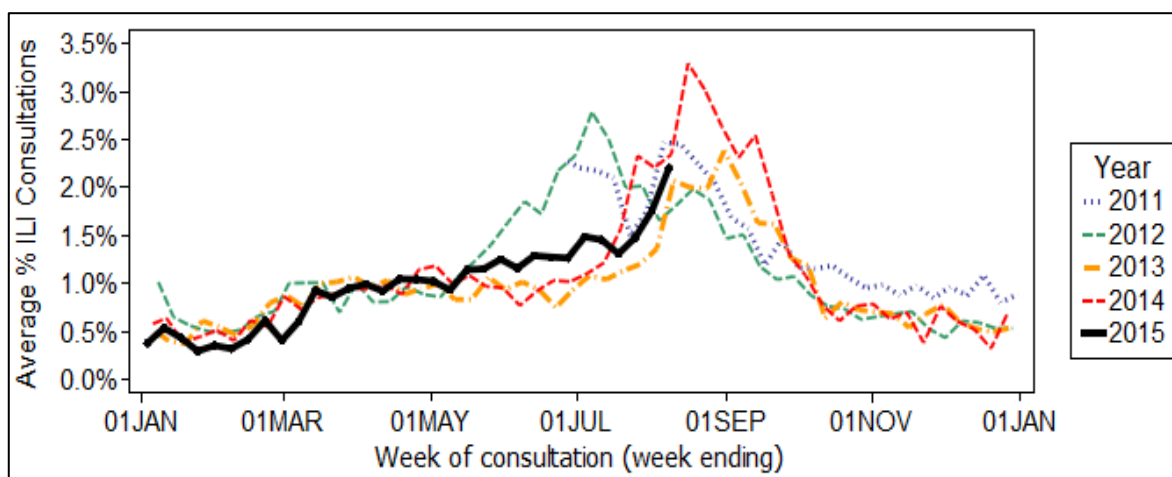
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 32:

- There were 10 surveillance reports received from eGPS sentinel practices in NSW;
- The average rate of ILI patient consultations increased to 2.2% (range 0.6 – 4.7%), up from 1.8% in the previous week, continuing the increasing trend in activity similar to previous years. (Figure 8).

**Figure 8.** 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 32 there were 36 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 3.2 % and within the usual range seen for this time of year.

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

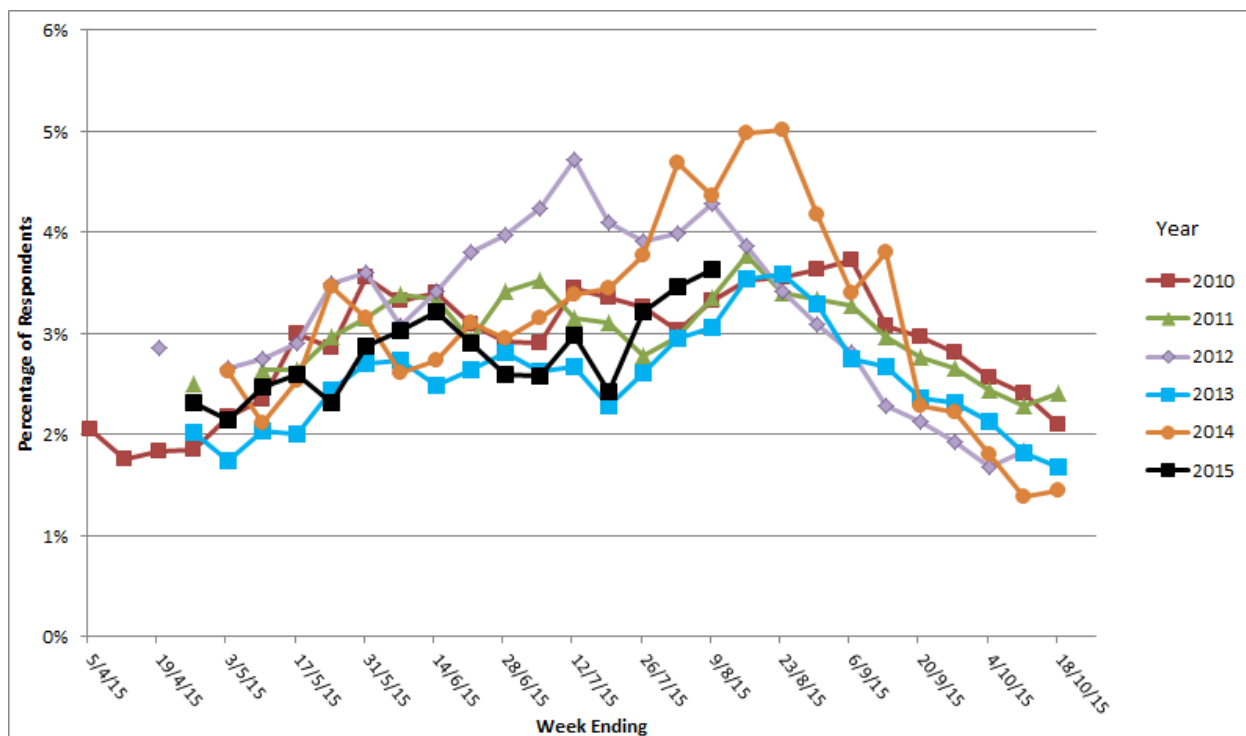
## FluTracking.net

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 32 FluTracking received reports for 6450 people in NSW, including:

- 3.6% of respondents reported fever and cough, up from the previous week. This was within the usual range for this time of year (Figure 9) and well below the corresponding level in 2014;
- 2.2% of respondents reported fever, cough and absence from normal duties, slightly higher than the previous week (data not shown).

**Figure 9:** FluTracking – Weekly influenza-like illness reporting rate, NSW, 2010 – 2015.



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



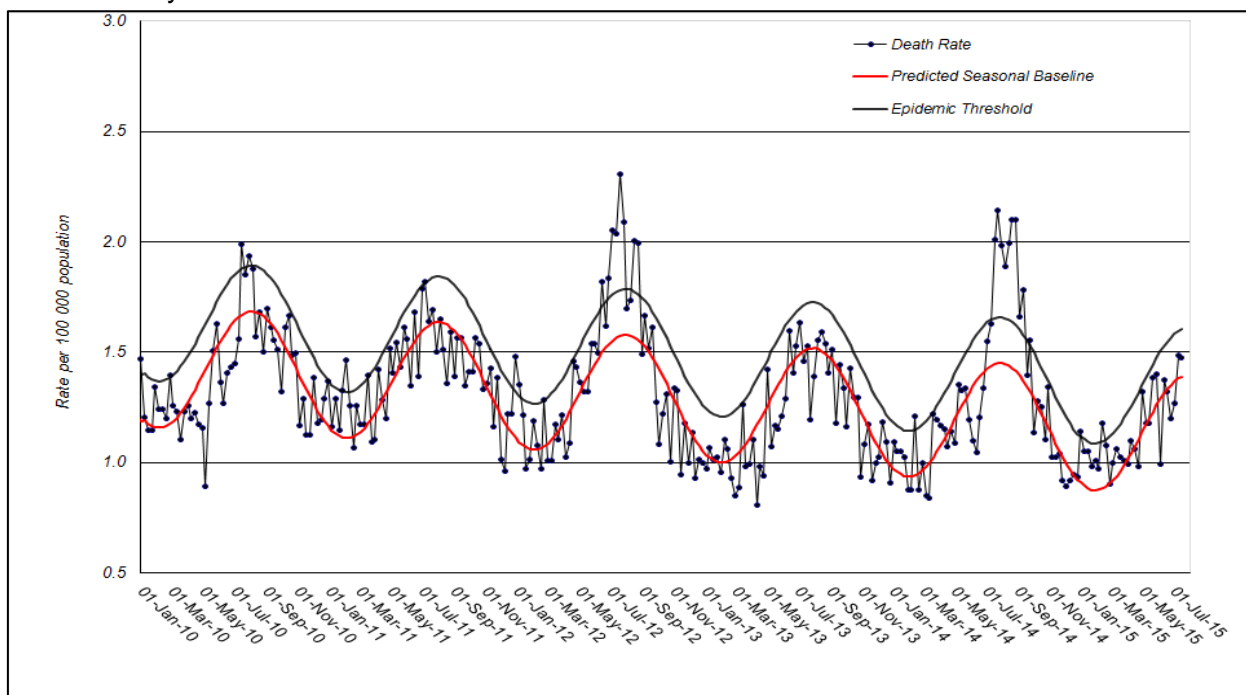
## 4. Deaths with pneumonia or influenza reported on the death certificate

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, then it may be an indication that influenza is beginning to circulate widely.

### For the week ending 17 July:

- In 2015 there have been 13 of 27 066 death certificates which mentioned influenza: one death was in a child <5 years, one death was in a person aged 35 years and the remainder were in people aged over 65 years.
- A total of 2,444 of 27 066 death certificates mentioned pneumonia.
- There were 1.47 pneumonia and influenza deaths per 100 000 NSW population, which was below the epidemic threshold of 1.60 per 100 000 population (Figure 10).

**Figure 10:** Rate of deaths classified as influenza and pneumonia per 100 000 NSW population, 2010 – 17 July 2015.



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

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. While less severe overall, presentations appear to be more severe in 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) reported on current influenza activity in the [WHO Global Influenza Update](#) of 10 August 2015 (with data up to 26 July) which 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 <sup>a</sup>;
- B/Phuket/3073/2013-like virus (B/Yamagata lineage).

<sup>a</sup> 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/](http://www.who.int/influenza/vaccines/virus/recommendations/2015_south/en/) .