

NSW Health Influenza Surveillance Report

Week 39: 21 to 27 September 2015

Summary:

- **Influenza activity continues to trend down, and is at the upper limit of the usual range seen for this time of year.**
- **A few LHDs and hospitals remain busy with influenza like illness, but no age groups or LHDs are significantly above the expected activity for this time of year.**
- **Influenza B strains are continuing to predominate.**
- **Based on previous seasons, influenza activity is likely to return to preseason levels over the next few weeks.**

In this reporting week:

- [Hospital surveillance](#) – presentations to NSW emergency departments for influenza-like illness (ILI) decreased further this week.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was moderate at 19.6%, and continues to trend down. Influenza B viruses continue to predominate.
- [Community surveillance](#) – influenza notifications across all local health districts decreased this week and are expected to decline further in the coming weeks. Data collected from ASPREN showed a slight increase in activity, FluTracking remained the same and eGPS showed a decrease in seasonal ILI activity. Two new outbreaks were reported in residential aged care facilities.
- [National and international influenza surveillance](#) – influenza activity was stable or decreasing across most regions in the country, with the exception of the Top End of the Northern Territory and Tasmania where activity continued to increase.
- [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

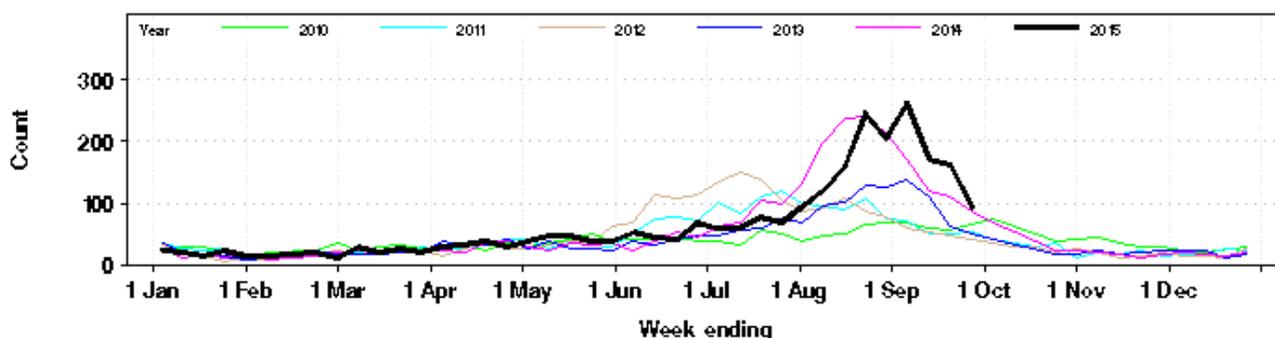
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: PHREDSS¹

For the week ending 27 September 2015:

- ILI presentations² continue to decrease this week. Activity is at the upper level of the usual range of activity seen in recent years (Figure 1 and Table 1).
- The index of increase for ILI presentations has fallen below the threshold at 10.9 on 27 September, lower than the previous week (20.9). 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 is moderate at 2.5 per 1000 presentations down from the previous week (3.8 per 1000 presentations). Presentations were particularly elevated at Kempsey Hospital (Table 1).
- ED presentations for pneumonia³ decreased but remained above the usual range for this time of year (Figure 2 and Table 1).
- Pneumonia or ILI presentations which resulted in admission continued to decrease, but remained above the usual range for this time of year. Admissions were elevated at Lismore Base Hospital. Admissions to critical care increased but 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 17-34 and 64 years and over age groups and at Liverpool Hospital (Table 1).
- Bronchiolitis presentations continued to decrease but remain above the usual range. Presentations were particularly elevated in Lithgow Health Services and Auburn Hospital (Table 1).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 27 September 2015 (black line), compared with each of the 5 previous years (coloured lines).



¹ NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system. Managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change. This includes data from 59 NSW emergency departments (EDs), representing approximately 85% of metropolitan ED presentations and approximately 60% of rural ED presentations.

² ILI is when the treating ED doctor makes a provisional clinical diagnosis of ILI Syndrome, which includes: 'influenza-like illness' or 'influenza' (including 'pneumonia with influenza').

³ Pneumonia is when there is a provisional clinical diagnosis of Pneumonia Syndrome, which includes: 'viral, bacterial or unspecified pneumonia', 'SARS', or 'legionnaire's disease'. Excludes 'pneumonia with influenza'.

Figure 2: Total weekly counts of ED presentations for pneumonia, from January – 27 September 2015 (black line), compared with each of the 5 previous years (coloured lines).

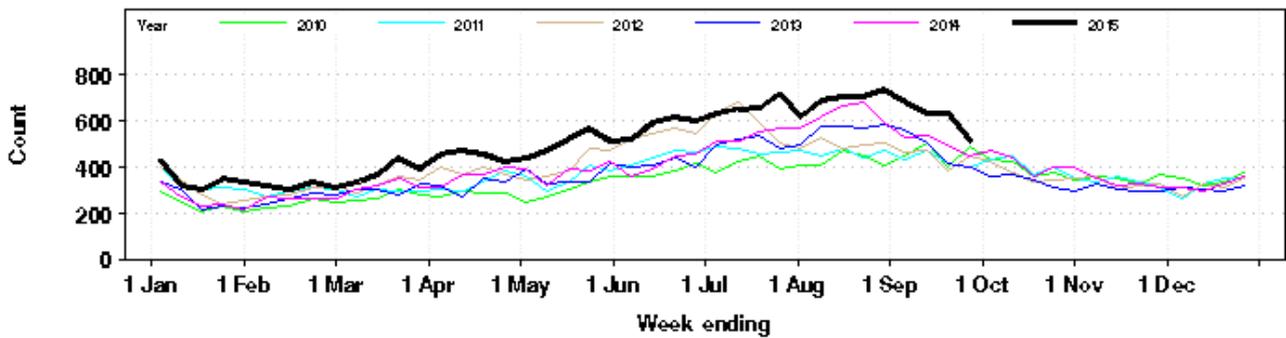


Figure 3: Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – 27 September 2015 (black line), compared with each of the 5 previous years (coloured lines).

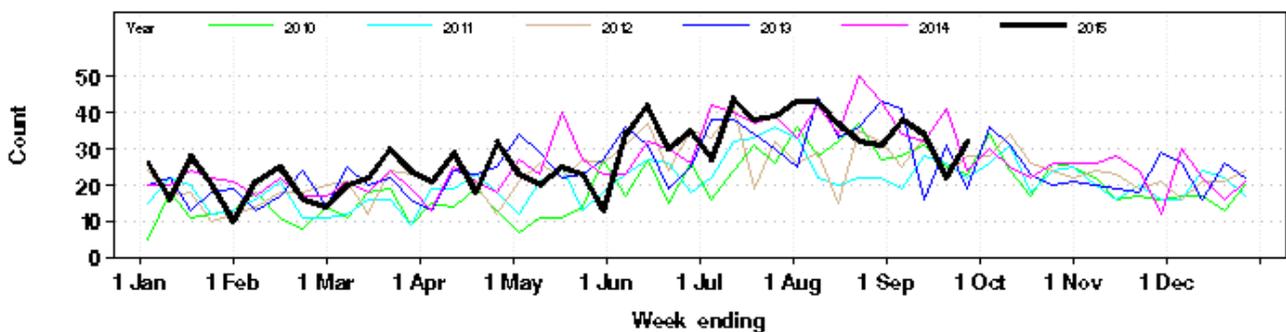


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 27 September 2015. Includes data from 59 NSW EDs and the NSW Ambulance Division. *

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		Kempsey Hospital	Daily ILI Situation reports have been sent since 27 August to support LHD planning	
	Pneumonia	Decreased	Above				
	Pneumonia and ILI admissions	Decreased	Above		Lismore Base Hospital		
	Pneumonia and ILI critical care admissions	Increased	Above				
	Bronchiolitis	Decreased	Above		Lithgow Health Service Auburn Hospital		Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Decreased	Above	17-34 years 65+ years	Liverpool Hospital		
	Asthma	Decreased	Usual				
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Decreased	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.

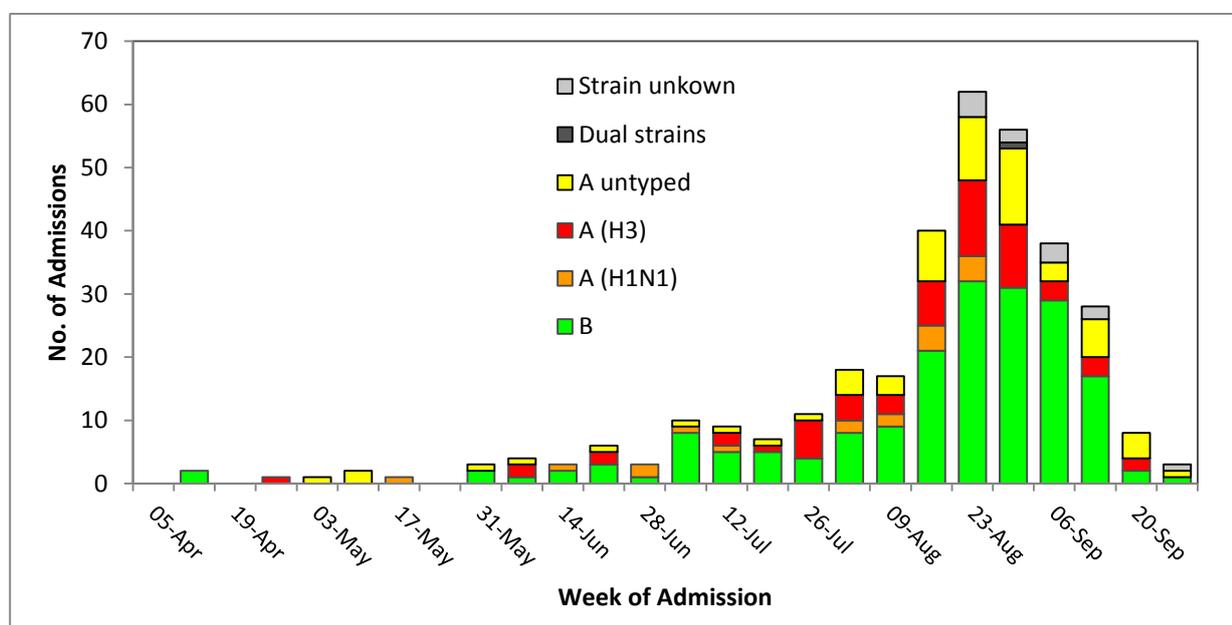
FluCAN (The Influenza Complications Alert Network)

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 39 there were 3 (1 adult and 2 children) influenza admissions in NSW sentinel hospitals (Figure 4).
- Since 1 April 2015, there have been 333 hospital admissions reported for influenza; 137 with influenza A, 183 with influenza B, one dual infection, and 12 unknown (Figure 4).
- Of these admissions, 91 were paediatric (<16 years of age) cases and 242 were in adults. Thirty-six cases were admitted to ICU/HDU.

Figure 4: FluCAN – weekly number of confirmed influenza hospital admissions in NSW, April – September 2015.



2. Laboratory Surveillance

For the week ending 27 September 2015 the number and proportion of respiratory specimens reported by NSW sentinel laboratories [4] which tested positive for influenza A or influenza B continued to decrease. Influenza positive tests peaked in the week ending 23 August at 38.7%. This was lower than the peak in 2014 (41.6%) (Table 2 and Figures 5-6).

A total of 6,398 tests for respiratory viruses were reported this week with 19.6% testing positive for influenza viruses, down from 27.7% 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 this week. Other viruses are circulating at usual levels for this time of year (Table 2).

[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.

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 27 September, 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 (%)	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			
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			
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															
06/09/2015	9933	1093 (11.0%)	379 (34.7%)	203 (18.6%)	511 (46.8%)	2429 (24.5%)	235	101	180	600	16	137			
13/09/2015	9540	914 (9.6%)	375 (41.0%)	136 (14.9%)	403 (44.1%)	1838 (19.3%)	370	127	227	545	17	129			
20/09/2015	8176	711 (8.7%)	278 (39.1%)	137 (19.3%)	296 (41.6%)	1495 (18.3%)	221	130	152	506	16	135			
27/09/2015	6398	458 (7.2%)	180 (39.3%)	70 (15.3%)	208 (45.4%)	796 (12.4%)	171	103	95	441	8	104			

Notes:

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

Figure 5: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 27 September 2015.

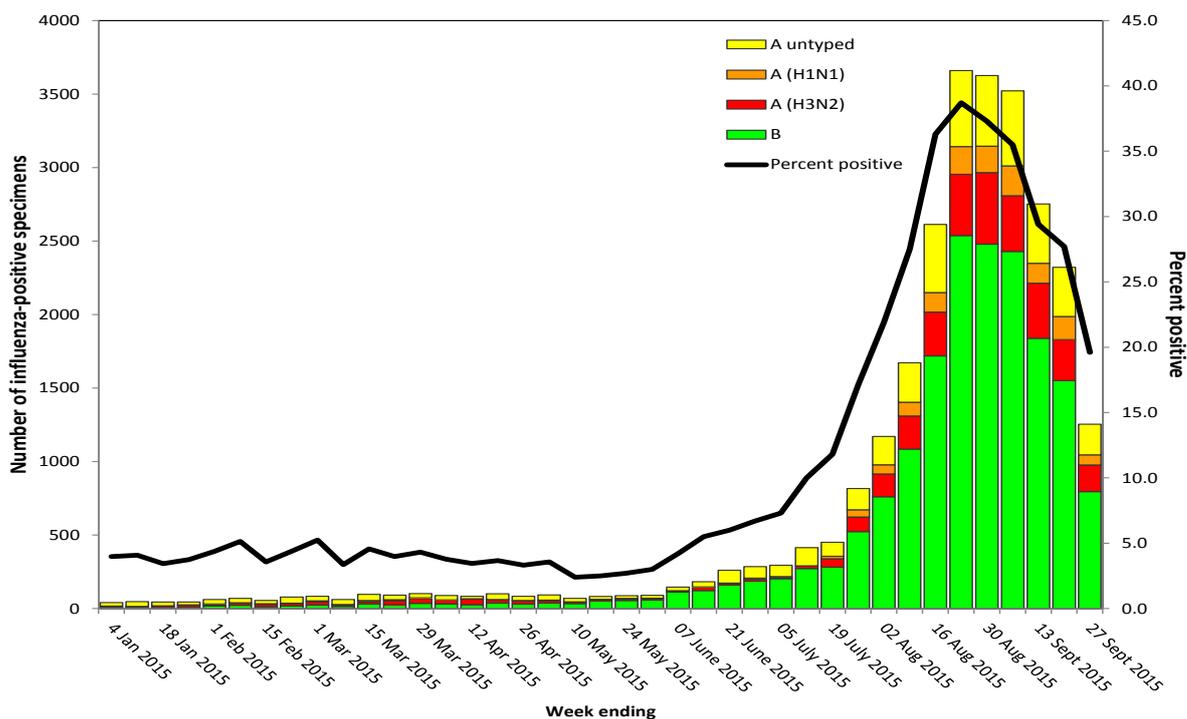
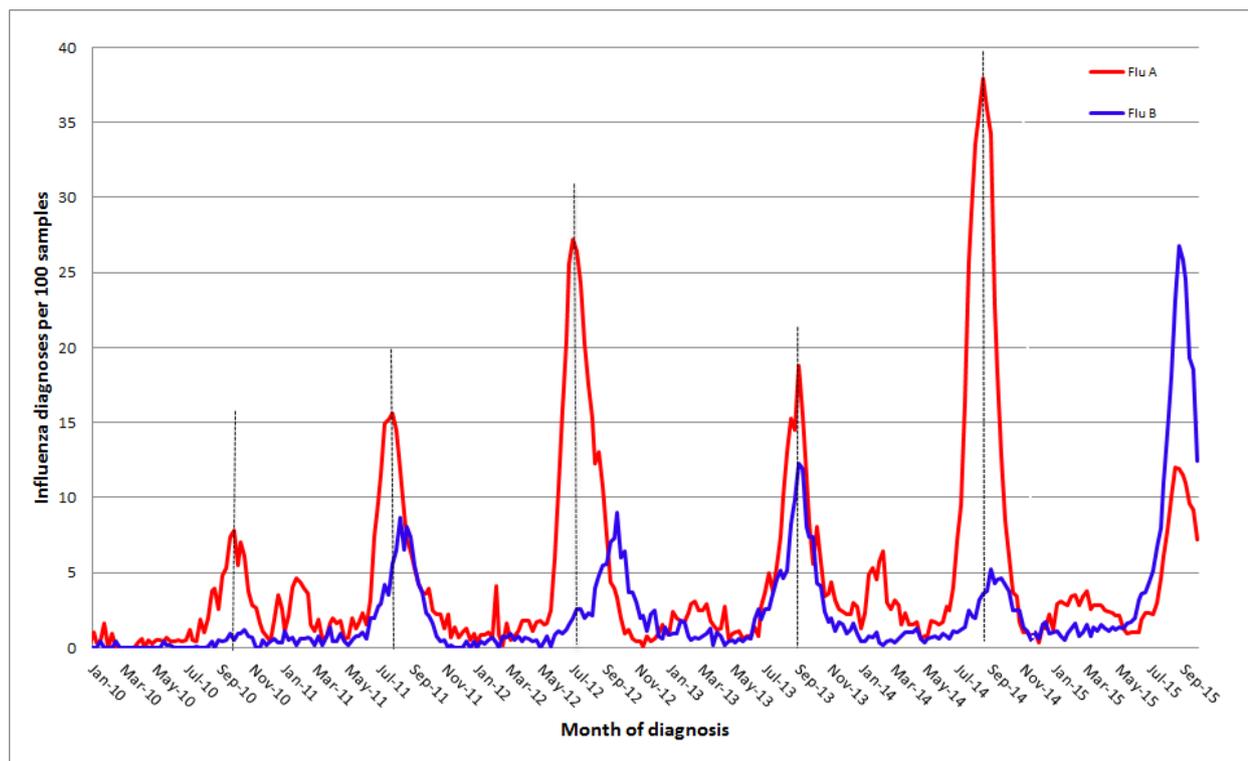


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2010 – 27 September 2015, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 27 September there were 1389 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, down from 2260 notifications in the previous week.

Districts with the highest notification rates were Northern Sydney and Sydney LHDs (Table 3). Influenza notifications decreased across all LHDs.

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

Local Health District	Week ending 27 Sep 2015		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly notifications	Rate per 100 000 population
Central Coast	40	11.95	89	26.6
Far West	0	0	1	3.26
Hunter New England	165	18.14	285	31.37
Illawarra Shoalhaven	53	13.27	94	23.62
Mid North Coast	31	14.43	45	20.94
Murrumbidgee	22	9.21	48	20.09
Nepean Blue Mountains	58	15.76	159	43.28
Northern NSW	31	10.43	61	20.63
Northern Sydney	244	27.17	494	55.05
South Eastern Sydney	110	12.32	336	37.64
South Western Sydney	196	20.74	408	43.18
Southern NSW	14	6.81	26	12.82
Sydney	164	26.44	265	42.67
Western NSW	50	18.03	60	21.51
Western Sydney	211	22.76	541	58.4

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

Influenza outbreaks in institutions

There were 2 influenza outbreaks reported in residential aged care facilities this week. One was due to influenza A and one was due to influenza B.

In the year to date, there have been 91 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4): 53 have been due to influenza A, 26 due to influenza B, 10 were combined A and B, and 2 are unknown. At least 1131 residents were reported to have had ILI symptoms and 152 required hospitalisation. Thirty-five 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 residential aged care facilities (Table 4).

Table 4. Reported influenza outbreaks in NSW institutions, 2010 to 27 September 2015.

Year	2010	2011	2012	2013	2014	2015 *
No. of outbreaks	2	4	39	12	120	91

* Year to date.

Electronic General Practice Surveillance (eGPS)

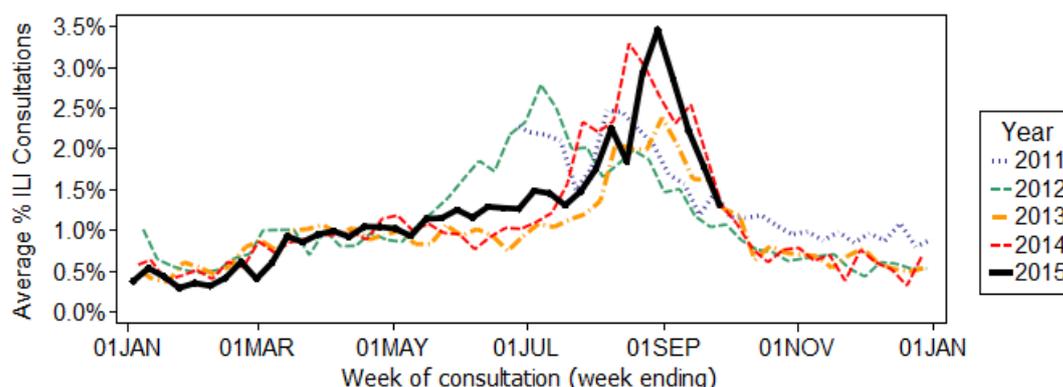
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 39:

- There were 3 surveillance reports received from eGPS sentinel practices in NSW; no reports were received from Illawarra Shoalhaven this week.
- The average rate of ILI patient consultations decreased to 1.3% (range 0.8 – 2.4%), down from 1.8% in the previous week and within the usual range seen for this time of year (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 39 there were 22 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 2.5 %, up from the rate of 1.9% in the previous week.

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

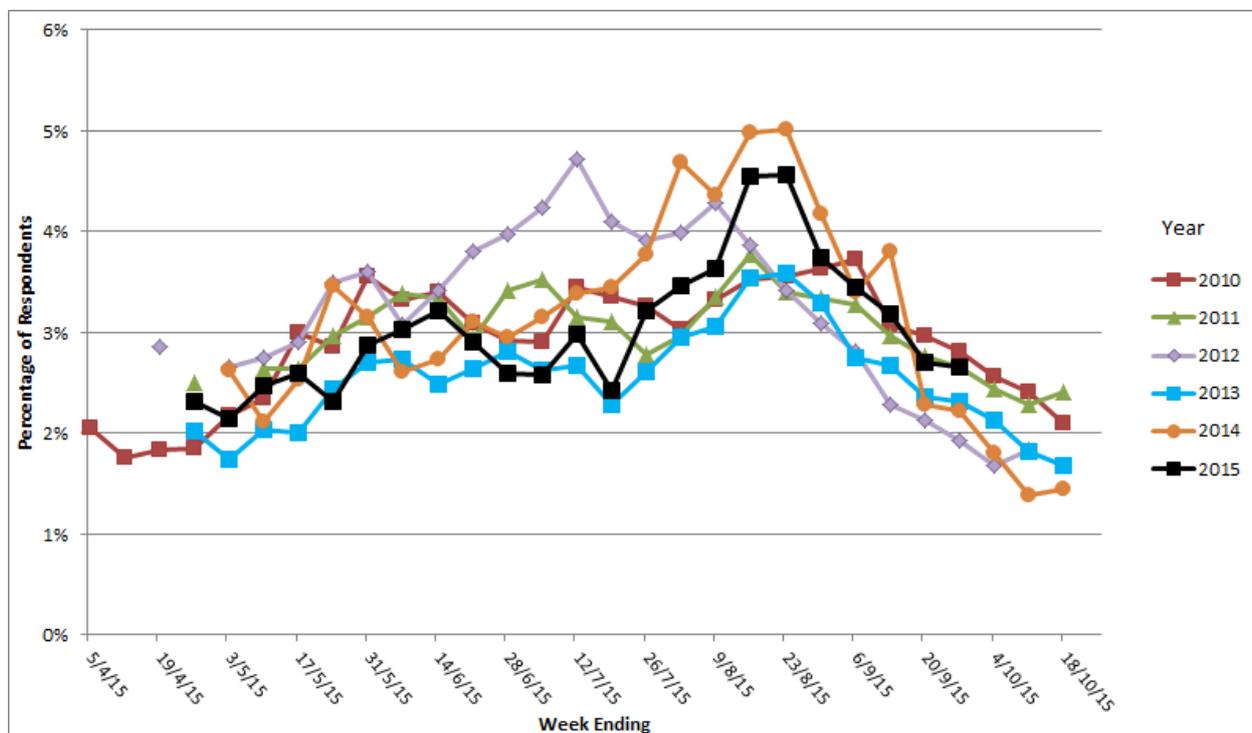
FluTracking.net

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 39 FluTracking received reports for 5976 people in NSW with the following results:

- 2.7% of respondents reported fever and cough, the same as the previous week (2.7%) (Figure 8).
- 1.5 % of respondents reported fever, cough and absence from normal duties, down from the previous week (data not shown).

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



For further information, including national estimates, please see the [FluTracking](#) website.

4. National and International Influenza Surveillance

National Influenza Surveillance

The Australian Department of Health has reported up to 11 September 2015.

Nationally, influenza activity has declined following a seasonal peak in mid-August.

- This fortnight, influenza activity was stable or decreasing across most regions in the country, with the exception of the Top End of the Northern Territory and Tasmania where activity continued to increase.
- This year children aged less than 15 years accounted for one-third of all influenza notifications, this compares with one-quarter of all notifications in 2014. Notification rates have been highest among those aged between 5 and 9 and over 85 years with a secondary peak in those aged 35-44 years.
- Influenza B continues to be the dominant influenza virus type circulating nationally this fortnight. Influenza A activity is stable nationally, however increases were seen in the Northern Territory, Queensland, South Australia and Western Australia.
- All systems that monitor influenza-like illness (ILI) activity continued to report decreasing activity this fortnight following a seasonal peak in mid-August. Influenza is the primary cause of ILI in the community this fortnight however other respiratory viruses continue to circulate at elevated levels.
- Hospitalisations with confirmed influenza have declined following a peak in mid-August. Influenza B continues to account for more than half of admissions.
- The seasonal influenza vaccines appear to be a good match for circulating strains with 80% of samples matching 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 21 September 2015 (with data up to 6 September), 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 ceased or reduced surveillance activity during the inter-seasonal period.
- Few influenza detections were reported from Africa. In Eastern Africa, in countries with reported influenza activity, influenza type A predominated. In Western Africa, influenza activity decreased overall.
- In tropical countries of the Americas, Central America and the Caribbean, influenza activity remained at low levels, with the exception of Cuba, where still high although decreasing levels of influenza-like illness (ILI) and severe acute respiratory infections (SARI) were reported, associated with influenza A(H1N1)pdm09 and respiratory syncytial virus (RSV) detections.
- In tropical Asia, countries in Southern Asia and South East Asia reported overall low influenza activity although India reported a minor increase in activity predominantly with A(H1N1)pdm09. Influenza activity showed a decline but was still at mid-levels in southern China with influenza A(H3N2) predominating.
- In temperate South America, influenza activity remained low in general. However, ILI activity sharply increased in Chile with increasing influenza detections. Influenza A remained the most detected influenza virus while RSV detections decreased in the region.
- In South Africa, influenza activity remained at low levels with influenza type B viruses predominating in recent weeks.

- In New Zealand, influenza activity may have peaked in the second week of August with influenza A(H3N2) and B viruses predominating during the season. ILI activity was still above the seasonal threshold but below the alert threshold.

WHO reported global influenza laboratory data for the period 24 August to 6 September 2015, which noted:

- Of the 24 771 specimens submitted for testing, 2514 were positive for influenza viruses, of which 1872 (75%) were typed as influenza A and 642 (25%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 354 (26%) were influenza A (H1N1) and 1016 (74%) were influenza A(H3N2).
- Of the characterized B viruses, 60 (86%) belonged to the B/Yamagata lineage and 10 (14%) to the B/Victoria lineage.

Avian influenza Update

Human infection with avian influenza A(H5) viruses

WHO report that from 2003 through to 4 September 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 17 July 2015, no new laboratory-confirmed human cases of avian influenza A(H5N1) virus infection were reported to WHO.

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(H9N2) viruses in Bangladesh

One laboratory-confirmed case of human infection with avian influenza A(H5N6) virus was reported to WHO from Bangladesh. The case was a 3.5-year-old girl who developed mild illness on 1 February 2015 and recovered from her illness by 7 February. This is the second case of human infection with an avian influenza A(H9N2) virus reported to WHO from Bangladesh. The previous case occurred in 2011.

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.

Human infections with influenza A(H3N2)v viruses:

Two laboratory-confirmed cases of human infection with influenza A(H3N2)v viruses were detected in the United States of America. The first case, from the state of Minnesota, was reported to WHO in July and involved a young, immunocompromised individual who had direct contact with swine in the week prior to illness onset in July 2015. The second case occurred in the state of Michigan in June 2015 and also had direct contact with swine prior to illness onset. Both cases were hospitalized as a result of their illnesses and no further cases were detected among the contacts of the patients. These are the first and second cases of human infection with influenza A(H3N2)v viruses detected in 2015 in the USA, bringing the total number of human infections with these viruses detected in the USA since December 2005 to 353.

Overall public health risk assessment for influenza A(H3N2)v viruses:

Further human cases and small clusters may be expected as this virus is circulating in the swine population in the USA. In past years, cases have been associated with agricultural fairs where people were in close contact with potentially infected swine populations. The current likelihood of community level spread and public health impact of this virus is considered low.

Human infection with an influenza A(H1N1)v virus

One case of human infection with influenza A(H1N1)v virus was detected in the United States of America (USA), bringing the total number of human infections with these viruses detected in the USA since December 2005 to 19.

Overall public health risk assessment for avian influenza A(H1N1)v viruses:

Further human cases and small clusters may be expected as this virus is circulating in the swine population in the USA. So far, human cases have been associated with close contact to potentially infected swine populations. 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 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 containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus.

This is a change 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/