

NSW Health Influenza Surveillance Report

Week 36: 31 August to 6 September 2015

Summary:

- Influenza activity appears to be at or past its peak overall, but variation remains across the state.
- The impact on Emergency Departments increased and remains high in some districts and in the 0-34 years and 65 years and over age-groups.
- Influenza B strains continuing to predominate.
- The overall trend in influenza activity is similar to the high activity seen in 2014.

In this reporting week:

- [Hospital surveillance](#) – presentations to NSW emergency departments for influenza-like illness (ILI) increased again after a fall last week. Presentations for pneumonia decreased overall but remained high in the 17-34 and the 65 years and over age-groups.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was moderate to high at 35.5%, but continues to trend down. Influenza B viruses continue to predominate.
- [Community surveillance](#) – influenza notifications across most local health districts increased this week but are expected to decline in the coming weeks. Data collected from ASPREN, FluTracking and eGPS showed declines in seasonal ILI activity. Influenza outbreaks in residential age care facilities continue to be a concern with 13 new outbreaks reported.
- [Deaths](#) – the NSW Registry of Births, Deaths, and Marriages have recorded 23 pneumonia and influenza deaths in 2015; deaths remain low overall and below the epidemic threshold.
- [National and international influenza surveillance](#) – across Australia, seasonal influenza activity appears to have peaked in recent weeks with the exception of South Australia where activity continues to rise. The timing and magnitude of the peak is similar to 2014.

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

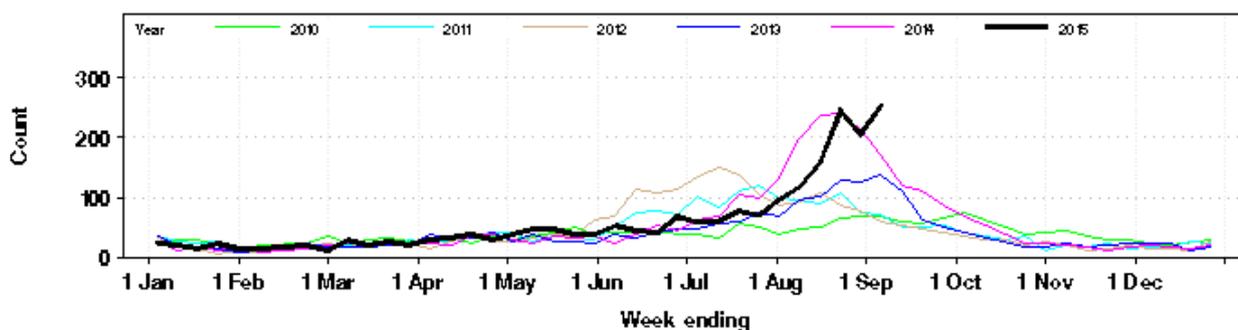
NSW emergency department (ED) presentations for influenza-like illness (ILI) and other respiratory illnesses

Source: NSW PHREDSS [1]

For the week ending 6 September 2015:

- ILI presentations increased this week after a fall last week. Activity remained well 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 44.7 on 6 September, higher than the previous week (41.8). 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 remains high at 6.2 per 1000 presentations up from the previous week (4.7 per 1000 presentations). Presentations were particularly elevated among persons aged 0 to 34 years, and in Western Sydney, Far West, Northern Sydney, Northern NSW, South Eastern Sydney, Illawarra Shoalhaven, and Mid North Coast LHDs, and at The Children's Hospital at Westmead and Lithgow Hospital (Table 1).
- ED presentations for pneumonia decreased slightly but remained above the usual range for this time of year. Presentations were notably elevated among persons aged 17 to 34 years and 65 years and older, and at Gosford and Wagga Wagga Base Hospitals (Figure 2 and Table 1).
- Pneumonia or ILI presentations which resulted in admission increased, and remained above the usual range for this time of year. Presentations were particularly elevated among persons aged 17 to 34 years. 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. Presentations were elevated in Auburn and Gosford Hospitals (Table 1).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 6 September 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 – 6 September 2015 (black line), compared with each of the 5 previous years (coloured lines).

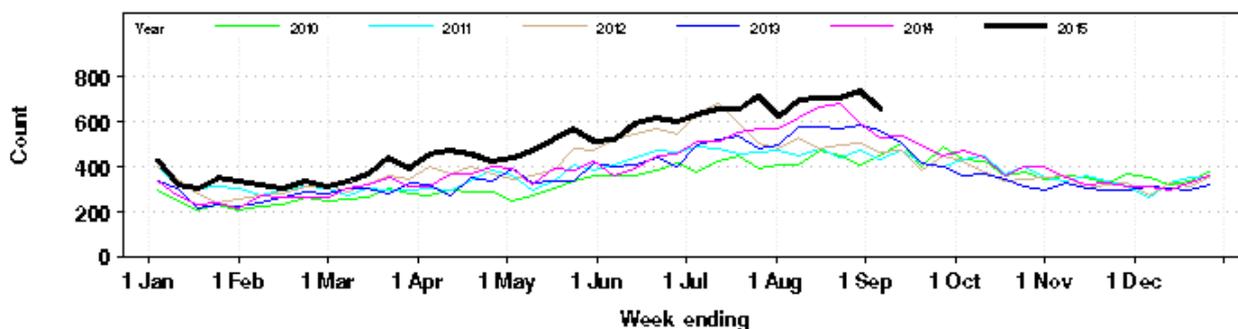


Figure 3: Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – 6 September 2015 (black line), compared with each of the 5 previous years (coloured lines).

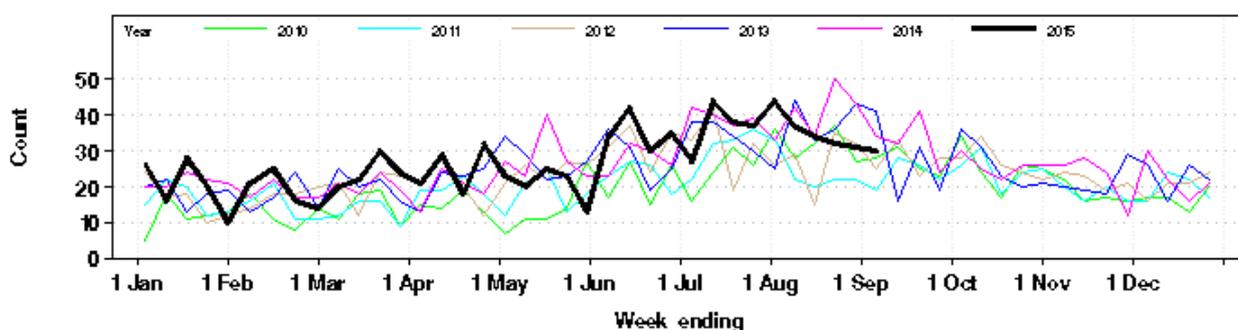


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 6 September 2015. Includes data from 59 NSW EDs and the NSW Ambulance Division. *

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)	Increased	Above	0-34 years	Western Sydney, Far West, Northern Sydney, Northern NSW, South Eastern Sydney, Illawarra Shoalhaven, and Mid North Coast LHDs, and at The Children's Hospital at Westmead and Lithgow Hospital	Daily ILI Situation reports have been sent since 27 August to support LHD planning	
	Pneumonia	Decreased	Above	17-34 and 65+ years	Gosford and Wagga Wagga Base Hospitals	Situation report sent 7 September	
	Pneumonia and ILI admissions	Increased	Above	17-34 years			
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Bronchiolitis	Decreased	Usual		Auburn and Gosford Hospitals		Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Decreased	Above	All age groups	All metropolitan LHDs except Nepean Blue Mountains, and Far West and Mid North Coast LHDs and Bathurst Hospital		
	Asthma	Decreased	Usual				
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Decreased	Above	65+ years			

* **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.

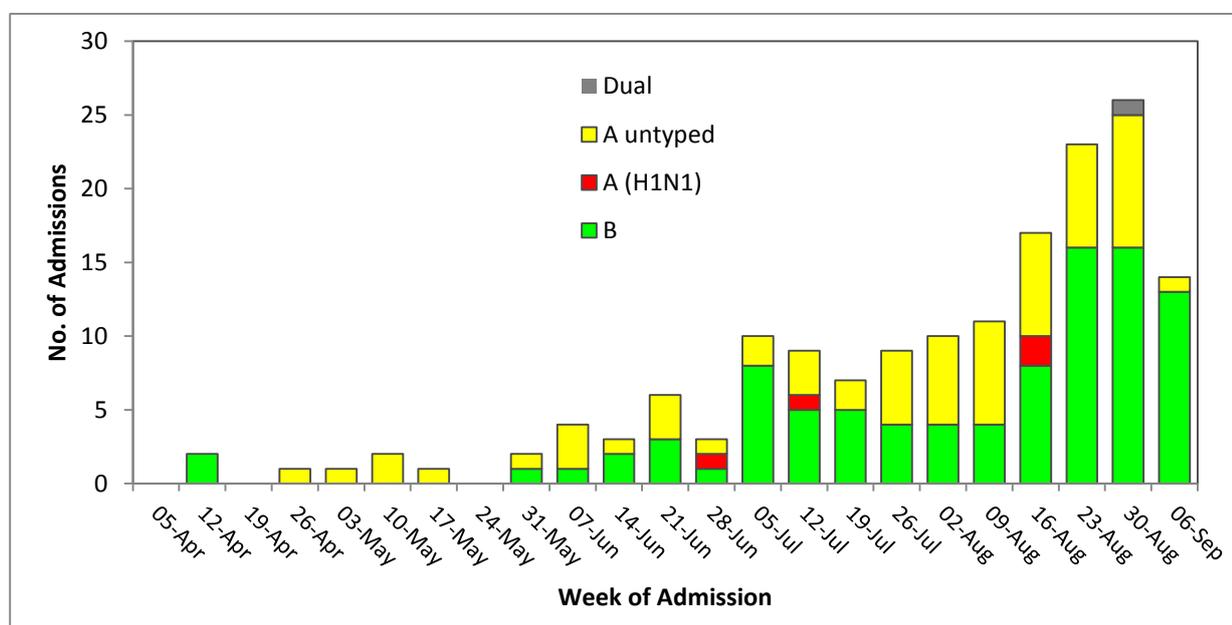
FluCAN (The Influenza Complications Alert Network)

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 36 there were 14 (3 adults and 11 children) influenza admissions in NSW sentinel hospitals (Figure 4).
- Since 1 April 2015, there have been 161 hospital admissions reported for influenza; 67 with influenza A, 93 with influenza B and one dual infection (Figure 4).
- Of these admissions, 78 were paediatric (<16 years of age) cases and 83 were in adults. Eight cases were admitted to ICU/HDU.

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



2. Laboratory Surveillance

For the week ending 6 September 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 decrease 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 9,933 tests for respiratory viruses were reported with 35.5% testing positive for influenza viruses, slightly down from 37.3% 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 6 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	(%A)	Total	(%A)	Total	(%A)	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%)	363	(33.2%)	203	(18.6%)	527	(48.2%)	2429	(24.5%)	235	101	180	600	16	137

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 6 September 2015.

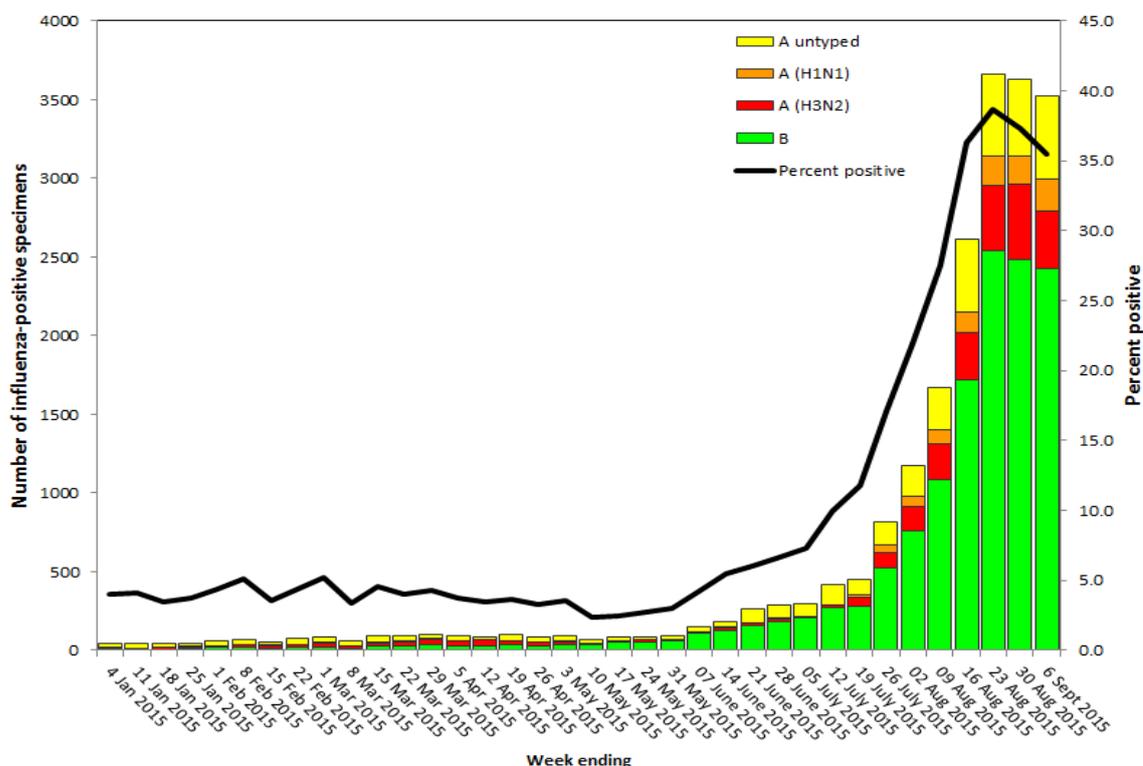
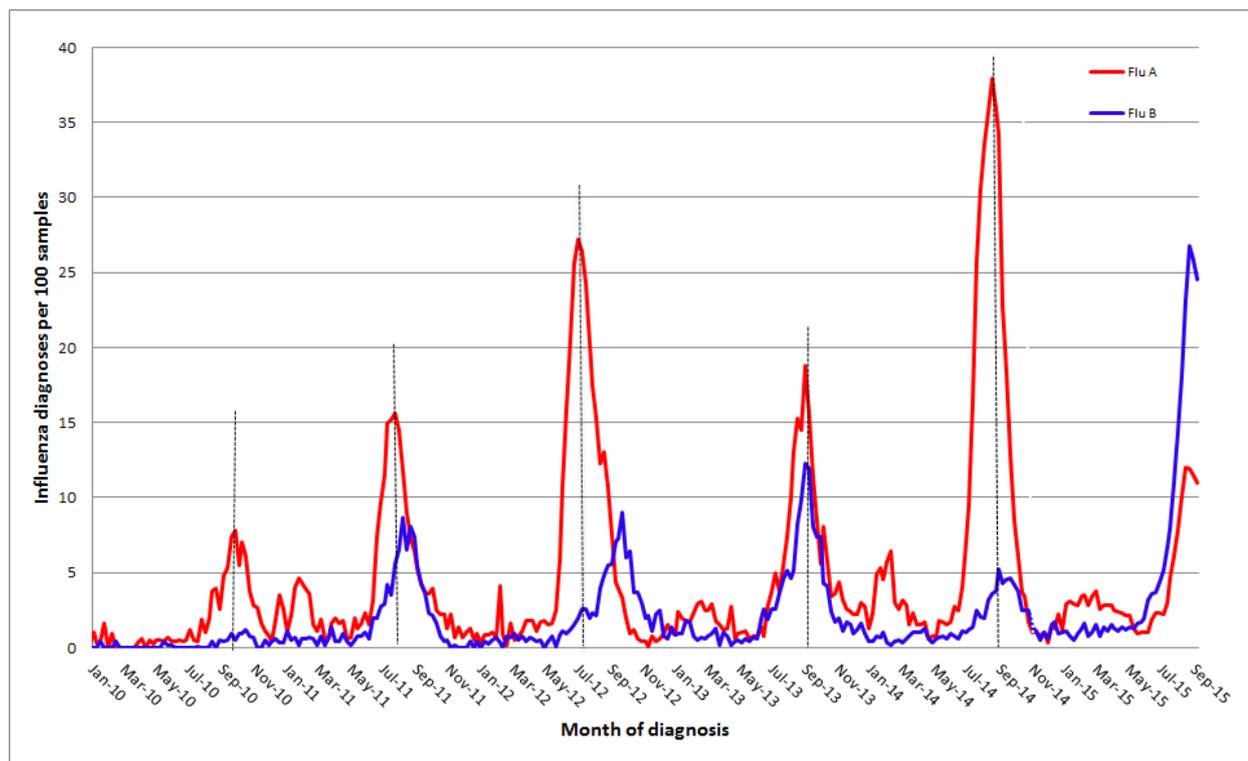


Figure 6: Percentage of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 6 September 2015, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 6 September there were 3371 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, up slightly from 3296 notifications in the previous week.

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 23 Aug 2015		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly notifications	Rate per 100 000 population
Central Coast	85	25.4	28	8.27
Far West	3	9.78	0	0
Hunter New England	287	31.55	126	13.89
Illawarra Shoalhaven	113	28.3	43	10.77
Mid North Coast	43	20.01	17	7.76
Murrumbidgee	99	41.44	77	32.37
Nepean Blue Mountains	214	58.14	76	20.74
Northern NSW	78	26.24	43	14.58
Northern Sydney	628	69.94	299	33.3
South Eastern Sydney	407	45.59	196	21.99
South Western Sydney	357	37.78	125	13.26
Southern NSW	41	19.95	24	11.68
Sydney	292	47.08	128	20.64
Western NSW	41	14.78	11	3.97
Western Sydney	632	68.18	265	28.63

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

Influenza outbreaks in institutions

There were 13 influenza outbreaks reported in residential care facilities this week. Eight 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 78 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4); 47 have been due to influenza A, 23 due to influenza B and eight were combined A and B. At least 734 residents were reported to have had ILI symptoms and 112 required hospitalisation. Twenty-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 aged care facilities. (Table 4).

Table 4. Reported influenza outbreaks in NSW institutions, 2010 to 6 September 2015.

Year	2010	2011	2012	2013	2014	2015 *
No. of outbreaks	2	4	39	12	120	78

* Year to date.

Electronic General Practice Surveillance (eGPS)

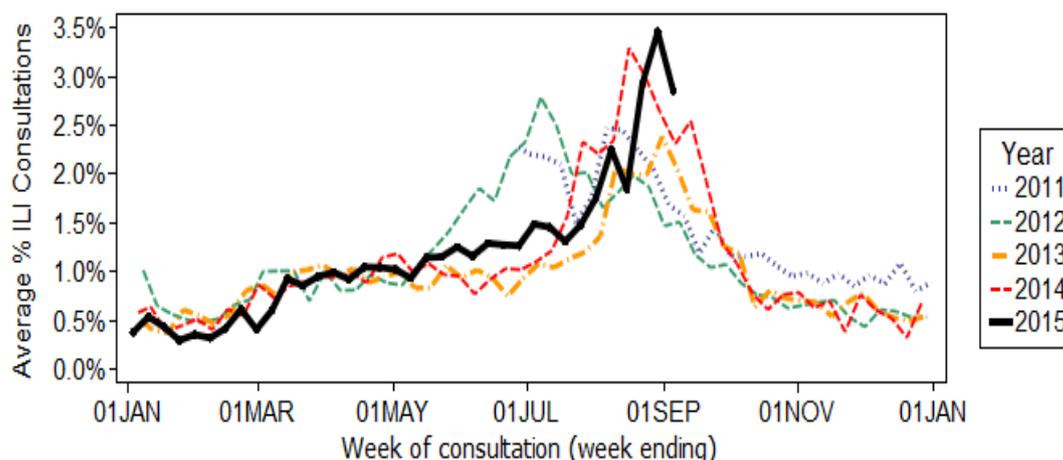
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 36:

- There were 9 surveillance reports received from eGPS sentinel practices in NSW;
- The average rate of ILI patient consultations decreased to 3.0% (range 1.5 – 4.5%), down from 3.6% in the previous week, but 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 36 there were 31 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 2.6 %, down from the rate of 3.9% in the previous week.

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

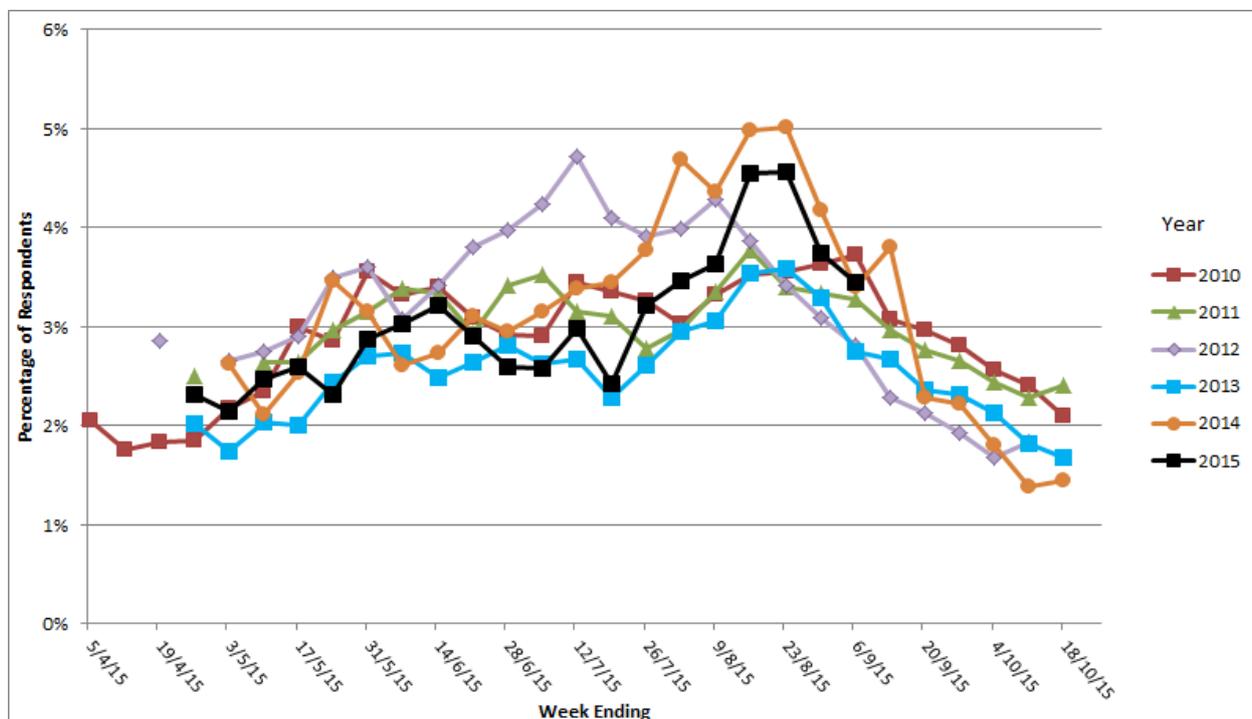
FluTracking.net

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 36 FluTracking received reports for 6317 people in NSW with the following results:

- 3.5% of respondents reported fever and cough, lower than the previous week (3.7%) (Figure 8), and continuing a downward trend.
- 2.3 % of respondents reported fever, cough and absence from normal duties, the same as 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.

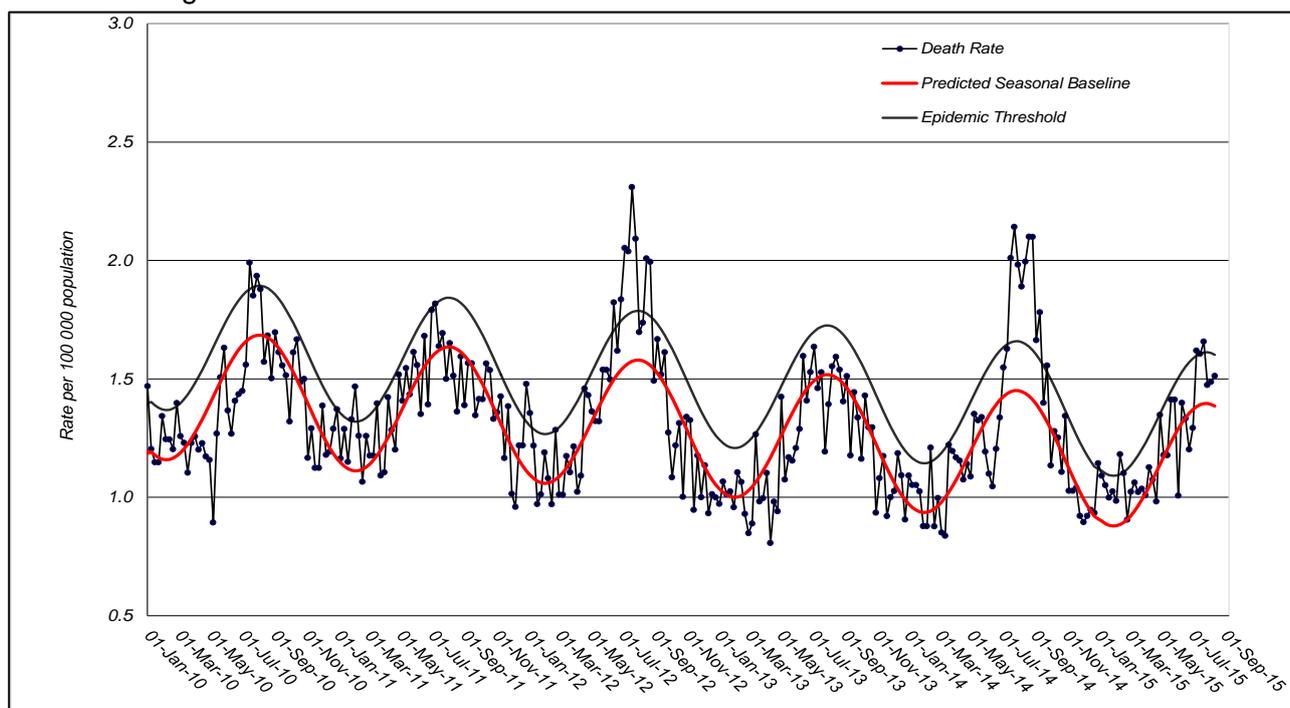
4. Deaths with pneumonia or influenza reported on the death certificate

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

In 2015 up to the week ending 14 August:

- 23 of 31,668 death certificates (0.07%) recorded influenza: deaths were in people aged over 65 years apart from one death in each of the 0-5 years, 2-4 years, and 25-35 years age groups.
- 2,949 of 31 668 death certificates (9.3%) mentioned pneumonia.
- There were 1.51 “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 “pneumonia and influenza” per 100,000 NSW population, 2010 – 14 August 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 28 August 2015.

Across most jurisdictions, seasonal influenza activity appears to have peaked in recent weeks with the exception of South Australia where activity continues to rise. The timing and magnitude of the peak is similar to 2014.

- 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 over two thirds of all notifications. In the Australian Capital Territory and Western Australia, influenza A continues to replace influenza B.
- All systems that monitor influenza-like illness (ILI) activity are reporting decreasing activity following a season peak in the week ending 23 August. Influenza is the primary cause of ILI in the community this fortnight however other respiratory viruses continue to circulate at elevated levels.
- Data for hospitalisations with confirmed influenza show high influenza activity which is typical for mid-season. 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 83% 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 7 September 2015 (with data up to 23 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 scaled down surveillance activity during the inter-seasonal period.
- In Eastern Africa, in countries with reported influenza activity, influenza type A predominated. In Western Africa, influenza activity decreased overall, with influenza B predominating in Ghana and influenza A in Côte 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 viruses detections.
- In tropical Asia, countries in Southern Asia and South East Asia reported an overall low influenza activity though India reported a minor increase in activity with predominantly A(H1N1)pdm09. Influenza activity was still high in southern China with influenza A(H3N2) predominating.
- In temperate South America, ILI and SARI activity remained low and continued to decrease in general, except in Chile, where respiratory virus activity remained elevated. Influenza type A viruses predominated in the region.
- In South Africa, influenza activity decreased, with influenza type B predominating in recent weeks.
- In New Zealand, influenza activity may have peaked in the second week of August with influenza A(H3N2) and B predominating.

WHO reported global influenza laboratory data for the period 10 to 23 August 2015, which noted:

- Of the 32 226 specimens submitted for testing, 4246 were positive for influenza viruses, of which 3219 (76%) were typed as influenza A and 1027 (24%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 326 (12%) were influenza A (H1N1) and 2350 (88%) were influenza A(H3N2).
- Of the characterized B viruses, 126 (92%) belonged to the B/Yamagata lineage and 11 (8%) 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/ .