

# Influenza Monthly Epidemiology Report, NSW

October 2013

This report describes the surveillance for influenza and other respiratory pathogens, undertaken by NSW Health to date. This includes data from a range of surveillance systems.

For weekly communicable disease surveillance updates refer to the Communicable Disease Weekly Report at <http://www.health.nsw.gov.au/publichealth/infectious/index.asp>.

## Summary

### In October 2013:

- [Emergency Department surveillance](#) - the rate of influenza-like illness (ILI) presentations to selected emergency departments was low and below the normal range expected for October.
- [Laboratory surveillance](#) – laboratory data indicated overall influenza activity was slightly elevated for this time of year. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B were all circulating at similar levels.
- [Deaths with pneumonia or influenza reported on the death certificate](#) – The population death rate for influenza and pneumonia was below the epidemic threshold for the month of October.
- [National and International influenza surveillance](#) – Two new human cases of infection with the novel avian influenza A(H7N9) strain from China; otherwise low influenza activity worldwide.
- [Recommended composition of 2014 Australian influenza vaccines](#) – The Australian Influenza Vaccine Committee (AIVC) has provided recommendations for the 2014 southern hemisphere winter influenza season.

### 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 see the [NSW Health Influenza website](#).

# 1. Emergency Department (ED) Surveillance

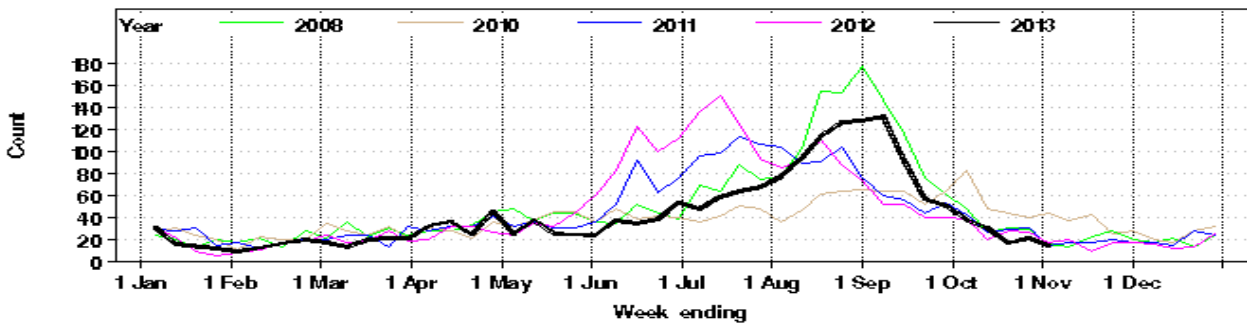
**Source:** NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change.

## 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.

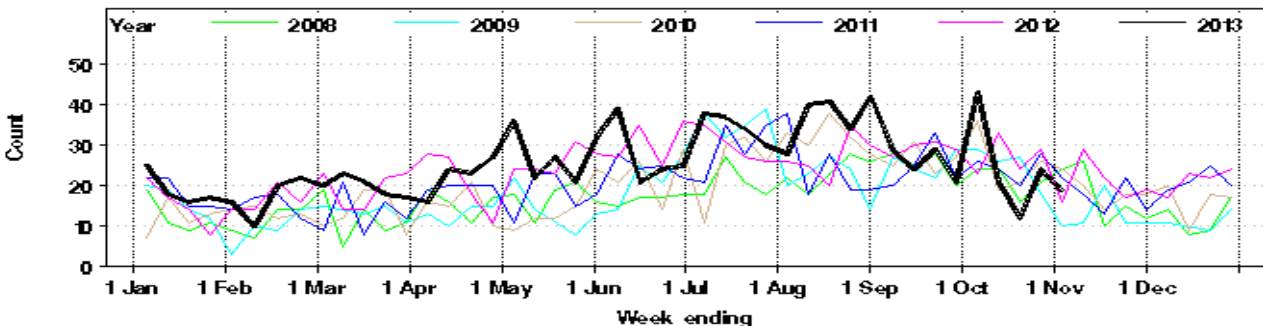
- Monitoring of the index of increase suggests that this year’s influenza season started around 26 June, peaked on 20 August and ended around 17 September.
- In October 2013 there were 124 presentations with influenza-like illness (rate 0.6 per 1,000 presentations). The rate of Influenza-like illness presentations to EDs in April was lower than the previous month (September – 364 presentations, rate 2.2 per 1,000 presentations), but similar to the count of 134 (rate 0.7 per 1,000 presentations) for the month of October in 2012. The total count for ILI presentations was below the historical average for October (Figure 1).
- Admissions from ED to critical care units for influenza-like illness and pneumonia were within the usual range for this time of year (Figure 2).

**Figure 1:** Total weekly counts of ED visits for influenza-like illness, from January – 3 November 2013 (black line), compared with each of the 5 previous years (coloured lines).



\* Note: Excludes 2009 data to enable comparison of 2013 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 – November 2013 (black line), compared with each of the 5 previous years (coloured lines).



\* Note: As for Figure 1, although includes 2009 data.

## 2. Laboratory Surveillance

In October 2013:

- 6,301 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 326 specimens tested positive for influenza A – 92 of these tested positive for A(H3N2), and 124 tested positive for influenza A(H1N1)pdm09. The remainder (110) were not typed (Table 1, Figure 3).
- 194 cases of influenza B were reported (Table 1, Figure 3).
- the total number of positive influenza tests in October was lower than the previous month but markedly higher than that for the same month in 2012.

Laboratory testing indicates that influenza has continued to decrease over the month of October; however activity remains elevated for this time of the year. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B are all circulating at similar levels. Rhinoviruses are the leading respiratory viruses identified by laboratories, and this is usual for this time of year.

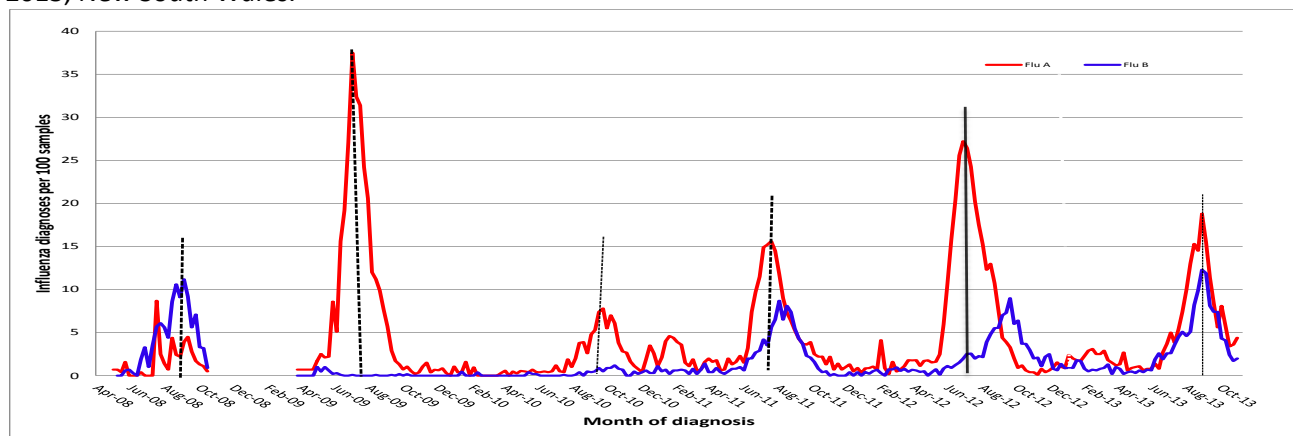
**Table 1:** Summary of tests and results for influenza and other respiratory viruses at NSW laboratories, 1 January to 3 November 2013.

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	(%)						
01/02/2013*	2199	44 (2.0%)	13 (29.5%)	14 (31.8%)	17 (38.6%)	26 (1.2%)	68	87	81	328	37	59			
01/03/2013	2263	60 (2.7%)	17 (28.3%)	20 (33.3%)	23 (38.3%)	15 (0.7%)	55	41	119	452	29	31			
29/03/2013	2595	47 (1.8%)	9 (19.1%)	12 (25.5%)	26 (55.3%)	21 (0.8%)	82	59	333	488	53	33			
26/04/2013	3165	39 (1.2%)	13 (33.3%)	11 (28.2%)	15 (38.5%)	10 (0.3%)	92	188	599	586	61	54			
02/06/2013*	4885	38 (0.8%)	14 (36.8%)	12 (31.6%)	12 (31.6%)	23 (0.5%)	116	115	742	812	41	62			
30/06/2013	4855	106 (2.2%)	21 (19.8%)	45 (42.5%)	40 (37.7%)	108 (2.2%)	109	105	663	685	44	94			
28/07/2013	6051	397 (6.6%)	30 (7.6%)	151 (38.0%)	216 (54.4%)	240 (4.0%)	164	131	714	672	49	206			
01/09/2013*	10305	1505 (14.6%)	94 (6.2%)	917 (60.9%)	494 (32.8%)	873 (8.5%)	244	218	458	813	30	349			
29/09/2013	8994	969 (10.8%)	67 (6.9%)	555 (57.3%)	347 (35.8%)	804 (8.9%)	219	224	290	589	16	191			
03/11/2013*	6301	326 (5.2%)	92 (28.2%)	124 (38.0%)	110 (33.7%)	194 (3.1%)	212	300	116	607	13	130			
<b>Week ending</b>															
06/10/2013	1602	121 (7.6%)	29 (24.0%)	58 (47.9%)	34 (28.1%)	74 (4.6%)	63	77	36	102	3	36			
11/10/2013	1336	77 (5.8%)	28 (36.4%)	29 (37.7%)	20 (26.0%)	56 (4.2%)	42	63	32	136	3	31			
20/10/2013	1163	39 (3.4%)	7 (17.9%)	16 (41.0%)	28 (71.8%)	23 (67.0%)	22	67	14	116	3	28			
27/10/2013	1006	36 (3.6%)	5 (13.9%)	8 (22.2%)	23 (63.9%)	17 (1.7%)	31	51	20	128	4	13			
03/11/2013	1194	53 (4.4%)	23 (43.4%)	13 (24.5%)	17 (32.1%)	24 (67.0%)	54	42	14	125	0	22			

\* All samples are tested for influenza viruses. Not all samples are tested for all of the other viruses listed.

\*\* Samples that test negative for A(H1N1)pdm09 are assumed to be A(H3N2).

**Figure 3:** Percent of respiratory samples positive for influenza A or influenza B, 1 January 2008 – 20 October 2013, New South Wales.



**Source:** Data is provided by laboratories on a weekly basis. Includes point of care tests as of 10 August 2012. Influenza laboratory diagnoses using virology are reported by South Eastern Area Laboratory Services (SEALS), Institute of Clinical Pathology and Medical Research (ICPMR), The Children's Hospital at Westmead (CHW), Sydney South West Area Services (SSWPS), Pacific Laboratory Medicine Services (PaLMS), Royal Prince Alfred Hospital (RPAH), Hunter Area Pathology Service (HAPS), St Vincent's (SydPath), Nepean, Douglas Hanley Moir (DHM), VDRLab. **NOTE** - No data available from ICPMR for the month of April 2013.

## Laboratory-confirmed Influenza outbreaks in residential care facilities

One new laboratory confirmed influenza A outbreak was reported in an aged care facility in rural NSW this week. In the year to date (up to week 44), there have been eleven laboratory-confirmed influenza outbreaks in institutions reported to NSW Public Health Units (Table 2): seven influenza A, two influenza B and one mixed influenza A and B outbreak. At least 140 residents were reported to have had ILI symptoms and nine have required hospitalisation. Four deaths in residents linked to the outbreaks have been reported.

**Table 2.** Reported influenza outbreaks in NSW institutions, 2005 to October, 2013.

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. of outbreaks	5	2	25	9	1	2	4	39	11

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.

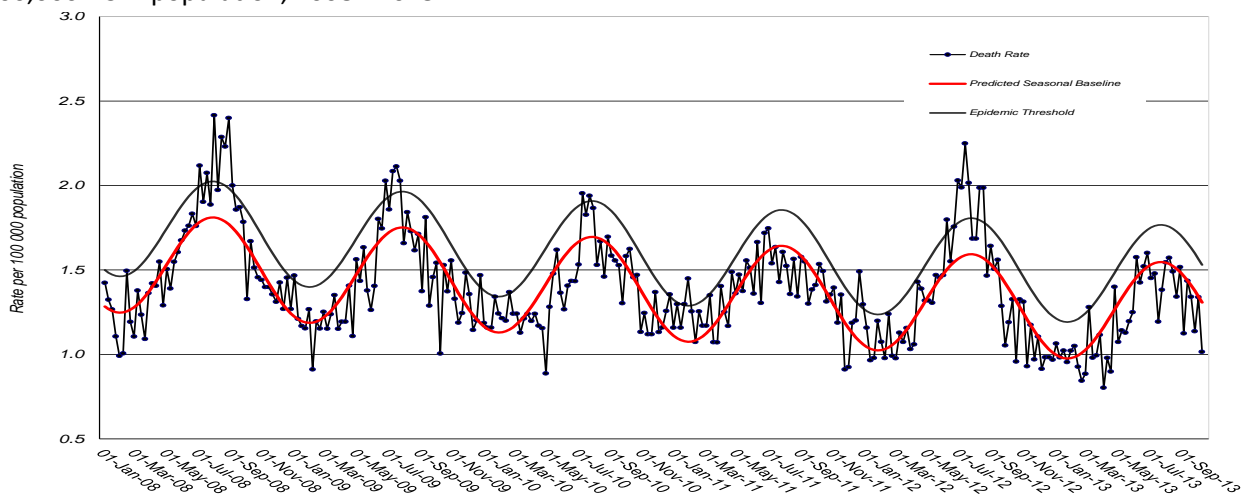
## 3. Deaths with pneumonia or influenza reported on the death certificate

Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death. The predicted seasonal baseline estimates the predicted rate of influenza or pneumonia deaths in the absence of influenza epidemics. If deaths exceed the epidemic threshold, then it may be an indication that influenza is beginning to circulate widely.

For the week ending 18 October:

- There were 1.01 pneumonia or influenza deaths per 100,000 NSW population, which is below the epidemic threshold of 1.52 per 100,000 population (Figure 4).
- Up to 18 October, out of 40,066 deaths there were 30 death certificates mentioning influenza, and 3,696 mentioning pneumonia. Of the deaths mentioning influenza the majority of these influenza deaths were in persons aged greater than 50 years, however there were eight deaths in people aged 25 to 44 years.

**Figure 4:** Rate of deaths classified as influenza and pneumonia (by NSW Registered Death Certificates) per 100,000 NSW population, 2008 - 2013.



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 population. 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 one week behind reports from emergency departments and laboratories. In addition, previous weekly rates may also change due to longer delays in reporting some deaths.

## 4. National and International Influenza Surveillance

### National Influenza Surveillance

Nationally the 2013 influenza season appears to have peaked at the end of August. Overall influenza activity has been relatively low compared to 2011 and 2012.

- Nationally, influenza activity continued to decrease this fortnight. Influenza activity in Tasmania is currently reported as wide-spread whereas all other jurisdictions are reporting either unchanged or decreasing activity compared to the previous fortnight.
- As at 11 October 2013, there have been 22,983 cases of laboratory confirmed influenza reported, which is slightly more than half of the notifications received for the same period in 2012.
- Over the 2012-13 inter-seasonal period, higher than usual numbers of influenza notifications were reported from most jurisdictions. The seasonal increase in influenza notifications commenced in early July and persisted over a shorter period than 2011 and 2012. The season peak of weekly notifications was similar to 2011 and occurred at the end of August.
- Influenza activity peaked at the end of August in the majority of jurisdictions. Tasmania and the Northern Territory experienced a late peak while Western Australia reported extended increased activity from mid-August through September.
- Nationally influenza A was the predominant influenza virus type. Influenza A(H1N1)pdm09 re-emerged this season and represented over 15% of overall notifications, compared to <1% of notifications in 2012. Additionally, the proportion of influenza B this season has been higher than in recent years.
- Across jurisdictions, the distribution of influenza types and subtypes has been variable. In Victoria there was a predominance of influenza type B throughout the season, with all other jurisdictions reporting mostly influenza A. In Western Australia, influenza A(H3N2) was the predominant subtype, whereas New South Wales and other eastern jurisdictions reported mostly A(H1N1)pdm09. Towards the end of the season while the proportion of influenza B remained stable nationally, increases were observed in New South Wales, South Australia and Queensland and the proportion of A(H1N1)pdm09 increased in Western Australia.
- The rate of influenza associated hospitalisations has started to decline over the past fortnight. Both the 2012 and 2013 influenza seasons saw around 12% of influenza cases admitted directly to ICU with a high proportion of cases had known medical co-morbidities reported. In Australia it has been estimated that there have been over 4,500 influenza associated hospitalisations since April 2013. The age distribution of hospital admissions shows a peak in the 0-9 year age group as is typical of seasons with high levels of influenza B circulating.

### Avian influenza A(H7N9) in China

The World Health Organization (WHO) reported two more novel H7N9 infections from different parts of the China, including in a 3-year-old boy with mild illness who is hospitalized. The cases are the 3rd and 4th to be

reported since the middle of October 2013 and increase China's total number of H7N9 infections to 139, with includes 45 deaths. So far, there is no evidence of sustained human-to-human transmission.

## Influenza activity worldwide

In summary during weeks 40 and 41, WHO has reported:

- Although in many European countries influenza-like illness activity started to increase, influenza detections in the northern hemisphere temperate zones remained low.
- In the regions of tropical Asia influenza activity was variable from country to country. In Hong Kong Special Administrative Region, China, influenza detections decreased, while in the south of China an increase in influenza detections was seen. In South East Asia, influenza detections decreased in Thailand, but increased in Viet Nam. In this area, co-circulation of influenza A(H3N2) and influenza B virus was reported.
- In the Caribbean region of Central America and tropical South America countries, reported cases of influenza A infection remained at low levels among most Caribbean islands and Central American countries. Respiratory syncytial virus (RSV) continued to predominate, but the RSV activity largely remained within expected seasonal levels.
- Influenza activity peaked in the temperate countries of South America and in South Africa in late June. Temperate South American countries reported co-circulation of influenza B and A (H3N2) in most countries, and while RSV activity continued to predominate, it showed an overall decreasing trend.
- In Australia and New Zealand, numbers of influenza viruses detected and rates of influenza-like illness decreased. Co-circulation of influenza A(H1N1)pdm09, A(H3N2) and B viruses was reported in both countries. [WHO influenza update No197](#).

## 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.

## 5. Recommended composition of 2014 Australian influenza vaccines

A World Health Organization (WHO) consultation held in September recommended that trivalent vaccines for use in the 2014 influenza season (southern hemisphere winter) contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus \*;
- an A/Texas/50/2012 (H3N2)-like virus \*\*;
- a B/Massachusetts/2/2012-like virus.

\* A/Christchurch/16/2010 is an A/California/7/2009-like virus.

\*\* A/Texas/50/2012 is an A(H3N2) virus with antigenic properties similar to the majority of recently circulating cell-propagated A(H3N2) viruses including A/Victoria/361/2011.

It is also recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus.

The full report of the WHO consultation is available at :

[www.who.int/influenza/vaccines/virus/recommendations/2014\\_south/en/index.html](http://www.who.int/influenza/vaccines/virus/recommendations/2014_south/en/index.html)

The [Australian Influenza Vaccine Committee](#) (AIVC) met on 10 October 2013 to recommend influenza viruses to be used in the composition of the influenza vaccines for 2014. The committee recommended that the Therapeutic Goods Administration (TGA) should adopt the September WHO recommendations. The trivalent influenza vaccine components for the Australian 2014 influenza season should contain the following:

- 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

Quadrivalent vaccines should contain viruses listed above, plus the additional B virus:

- B/Brisbane/60/2008-like virus, 15 µg HA per dose.

The TGA has accepted the recommendations of the AIVC.