

# NSW Health Influenza Surveillance Report

Week 25 Ending 22 June 2014

## Influenza Surveillance Forecast:

As we approach the start of the 2014 influenza season, surveillance suggests that three influenza strains will circulate (two A strains and one B strain) but that these strains are similar to those that circulated in 2013 and they are well-matched to the 2014 seasonal influenza vaccine strains.

The impact of seasonal influenza in NSW this year is expected to be less than in 2013 given that:

- the influenza strains likely to predominate in NSW also circulated last season (so many people will have acquired immunity);
- the 2014 influenza vaccine is better matched to these strains than the 2103 influenza vaccine, and the uptake of influenza vaccine in NSW this year has been higher than in recent years.

People in older age-groups are at higher risk of infection from influenza A(H3N2) strains, while younger people are at higher risk of infection from the influenza A(H1N1)pdm strain.

## Summary:

**For the week ending 22 June 2014, influenza activity remained low in NSW but with some indications that the start of the influenza season may be approaching.**

- [Emergency Department surveillance](#) – the index of increase for influenza-like illness (ILI) presentations declined and was below the season threshold. ILI and pneumonia admissions to critical care wards decreased this week.
- [Laboratory surveillance](#) – Influenza A activity increased this week, and although the proportion of respiratory samples positive for influenza A or B was low at 5.1%, there is enough evidence to suggest the influenza season has begun. RSV was the most commonly identified respiratory virus.
- [Community illness surveillance](#) – data collected from eGPS, ASPREN and Flu Tracking on ILI indicated activity in NSW is increasing.
- [Hospitalisations surveillance \(FluCAN\)](#) – three new confirmed influenza admissions were reported.
- [National and International influenza surveillance](#) – one new human case of infection with the avian influenza A(H7N9) strain from China; otherwise low influenza activity worldwide.

## About this report:

Health Protection NSW collects and analyses surveillance data on influenza and related respiratory pathogens, and produces regular surveillance reports for the community and health professionals. Surveillance reports are produced weekly reports 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](#).

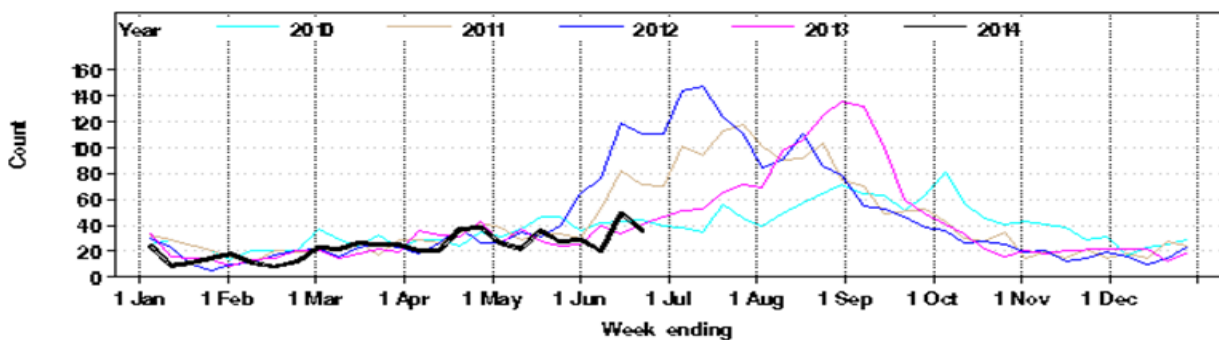
## 1. Emergency Department (ED) Surveillance <sup>1</sup>

### Presentations for influenza-like illness (ILI) and other respiratory illness

The ED surveillance system uses a statistic called the 'index of increase' to indicate when presentations are increasing at a statistically significant rate. It accumulates the difference between the previous day's count of presentations and the average for that weekday over the previous 12 months. An index of increase value of 15 is considered an important signal for the start of the influenza season in NSW as it suggests influenza is circulating widely in the community.

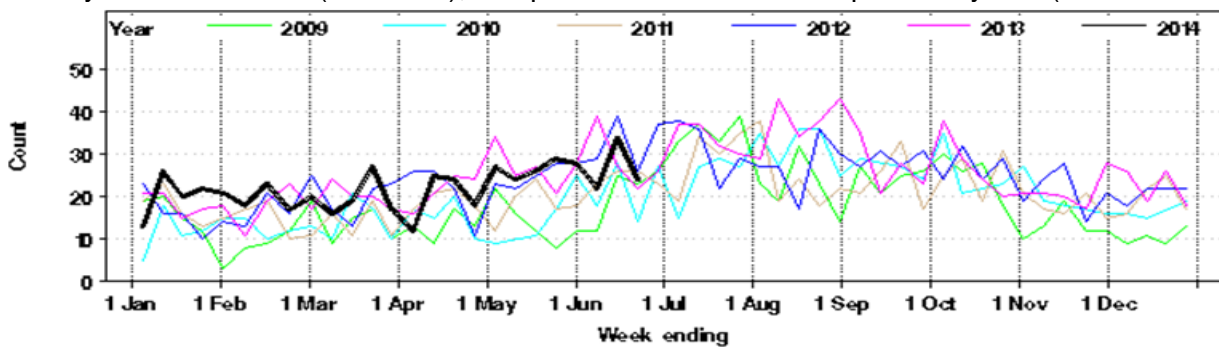
- On 22 June 2014, the index of increase\* for influenza-like illness presentations was 10.6, consistent with relatively low influenza activity. Last week, the index temporarily increased above the threshold value of 15, possibly indicating a brief period of elevated influenza activity.
- ILI activity decreased this week although and remained low at 0.9 cases per 1000 presentations. The total count for ILI presentations decreased this week also and was within the usual range (Figure 1 and Table 1).
- Combined ILI and pneumonia admissions to critical care wards decreased this week and were within the usual range for this time of year (Figure 2 and Table 1).
- The overall number of bronchiolitis presentations in infants increased this week and was slightly above the usual range for this time of year (Figure 3 and Table 1).

**Figure 1:** Total weekly counts of ED visits for influenza-like illness, from January – 22 June 2014 (black line), compared with each of the 4 previous years (coloured lines).\*



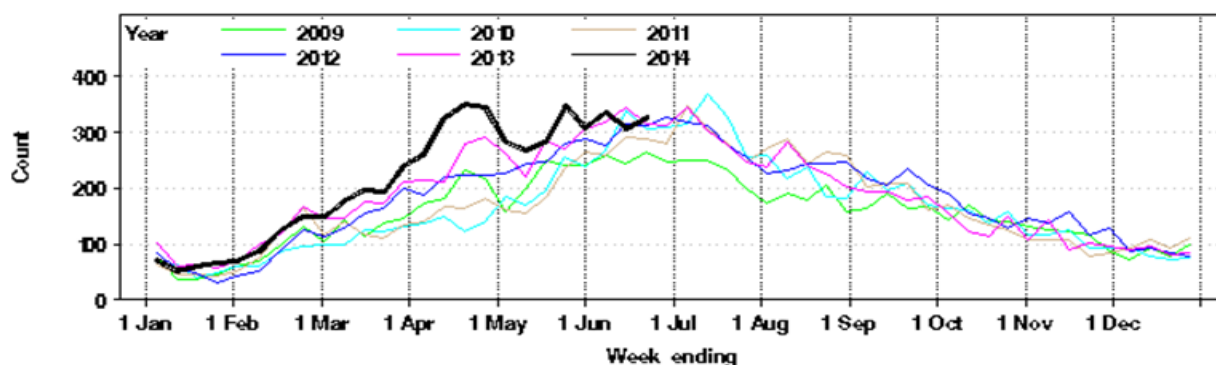
\* **Note:** Excludes 2009 data to better enable comparison of 2014 data with data from previous non-pandemic years.

**Figure 2:** Total weekly counts of ED visits for pneumonia and ILI admitted to a critical care ward, from January – 22 June 2014 (black line), compared with each of the 5 previous years (coloured lines).



<sup>1</sup> **Source:** 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 visits for bronchiolitis, from January – 22 June 2014 (black line), compared with each of the 5 previous years (coloured lines).



**Table 1:** Weekly ED and Ambulance Respiratory Activity Summary. Includes data from 59 NSW EDs and the Sydney Ambulance Division. \*

Data source	Diagnosis or problem category	Trend since last week	Overall 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	Below				
	Pneumonia	Increased	Usual				
	Pneumonia and ILI admissions	Increased	Usual				
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Bronchiolitis	Increased	Above		Canterbury Hospital		Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Steady	Usual				
	Asthma	Decreased	Usual				
Ambulance calls, Sydney region*	Breathing problems	NA	NA				

\* **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.

## 2. Laboratory Surveillance

For the week ending 22 June 2014, the number and proportion of respiratory specimens reported by NSW sentinel laboratories<sup>2</sup> which tested positive for influenza A increased markedly and was at the upper limits of low. Influenza B activity was largely unchanged (Table 2 and Figure 4).

Overall, a total of 1757 tests for respiratory viruses were reported with 90 specimens (5.1%) testing positive for influenza viruses.

These testing results suggests that Influenza A and B viruses are circulating in NSW at low but increasing levels, after the unseasonal spike in activity seen in January and February this year.

<sup>2</sup> **Source:** Participating sentinel laboratories include the following: 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 & Pathology West - Nepean [no data from Oct 2010 to June 2011], Douglas Hanley Moir Pathology, VDRLab [data from 5 March 2010], Lavery Pathology [data from 1 April 2010 to February 2011], SydPath (St Vincent's) Pathology [data from Nov 2010], Medlab, and Lavery [data from September 2013].

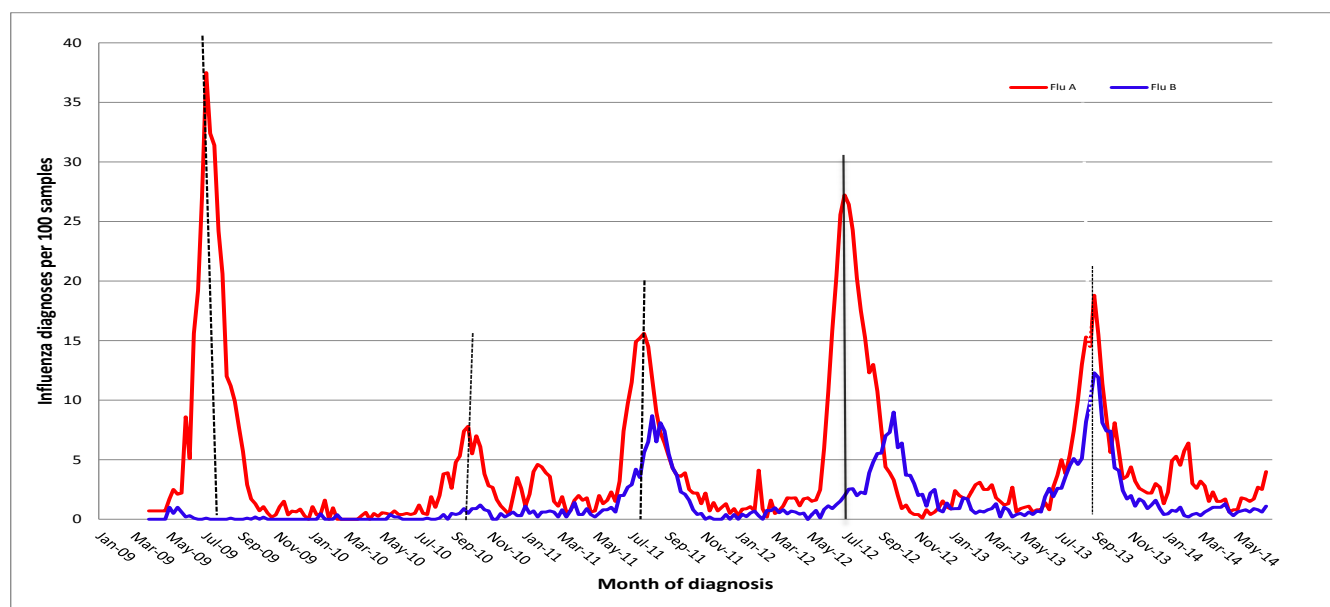
Respiratory syncytial virus (RSV) was the leading respiratory virus identified by laboratories this week, as is usual for this time of year, and rhinovirus identifications also remained high (Table 2).

**Table 2:** Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 22 June 2014.

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	(%)						
02/02/2014*	3541	163	(4.6%)	36	(22.1%)	31	(19.0%)	96	(58.9%)	23	(0.6%)	98	123	90	339	12	32
02/03/2014	3413	127	(3.7%)	19	(15.0%)	38	(29.9%)	70	(55.1%)	12	(0.4%)	56	79	149	362	7	23
30/03/2014	4843	95	(2.0%)	11	(11.6%)	36	(37.9%)	49	(51.6%)	41	(0.8%)	97	135	387	549	22	37
27/04/2014	5360	64	(1.2%)	3	(4.7%)	15	(23.4%)	47	(73.4%)	45	(0.8%)	103	177	753	535	30	50
01/06/2014*	7383	112	(1.5%)	8	(7.1%)	17	(15.2%)	87	(77.7%)	48	(0.7%)	115	159	1011	659	21	83
<b>Week ending</b>																	
08/06/2014	1530	42	(2.7%)	9	(21.4%)	2	(4.8%)	31	(73.8%)	12	(0.8%)	37	24	225	147	11	22
15/06/2014	1459	37	(2.5%)	7	(18.9%)	8	(21.6%)	22	(59.5%)	9	(0.6%)	21	21	195	121	7	22
20/06/2014	1757	71	(4.0%)	18	(25.4%)	9	(12.7%)	43	(60.6%)	19	(1.1%)	26	17	205	137	17	21

**Note:** \* Five week reporting period. \*\* Subset of influenza A positive tests. Not all influenza A samples are typed; samples that test negative for A(H1N1)pdm09 are assumed to be A(H3N2). \*\*\* HMPV = Human metapneumovirus

**Figure 4:** Percent of respiratory samples positive for influenza A or influenza B, 1 January 2009 – 22 June 2014, New South Wales.



**Note:** Laboratory surveillance data is provided by laboratories on a weekly basis and includes point-of-care tests as of 10 August 2012. Serological diagnoses are not included.

### Laboratory-confirmed influenza outbreaks in residential care facilities and other settings

There were no further influenza outbreaks in institutions reported this week, leaving just the two outbreaks in aged care facilities (ACF) reported in January (Table 3).

**Table 3.** Reported influenza outbreaks in NSW institutions, 2006 to May 2014.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014*
No. of outbreaks	2	25	9	1	2	4	39	12	2

**Note:** \* Year to date.

Reports of influenza outbreaks in aged care facilities were uncommon from 2009 to 2011. This is thought to be as a result of the higher levels of sero-protection observed in people in older age-groups against the influenza A(H1N1)pdm09 strain which predominated in these years.

Influenza outbreak reports increased dramatically in 2012 when the influenza A(H3N2) strain predominated. Both strains of influenza A and an influenza B strain circulated during 2013.

### 3. Community Illness Surveillance

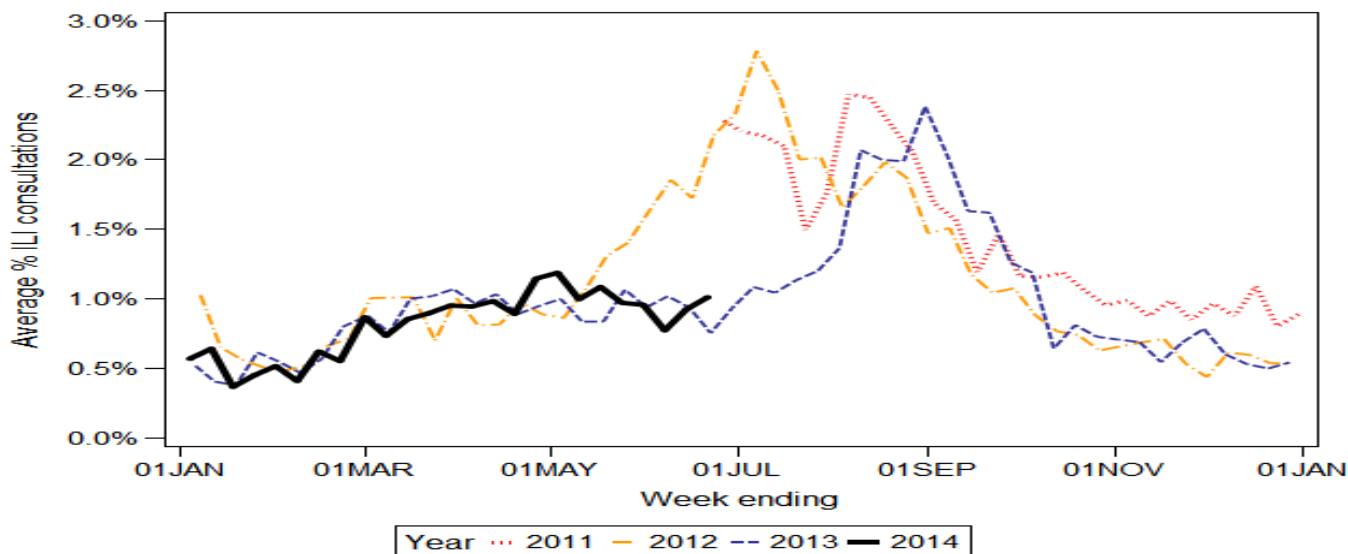
#### Electronic General Practice Surveillance (eGPS)

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 it is not representative of all practices within the participating LHDs or across NSW.

- In week 25 there were surveillance reports received from 14 sentinel practices in NSW.
- The average rate for patient consultations was 1.0% (range 0.1 – 3.5%) (Figure 5). This is higher than the rate in the previous week but is within the usual range of ILI activity seen at this time in the three previous years.

**Figure 5.** Average rate of influenza-like –presentations to sentinel general practices, by week of consultation 2011-14



#### The Australian Sentinel Practices Research Network (ASPREN)

ASPREN is a network of sentinel general practitioners (GPs) run through the RACGP and the University of Adelaide that has collected de-identified information on influenza like illness and other conditions seen in general practice since 1991. GPs participating 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 25 there were 31 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was low but had increased to 4.3%, still consistent with inter-seasonal reporting.

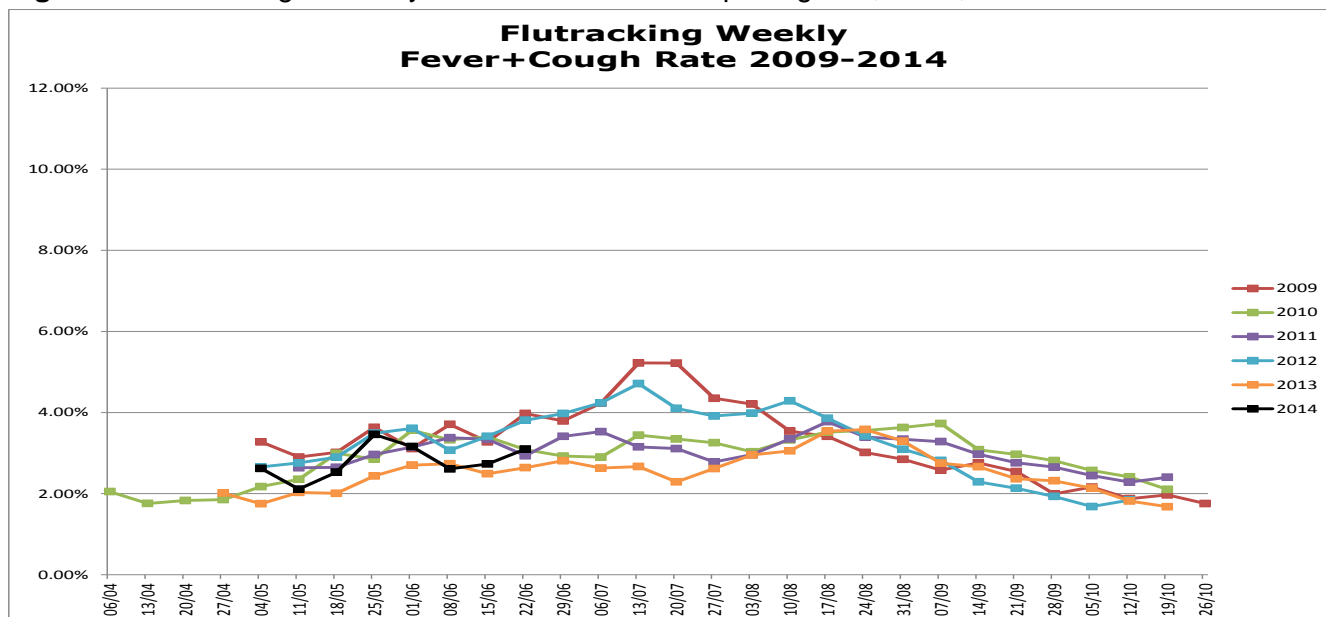
For further information please see the [ASPREN](#) website.

## 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 25 FluTracking received reports for 5126 people in NSW. Fever and cough reports were higher than the previous week at 3.1% of respondents, but was within the usual range for this time of year (Figure 6). Overall, 2.0% of respondents reported fever, cough and absence from normal duties.

**Figure 6:** FluTracking – Weekly influenza like illness reporting rate, NSW, 2009 – 2014.



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

## FluCAN (The Influenza Complications Alert Network)

In 2009, [A Rapid Alert System for Severe Respiratory Illness: The FluCAN Surveillance system](#) was created with the involvement and support of the Thoracic Society of Australia and New Zealand and funding from the NHMRC. The aim of FluCAN was to establish and maintain a real-time sentinel hospital surveillance system for acute respiratory disease requiring hospitalisation, which could provide a reliable and timely source of information that could be used to inform public health policy.

In NSW, three hospitals participate in providing weekly data; Westmead Hospital, John Hunter Hospital and the Children's Hospital at Westmead.

- In week 25 there were three confirmed influenza admission reported at NSW sentinel hospitals.
- Since 7 April 2014, there have been nine hospital admissions reported (8 influenza A and 1 influenza B) – all were paediatric cases.

## 4. National and International Influenza Surveillance

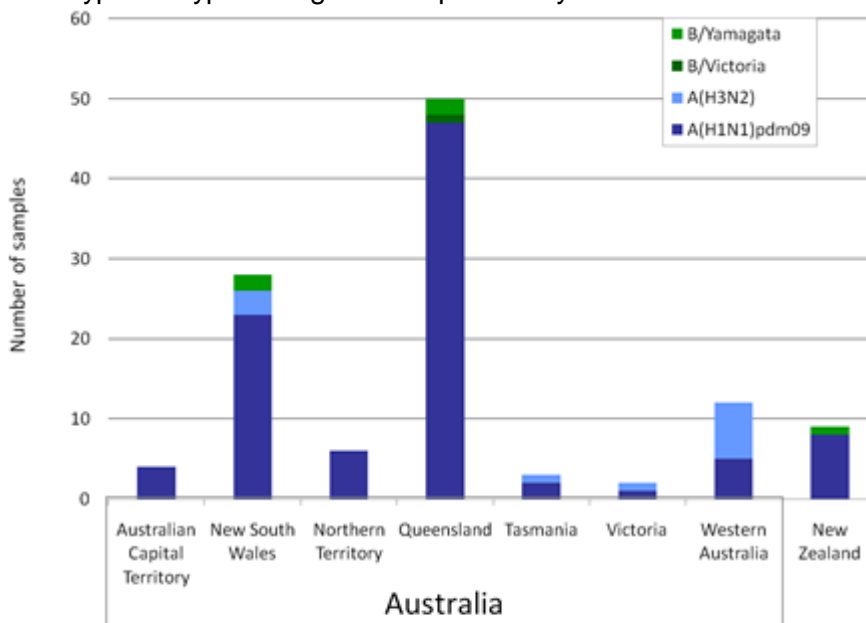
### Australian Influenza Activity Update (week ending 6 June 2014)

- Australia is currently in the inter-seasonal period for influenza, with influenza activity levels continuing to be low and stable, but higher than at the same time in previous years

- Across most jurisdictions, influenza activity continues to be low with current levels relatively stable.
- There is no indication that the 2014 influenza season has commenced, nor any indication of the potential severity of the season.
- Nationally, influenza A strains have predominated over influenza B strains and, where subtyping data are available, influenza A(H1N1)pdm09 has been the most common strain.
- Type/subtypes/lineages of viruses collected during April 2014 and sent to the [WHO Collaborating Centre for Reference and Research on Influenza \(WHO Centre\)](#) from laboratories in the indicated countries/states for which the type/subtype have been determined at the Centre as of 17 June 2014.

All three strains in NSW are well-matched to the vaccine strains used in the 2014 seasonal influenza vaccine.

**Figure 7:** Type/subtype/lineage of samples analysed at the WHO Centre



*Note: Subtyping is based on analysis of the HA and in some cases is confirmed by further analysis of NA*

For further information on the National Notifiable Disease Surveillance System, which includes laboratory-confirmed influenza reports, see:

<http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-ozflu-2014.htm>

## Avian influenza in Humans

**Human infection with avian influenza A(H7N9) viruses:** as of 22 June 2014 a total of 450 human cases of avian influenza A(H7N9) have been confirmed in the Mainland, with 297 of these reported in 2014. [Source: Hong Kong Centre for Health Protection [Avian Influenza update](#)]

There remains no evidence of sustained human-to-human transmission and most cases are linked to exposure to poultry, particularly in live poultry markets.

## Influenza activity worldwide

The World Health Organization (WHO) summary of global influenza activity as of 16 June noted the following:

- In North America and Europe, overall influenza activity was at inter-seasonal levels.

- In eastern Asia, influenza activity approached inter-seasonal levels in most countries with influenza A(H3N2) and influenza B virus predominating.
- In southern and south-eastern Asia, influenza activity continued to decline.
- In northern Africa and western Asia, influenza activity remained low.
- In the southern hemisphere, influenza activity remained low, although some countries in the temperate zone of South America showed increases in ILI activity with slight increase in influenza detections.

WHO FluNet laboratory reporting during weeks 21 and 22 (18 May to 31 May 2014) noted:

- Of the 30 179 respiratory specimens tested, 1919 (6.4%) were positive for influenza viruses. Of these, 62.4% were typed as influenza A and 37.6% as influenza B.
- Of the sub-typed influenza A viruses, 21% were influenza A(H1N1)pdm09 and 79% were influenza A(H3N2).
- Of the characterized B viruses, 80% belonged to the B-Yamagata lineage and 20% to the B-Victoria lineage.

For further information see the full WHO report at: [WHO influenza update No 213](#).

### Useful influenza surveillance links

- Follow the link for the [Australian Influenza Surveillance Reports](#) which provide the latest information on national influenza activity.
- Follow the link for the [World Health Organization Global Influenza Programme](#).
- Follow the link for Australia's [WHO Collaborating Centre for Reference and Research on Influenza](#), part of an international network of centres analysing influenza viruses currently circulating in the human population in different countries around the world. The centre also provides information on the [current vaccine recommendations](#) for influenza.

### Composition of 2014 Australian influenza vaccines

The [Australian Influenza Vaccine Committee](#) (AIVC) met on 10 October 2013 and made recommendations for the influenza vaccine components for the Australian 2014 influenza season.

The 2014 trivalent influenza vaccines differ from the 2013 season trivalent vaccines as they contain two new strains. The H1N1 pandemic influenza virus strain, A(H1N1)pdm09, remains in the vaccine but the second influenza A strain and the influenza B strain are different from previous years.

The changes in the vaccine are based on changes in the expected circulating strains this year so it will be especially important for those who are at risk to be vaccinated.

The strains in the 2014 southern hemisphere trivalent seasonal influenza vaccines are:

- A (H1N1): an A/California/7/2009 (H1N1) - like virus, 15 µg HA per dose
- A (H3N2): an A/Texas/50/2012 (H3N2) - like virus \*, 15 µg HA per dose
- B: a B/Massachusetts/2/2012 - like virus, 15 µg HA per dose

\* A/Texas/50/2012 is an A/(H3N2) virus adapted for growth in eggs but which is antigenically similar to the majority of recently circulating A(H3N2) viruses including A/Victoria/361/2001.

The 2014 Influenza vaccination campaign under the National Immunisation Programme was launched on 15 March 2014. Follow the link for more information on the 2014 campaign:

<http://www.immunise.health.gov.au/> .



