

NSW Health Influenza Surveillance Report

Week 31: 27 July to 2 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 increased this week and remain high.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza was moderate (21.9%) and continues to increase. Influenza B viruses continue to predominate, and up to one third are of the B/Victoria lineage which are not included in the trivalent seasonal vaccines.
- [Community surveillance](#) – influenza notifications across the majority of LHDs are increasing. Data collected from ASPREN and FluTracking show low but increasing ILI activity as expected for this time of year. There was one report of an influenza outbreak in an institution.
- [National and international influenza surveillance](#) – Across Australia influenza activity is increasing with the exception of the Northern Territory. Influenza B has been the dominant influenza virus type, comprising two thirds of all notifications.

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 2 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 36.1 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 2.3 per 1000 presentations.
- ED presentations for pneumonia were 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 to critical care increased and were above 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 significantly increased in children aged 0-16 years and adults aged 35-64 years. Presentations were also high in South Western Sydney, Western Sydney LHDs as well as Griffith Base Hospital (Table 1).
- Bronchiolitis presentations increased this week and remained above the usual range for this time of year (Figure 4 and Table 1).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 2 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

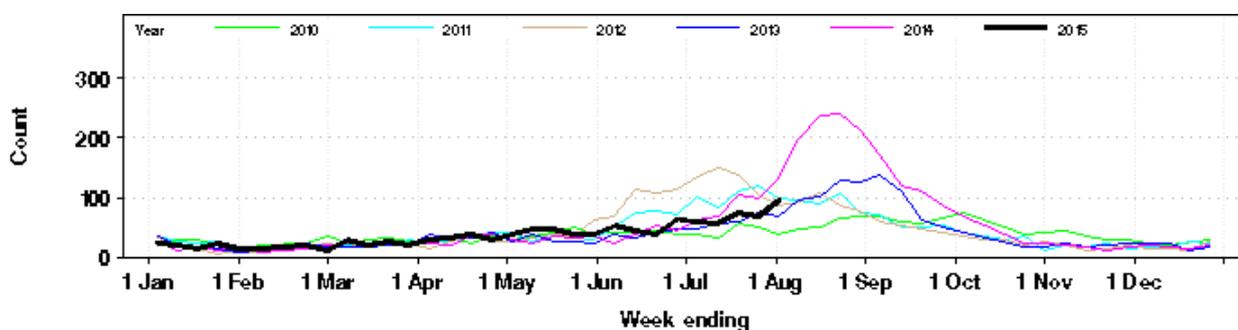
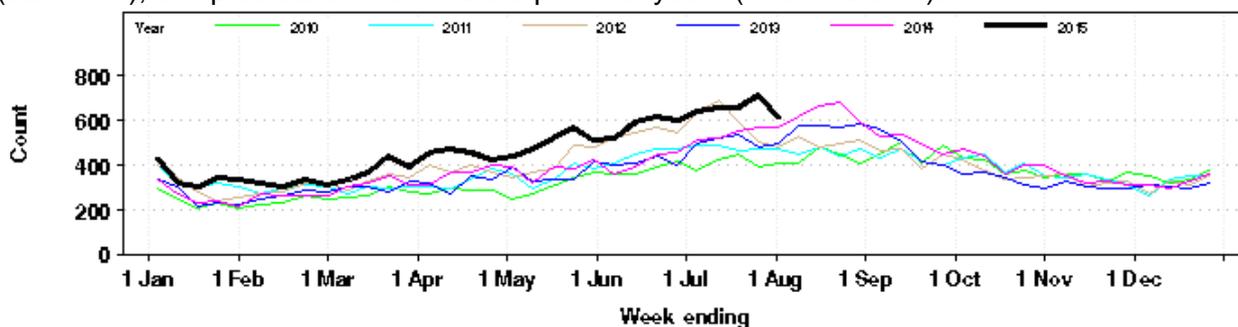


Figure 2: Total weekly counts of ED presentations for pneumonia, from January – 2 August 2015 (black line), compared with each of the 5 previous years (coloured lines).



[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 – 2 August 2015 (black line), compared with each of the 5 previous years (coloured lines).

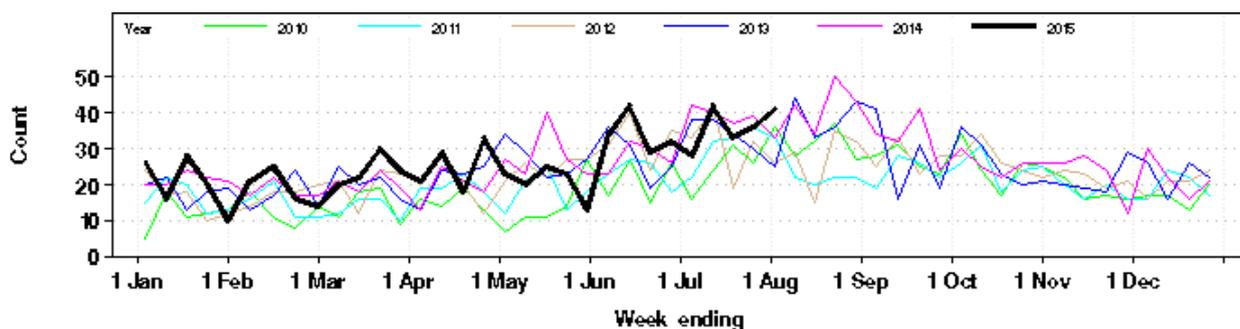


Figure 4: Total weekly counts of ED visits for bronchiolitis, from January – 2 August 2015 (black line), compared with the 5 previous years (coloured lines).

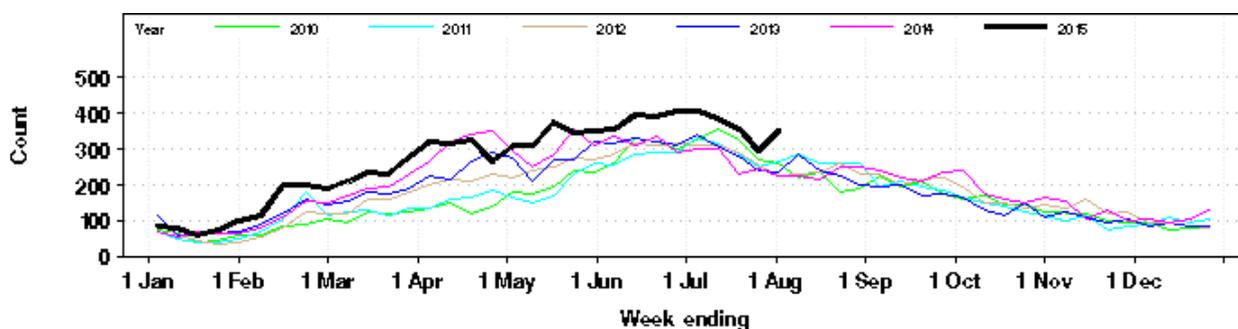


Table 1: Weekly ED and Ambulance Respiratory Activity Summary for the week ending 26 July 2015. Includes data from 59 NSW EDs and the NSW Ambulance Division. *

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		Griffith Base Hospital		
	Pneumonia	Decreased	Above				
	Pneumonia and ILI admissions	Decreased	Usual				
	Pneumonia and ILI critical care admissions	Increased	Above				
	Bronchiolitis	Increased	Above		Bankstown/Lidcombe Hospital		Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Increased	Above	0-16 years 35-64 years	South Western Sydney LHD Western Sydney LHD Griffith Base Hospital		
	Asthma	Increased	Above	5-16 years	Hunter New England LHD		
Ambulance Triple Zero (000) calls, NSW	Breathing problems	Steady	Above	65+ years	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.

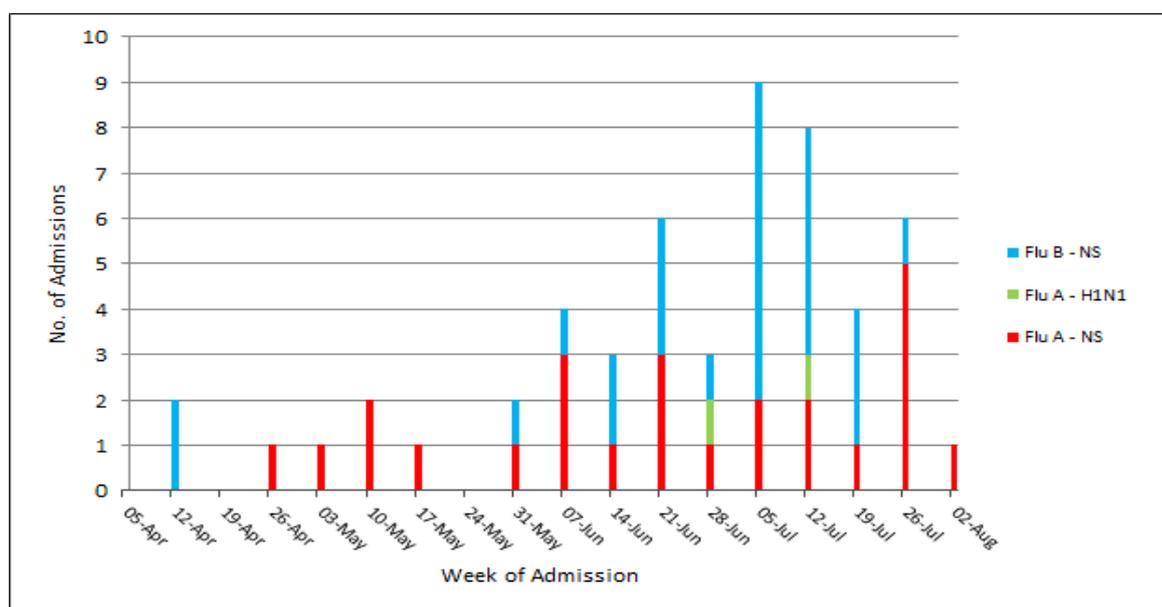
FluCAN (The Influenza Complications Alert Network)

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 31 there was one influenza admission in NSW sentinel hospitals (Figure 5).
- Since 1 April 2015, there have been 53 hospital admissions reported for influenza; 27 with influenza A and 26 with influenza B (Figure 5).
- Of these admissions, 21 were paediatric (<16 years of age) cases and 32 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 2 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 5,339 tests for respiratory viruses were reported with 1171 specimens (21.9%) 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).

Researchers from the Institute of Clinical Pathology and Medical Research (ICPMR) have recently reported on their further analysis and characterisation of influenza B samples this year. Of 81

[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, Lavery Pathology, SydPath (St Vincent's), Medlab, and Lavery.

successive influenza B viruses characterised, 33 (41%) were from children aged less than 16 years, and 23 (28%) belonged to the B/Victoria lineage. This lineage is not contained in the southern hemisphere's 2015 trivalent influenza 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 2 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	(%A)	Total	(%A)	Total	(%A)	Total	(%)	Total	(%)				
01/02/2015*	5920	182 (3.1%)	40 (22.0%)	11 (6.0%)	131 (72.0%)	55 (0.9%)				150	181	181	607	59	49
01/03/2015	6287	212 (3.4%)	72 (34.0%)	14 (6.6%)	126 (59.4%)	75 (1.2%)				128	83	271	842	24	29
29/03/2015	8577	242 (2.8%)	87 (36.0%)	21 (8.7%)	135 (55.8%)	108 (1.3%)				181	117	767	1084	52	34
03/05/2015*	12584	285 (2.3%)	125 (43.9%)	13 (4.6%)	147 (51.6%)	163 (1.3%)				257	187	1351	1443	59	78
31/05/2015	12244	128 (1.0%)	42 (32.8%)	9 (7.0%)	83 (64.8%)	200 (1.6%)				272	167	1276	1514	64	64
28/06/2015	15431	297 (1.9%)	56 (18.9%)	16 (5.4%)	225 (75.8%)	581 (3.8%)				378	183	1585	2027	96	135
28/06/2015*	22771	1125 (4.9%)	332 (29.5%)	141 (12.5%)	654 (58.1%)	2125 (9.3%)				721	273	1878	2484	149	425
Week ending	Total Tests	Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV **
05/07/2015	4013	90 (2.2%)	5 (5.6%)	9 (10.0%)	78 (86.7%)	203 (5.1%)			107	59	425	512	20	61	
12/07/2015	4075	123 (3.0%)	17 (13.8%)	2 (1.6%)	104 (84.6%)	272 (6.7%)			123	56	387	495	28	99	
19/07/2015	4564	209 (4.6%)	58 (27.8%)	17 (8.1%)	134 (64.1%)	365 (8.0%)			222	57	455	492	31	90	
26/07/2015	4780	293 (6.1%)	98 (33.4%)	50 (17.1%)	145 (49.5%)	524 (11.0%)			121	46	324	471	55	86	
02/08/2015	5339	410 (7.7%)	154 (37.6%)	63 (15.4%)	193 (47.1%)	761 (14.3%)			148	55	287	514	15	89	

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 2015 to 2 August 2015.

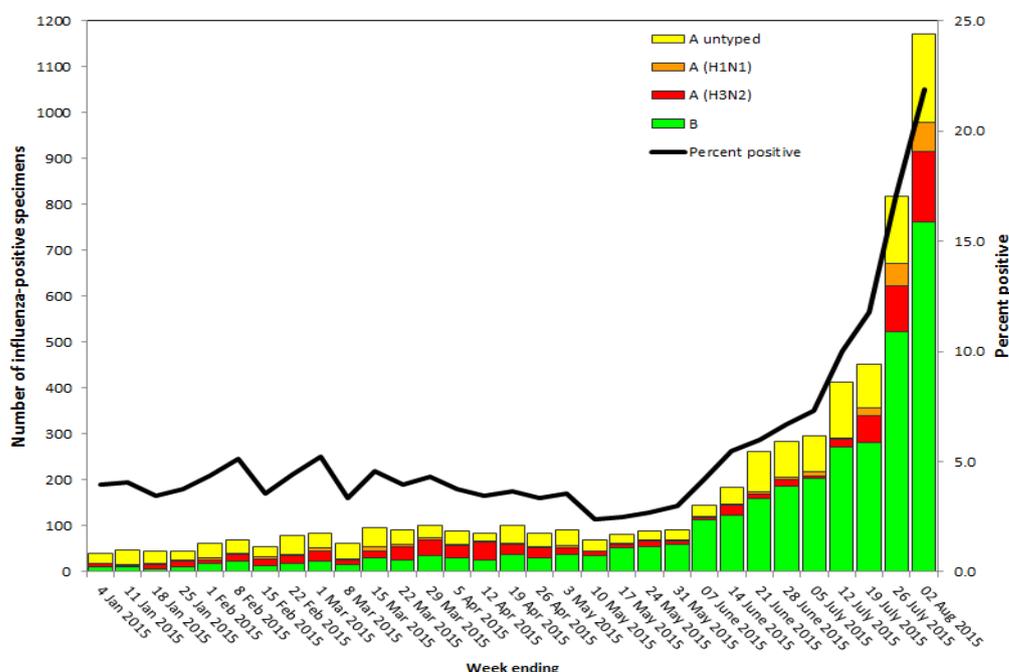
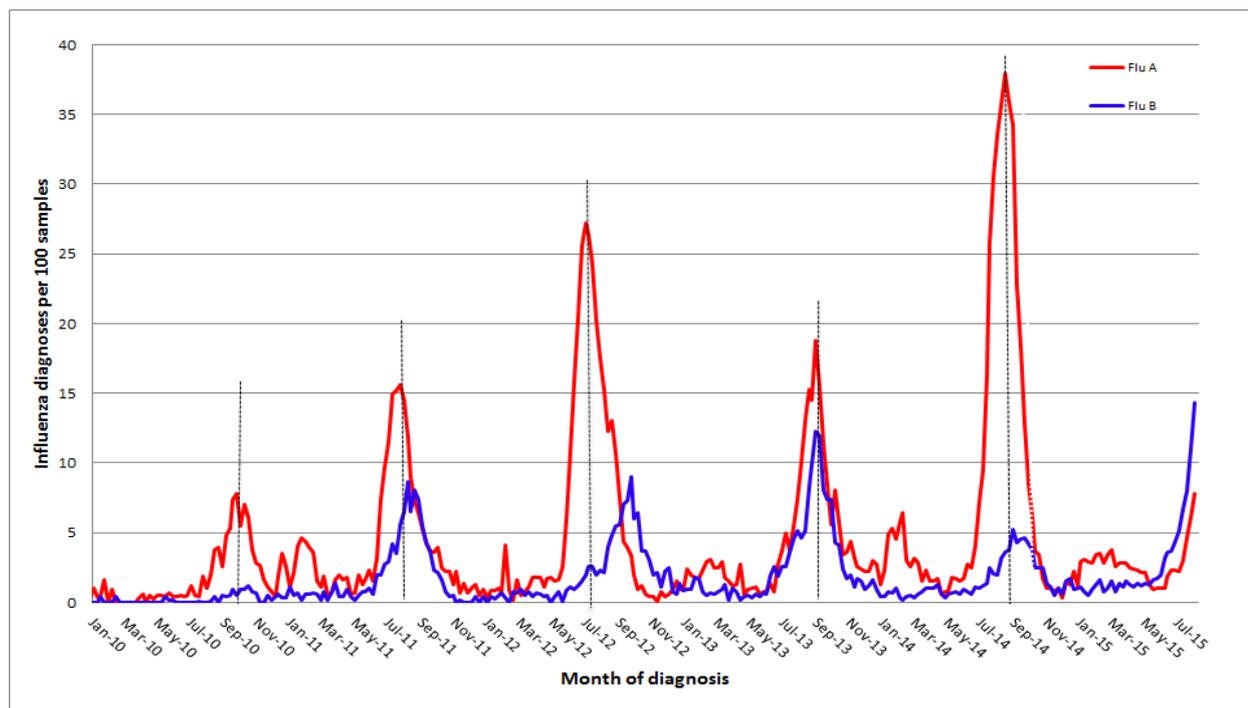


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 2 August 2015, New South Wales.



3. Community Surveillance

Influenza notifications by Local Health District (LHD)

In the week ending 2 August, there were 927 notifications of influenza confirmed by polymerase chain reaction (PCR) testing. Districts with the highest notification rates were the Northern Sydney, Western Sydney, Nepean Blue Mountains and Murrumbidgee LHDs (Table 3).

Influenza activity has increased across most LHDs but activity remains highest in metropolitan areas.

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

Local Health District	Week ending 2 August 2015		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly notifications	Rate per 100 000 population
Central Coast	19	5.68	12	3.51
Far West	0	0.00	0	0.82
Hunter New England	88	9.67	34	3.76
Illawarra Shoalhaven	19	4.76	13	3.13
Mid North Coast	8	3.72	7	3.37
Murrumbidgee	45	15.51	15	5.08
Nepean Blue Mountains	59	16.03	35	9.37
Northern NSW	25	8.41	16	5.30
Northern Sydney	202	22.50	82	9.08
South Eastern Sydney	107	11.99	56	6.27
Southern NSW	22	10.71	9	4.14
South Western Sydney	71	7.51	54	5.74
Sydney	81	13.06	46	7.42
Western NSW	6	2.16	5	1.80
Western Sydney	175	18.88	102	11.00

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

Influenza outbreaks in institutions

There were four influenza outbreaks reported in a residential care facilities this week; all four were confirmed to be due to influenza A.

In the year to date there have been 24 laboratory-confirmed influenza outbreaks in institutions reported to NSW public health units (Table 4).

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 2 August 2015.

Year	2010	2011	2012	2013	2014	2015 *
No. of outbreaks	2	4	39	12	120	24

* Year to date.

Electronic General Practice Surveillance (eGPS)

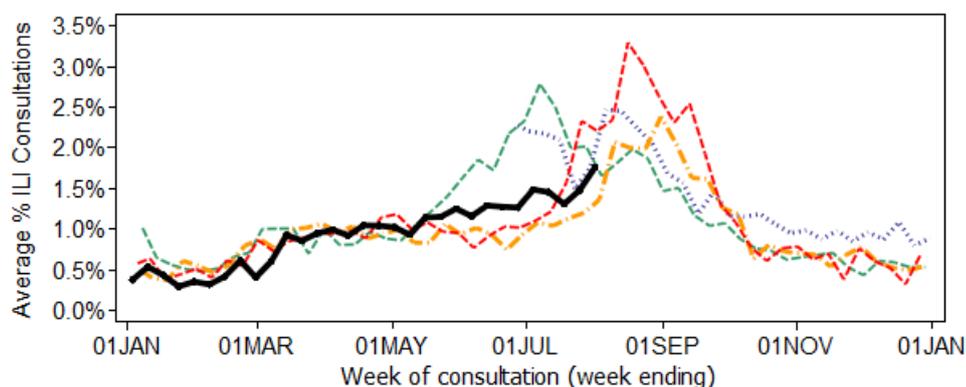
eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator 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 31:

- There were 11 surveillance reports received from eGPS sentinel practices in NSW;
- The average rate of ILI patient consultations was low at 1.8% (range 0.0 – 3.7%), which was up from the previous week, and was within the range for the same time period in the last four 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 31 there were 37 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was moderate at 2.7 % and within the usual range seen for this time of year.

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

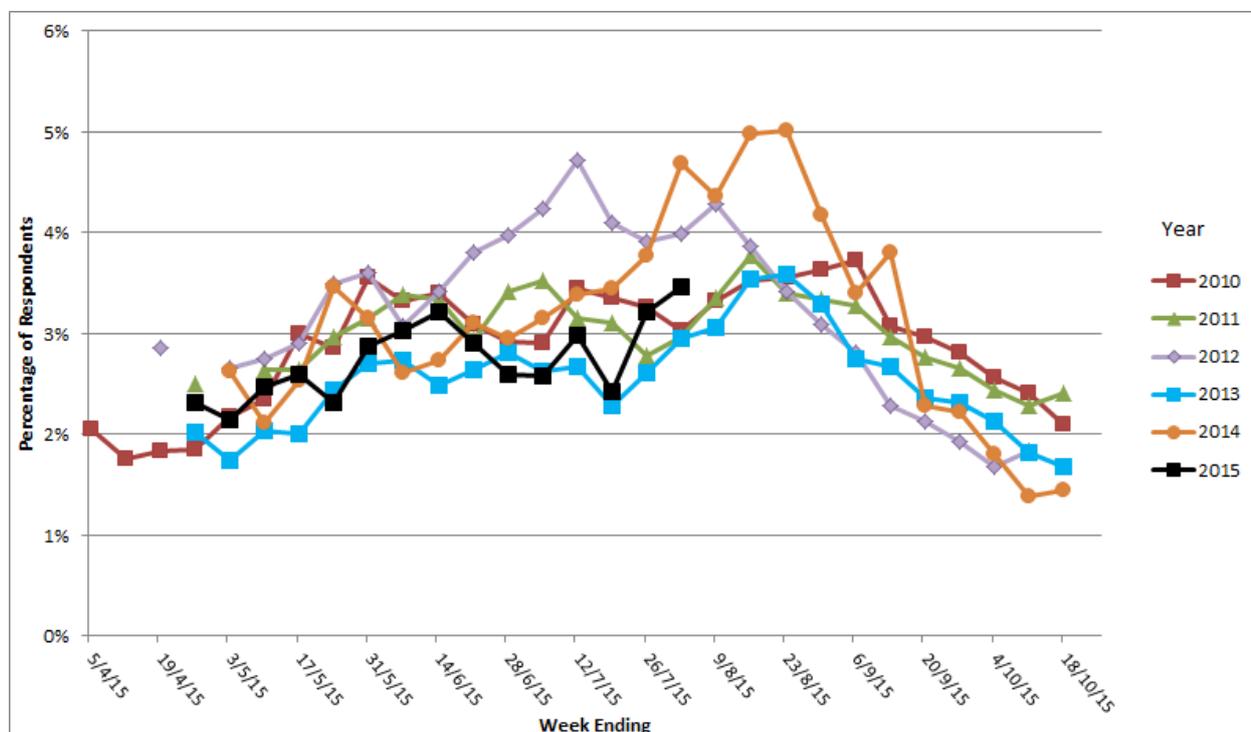
FluTracking.net

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 31 FluTracking received reports for 6438 people in NSW, including:

- 3.5% of respondents reported fever and cough, up from the previous week and within the usual range for this time of year (Figure 9);
- 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. National and International Influenza Surveillance

National Influenza Surveillance

The Australian Department of Health has reported up to 17 July 2015. Current activity:

- Most surveillance systems indicate that the influenza season is well underway. It is not an unusual influenza season thus far.
- All States and Territories, with the exception of the Northern Territory, have shown increases in influenza activity in recent weeks.
- Influenza notification rates have been highest among those aged over 85 years with a secondary peaks in those aged 5-9 and 40-44 years.
- In the last fortnight, influenza B has been the dominant influenza virus type, comprising two thirds of all notifications.
- Hospitalisations with confirmed influenza have increased in recent weeks in line with the seasonal increase in activity. Presentations to hospital appear to be less severe in adults, with the proportion of adult patients admitted to ICU less than the proportion reported in previous years.
- All systems that monitor influenza-like illness (ILI) activity are reporting activity within the range observed in recent seasons. ILI in the community continues to be driven by other non-influenza respiratory viruses, in particular RSV and Rhinovirus.
- 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 27 July 2015 (with data up to 12 July) which indicated that:

- In New Zealand, influenza activity continued to increase with both influenza type A(H3N2) and type B in circulation.
- Influenza activity decreased in South Africa with influenza type A(H1N1)pdm09 and A(H3N2) predominating in recent weeks.
- In temperate South America, influenza activity increased with influenza type A(H1N1)pdm09 and type A(H3N2) predominating in recent weeks. Overall, influenza activity is following seasonal trends although at lower levels than in previous years.
- In tropical Asia, countries in Southern Asia reported elevated but decreasing influenza activity with influenza type A(H3N2) predominating. South East Asia reported low levels of activity with influenza type A(H3N2) predominating with co-circulation of influenza type A(H3N2) and B.
- In North America, Europe and temperate countries of Asia, influenza activity continued at low, inter-seasonal levels with influenza B predominating in sporadic detections.
- In northern, middle, eastern and western Africa, only a few countries reported low levels of influenza activity with influenza type B predominating with low levels of co-circulation of influenza type A(H1N1)pdm09 and A(H3N2).
- In tropical countries of the Americas/Central America and the Caribbean, overall influenza activity was reported to be at low, inter-seasonal levels with only Cuba reporting a slight increase in detections of influenza type A(H1N1)pdm09.
- In western and temperate countries of Asia, low levels of influenza activity were reported with influenza B predominating with co-circulation of influenza type A(H1N1)pdm09 in western Asia in recent weeks. Northern China reported a slight increase in detections of influenza type A(H3N2).

WHO reported global influenza laboratory data for the period 29 June to 12 July 2015, which noted:

- Of the 21 868 specimens submitted for testing, 2206 were positive for influenza viruses, of which 1680 (76%) were typed as influenza A and 525 (24%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 175 (13%) were influenza A (H1N1) and 1178 (87%) were influenza A(H3N2).
- Of the characterized B viruses, 89 (95%) belonged to the B/Yamagata lineage and 5 (5%) to the B/Victoria lineage.

Avian influenza Update

Human infection with avian influenza A(H5) viruses

WHO report that from 2003 through 23 June 2015, 842 laboratory-confirmed human cases of avian influenza A(H5N1) virus infection have been officially reported to WHO from 16 countries. Of these cases, 447 have died.

Since the last WHO Influenza update on 1 May 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 672 laboratory-confirmed cases of human infection with avian influenza A(H7N9) viruses, including at least 271 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 23 June 2015](#)

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

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

Recommended composition of 2015 Australian influenza vaccines

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

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

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

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

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