

Influenza Monthly Epidemiology Report, NSW

February 2015

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>.

1. Summary

In February:

- The rate of influenza like illness (ILI) presentations to selected emergency departments was low and was within the normal range expected for February.
- 212 cases with laboratory-confirmed influenza A (predominantly H3N2) and 75 cases with influenza B were identified by sentinel laboratories.
- Rhinovirus was the most common respiratory virus identified by sentinel laboratories.

2. Emergency Department (ED) influenza-like illness activity

Data from 59 NSW emergency departments are included. Comparisons are made with data for the preceding 5 years. Recent counts are subject to change.

Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health.

ED Presentations for influenza-like illness:

Monitoring influenza-like illness (ILI) presentations in Emergency Departments provides important information on the burden that influenza and other similar respiratory infections places on hospitals during the influenza season. The changes in ILI presentations to EDs can also be used to predict the start, peak and end of the influenza season in NSW.

The PHREDSS 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 1 March 2015 the index of increase for ILI presentations was 0.3, down from the previous month and consistent with the usual low levels of activity at this time of year.
- In February 2015 there were 61 ED presentations with influenza-like illness (rate 0.4 per 1,000 presentations) consistent with the historical average for this time of year (Figure 1).
- Total presentations for bronchiolitis decreased but remained above the usual range for this time of year (Figure 2).

Figure 1: Total weekly counts of Emergency Department visits for influenza-like illness, from January – February 2015 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.*

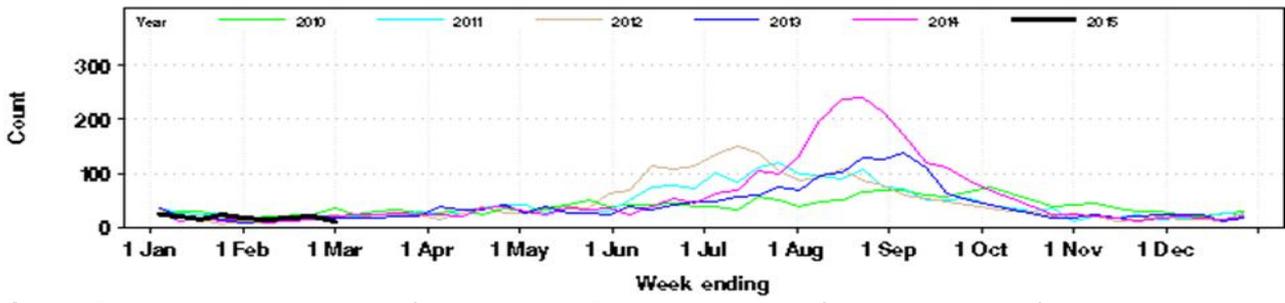
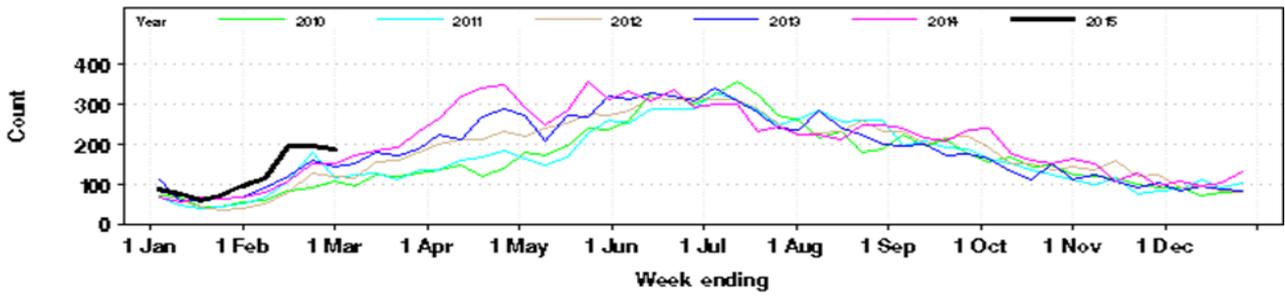


Figure 2: Total weekly counts of Emergency Department visits for bronchiolitis, from January – February 2015 (black line), compared with the 5 previous years (coloured lines).



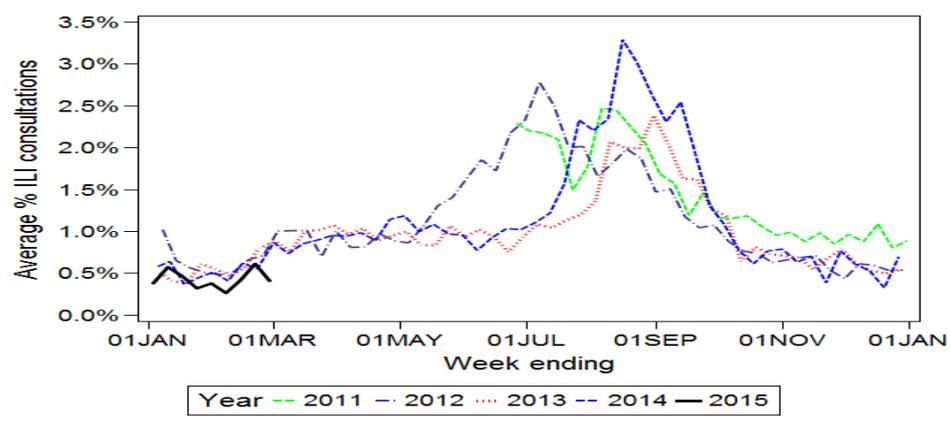
3. Community Illness Surveillance

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.

- For February, weekly reports were received on average from 8 sentinel practices (no reports received from Northern Sydney).
- The average rate for patient consultations with ILI was 0.4% (range 0.0 – 1.4), consistent with the historical average (Figure 3).

Figure 3. ILI consultations as a percentage of all consultations at sentinel general practices, by week of consultation, July 2011 to March 2015.



Notes on eGPS data:

- The number of practices reporting may vary from week to week. Data is available from Week 29, 2011.
- Data generated from eGPS should be interpreted with caution as it is not representative of all practices within the participating LHDs or across NSW.

4. Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year. Summary information is provided here with more detailed information provided at the end of the report (see Table 1).

In February 2015:

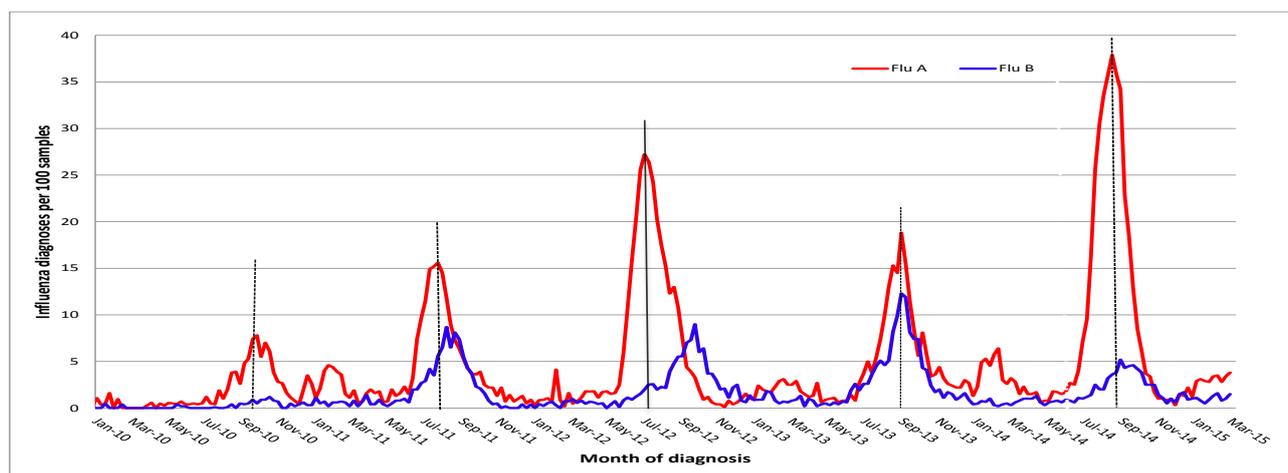
- 6 287 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 212 specimens tested positive for influenza A – 72 of these tested positive for A(H3N2), 14 tested positive for influenza A(pH1N1) and 126 were not typed further (Table 1, Figure 4).
- 75 cases of influenza B were reported (Table 1, Figure 4).

During February, laboratory testing suggested influenza activity had increased further although it remained at low levels. Influenza activity was above the usual amount seen for this time of year. Rhinoviruses are the leading respiratory viruses identified by laboratories, with respiratory syncytial virus (RSV) starting to increase, this is usual for this time of year.

Table 1: Summary of testing for influenza and other respiratory viruses at sentinel NSW laboratories, 1 January to 1 March 2015.

Month ending	Total Tests	TEST RESULTS													
		Influenza A						Influenza B	Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV	
		Total	H3N2 **	H1N1 pdm09	A (Not typed)	Total	Total	Total (%)	Total (%)	Total (%)	Total (%)	Total (%)	Total (%)	Total (%)	Total (%)
01/02/2015*	5920	182 (3.1%)	40 (22.0%)	11 (6.0%)	131 (72.0%)	55 (0.9%)	150	181	181	607	59	49			
01/03/2015	6287	212 (3.4%)	72 (34.0%)	14 (6.6%)	126 (59.4%)	75 (1.2%)	128	83	271	842	24	29			
Week ending															
08/02/2015	1382	49 (3.5%)	15 (30.6%)	2 (4.1%)	32 (65.3%)	22 (1.6%)	33	12	31	150	6	9			
15/02/2015	1544	43 (2.8%)	17 (39.5%)	4 (9.3%)	22 (51.2%)	12 (0.8%)	30	17	53	207	4	8			
22/02/2015	1776	60 (3.4%)	17 (28.3%)	2 (3.3%)	41 (68.3%)	18 (1.0%)	30	33	91	262	8	9			
01/03/2015	1585	60 (3.8%)	23 (38.3%)	6 (10.0%)	31 (51.7%)	23 (1.5%)	35	21	96	223	6	3			

Figure 4: Percent of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 1 March 2015, New South Wales.



Notes on sentinel laboratory surveillance:

- Data is provided by participating sentinel laboratories on a weekly basis and excludes serology.
- Participating sentinel laboratories include the following: South Eastern Area Laboratory Services, Institute of Clinical Pathology and Medical Research, The Children’s Hospital at Westmead, Sydney South West Pathology Service, Pacific Laboratory Medicine Service, Royal Prince Alfred Hospital, Hunter Area Pathology Service, Nepean Hospital Pathology, Douglas Hanley Moir Pathology, VDRLab, Laverty Pathology, SydPath (St Vincent’s) Pathology, and Medlab.

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

There were two influenza A outbreaks in institutions reported for the month of February (Table 2). There were two cruise ships that reported outbreaks of influenza A. Outbreaks on cruise ships are usual at this time of year due to high number of people travelling between the northern and southern hemispheres.

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 and 2014 when the influenza A(H3N2) strain predominated. Both strains of influenza A and an influenza B strain circulated during 2013.

Table 2. Reported influenza outbreaks in NSW institutions, 2007 to January, 2015.

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015*
No. of outbreaks	25	9	1	2	4	39	12	120	3

* Year to date.

5. National and International Influenza Surveillance

National Influenza Surveillance

Although national influenza surveillance reports are not produced at this time of year, many jurisdictions are reporting increased influenza activity. Total national reports of laboratory-confirmed influenza in January were high, similar to 2014 but higher than in earlier years.

For further information on the National Notifiable Disease Surveillance System, which includes laboratory-confirmed influenza reports, see: <http://www9.health.gov.au/cda/source/cda-index.cfm> .

Global Influenza Update

The World Health Organization (WHO) reported that influenza activity was high in the northern hemisphere with influenza A(H3N2) viruses predominating so far this season. Some countries reported an increase in influenza A(H1N1)pdm09 activity. Antigenic characterization of most recent A(H3N2) viruses thus far indicated differences from the A(H3N2) virus used in the influenza vaccines for the northern hemisphere 2014-2015. Based on tests to date, the influenza A(H3N2) viruses are expected to be sensitive to neuraminidase inhibitors.

The [WHO Global Influenza Update](#) on 9 March 2015 with data up to 22 February indicated that:

- In other parts of the southern hemisphere, influenza activity continued at inter-seasonal levels
- In North America, the activity remained elevated following the influenza peak. Influenza A(H3N2) remained the dominant virus this season.
- In Europe, the influenza season was at its height, particularly in central and western countries . Influenza A(H3N2) virus continued to predominate this season.

- In northern Africa and the middle East, influenza activity was decreasing in most of the region. Influenza A was predominant in the region.
- In the temperate countries of Asia, activity decreased in northern China and Mongolia, but continued to increase in South Korea. Influenza A(H3N2) virus predominated.
- In tropical countries of the Americas, influenza activity remained low in most countries.
- In tropical Asia, influenza activity continued to increase in India and Lao PDR. Influenza activity remained high in southern China, Hong Kong, and Iran.

It also reported influenza laboratory data for Weeks 6 to 7, 2015 (8 to 21 February 2015), which noted:

- Of the 133 895 specimens. 34 056 were positive for influenza viruses, of which 25 455 (74.7%) were typed as influenza A and 8601 (25.3%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 2382 (20.5%) were influenza A(H1N1)pdm09 and 9253 (79.5%) were influenza A(H3N2).
- Of the characterized B viruses, 1656 (97.1%) belonged to the B-Yamagata lineage and 49 (2.9%) to the B-Victoria lineage.

Avian influenza Update

[WHO](#) provided an update up to 3 March 2015 which included reports on human infections with avian influenza A H5, H7 and H9 strains.

H5N1:

- Since the last update on 26 January 2015, 66 new laboratory-confirmed human cases of avian influenza A(H5N1) virus infection, including 13 fatal cases, were reported to from Egypt (65) and China (one).
- Preliminary laboratory investigations have not detected any major genetic changes in the viruses isolated from the patients or animals to explain the increase incidence of cases in Egypt.

H5N6:

- China reported its third case of human infection with an avian influenza A(H5N6) virus in a 44-year-old man from Yunnan province who developed symptoms in late January 2015 and died in early February. The patient had a history of exposure to dead wild birds. No further cases among contacts were reported.

H7N9:

- A total of 602 laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus, including 227 deaths, have been reported to WHO.
- There remains no evidence of sustained human-to-human transmission and most cases are linked to exposure to poultry, particularly in live poultry markets. The disease is mild in poultry so outbreaks remain difficult to detect.

[According to the Hong Kong Centre for Health Protection [website](#), there have been 131 cases of influenza A(H7N9) reported this year].

H9N2:

- Egypt reported one human infection with an avian influenza A(H9N2) virus in a 3-year-old boy whose illness began in January 2015. The patient had a history of exposure to healthy backyard poultry.
- Two laboratory-confirmed cases of human infection with avian influenza A(H9N2) virus were previously detected in China (in late 2014), from Sichuan and Guangdong provinces. Both cases experienced mild illness.

6. Recommended composition of Australian influenza vaccines in 2015

A WHO consultation held in September 2014 recommended that trivalent vaccines for use in the 2015 influenza season (southern hemisphere winter) contain the following:

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

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

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.

These changed vaccine recommendations from the previous year reflect observed antigenic drift in circulating A(H3N2) and B/Yamagata lineage viruses. For more information see:

http://www.who.int/influenza/vaccines/virus/recommendations/2015_south/en/

7. Recommended composition of influenza virus vaccines for use in the 2014-2015 northern hemisphere influenza season

WHO has also recently recommended that trivalent vaccines for use in the [2015-2016 influenza season](#) (northern hemisphere winter) should contain the same influenza strains as for the 2015 southern hemisphere influenza vaccines (as above).