

Influenza Monthly Epidemiology Report, NSW

October 2014

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 2014:

- [Emergency Department surveillance](#) – the rate of influenza-like illness (ILI) presentations to selected emergency departments was low and within the normal range expected for October.
- [Laboratory surveillance](#) – influenza activity eased further this week and is within the usual range for this time of year. There were four reports of laboratory-confirmed influenza outbreaks occurring in aged care facilities during October.
- [Community illness surveillance](#) – data collected from eGPS shows ILI activity trending downward and at inter-season levels.
- [Hospitalisations surveillance \(FluCAN\)](#) – no new influenza admissions were reported.
- [National and international influenza surveillance](#) – National summary of the 2014 influenza season. No new reports of human cases of infection with the avian influenza A(H7N9) strain from China.
- [Recommended composition of 2015 influenza vaccines](#) – the World Health Organization (WHO) has provided recommendations for the 2015 southern hemisphere winter influenza season including two strain changes.

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 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

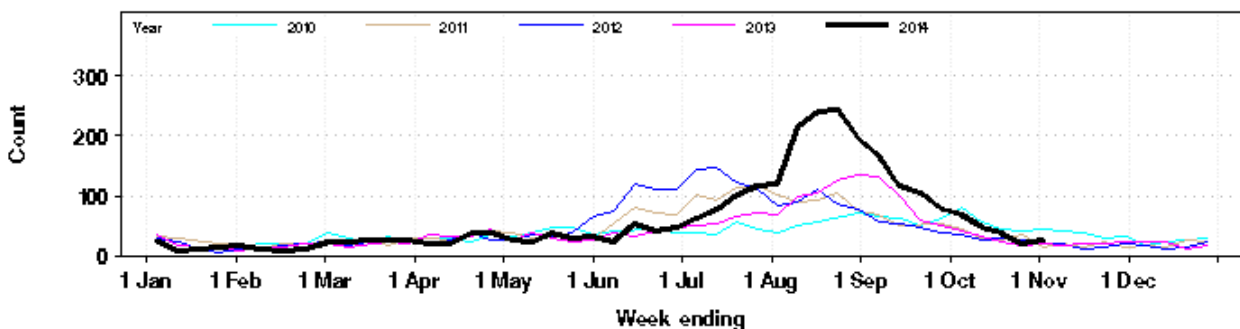
Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts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

- In October there were decreasing ILI presentations (211; rate 1.0 per 1000 presentations), consistent with the historical average and lower than the previous month (Figure 1).
- Admissions from ED to critical care units for ILI and pneumonia were within the usual range for this time of year even though there was a small increase in presentations at the end of October (Figure 2).
- Weekly presentations for bronchiolitis increased slightly and were slightly above the usual range for this time of year (Figure 3).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 2 October 2014 (black line), compared with the 4 previous years (coloured lines).



* **Note:** Excludes 2009 data to 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 – 2 November 2014 (black line), compared with the 5 previous years (coloured lines).

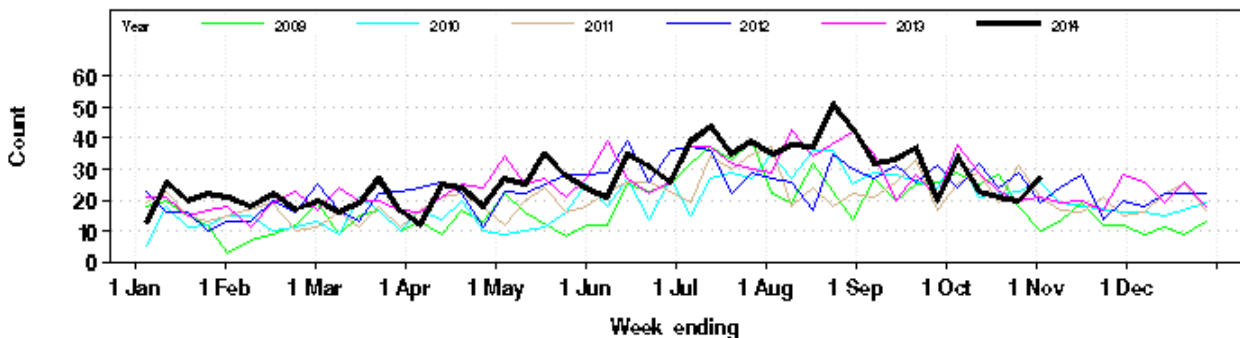
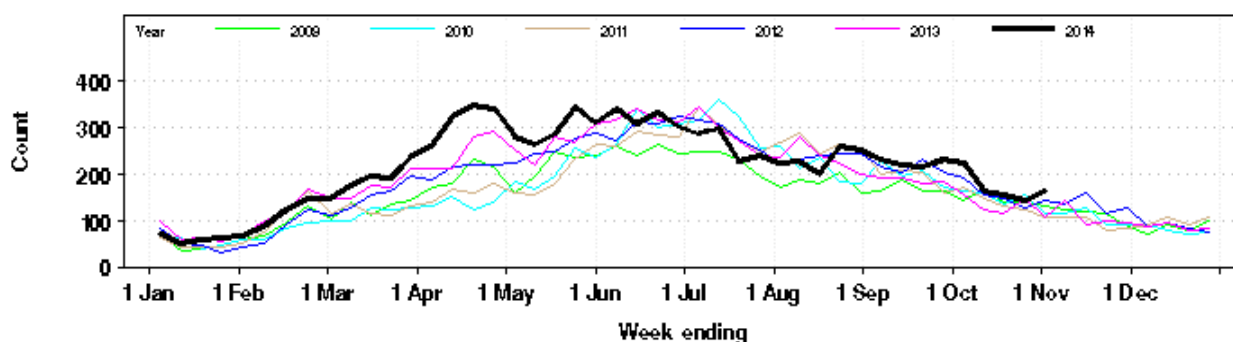


Figure 3: Total weekly counts of ED visits for bronchiolitis, from January – 2 November 2014 (black line), compared with the 5 previous years (coloured lines).



2. Laboratory Surveillance

In October 2014:

- 11047 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 382 specimens tested positive for influenza A – 55 of these tested positive for A(H3N2), and 19 tested positive for influenza A(H1N1)pdm09. The remainder (308) were not typed (Table 1, Figure 4).
- 292 cases of influenza B were reported (Table 1, Figure 4).
- The total number of positive influenza tests in October was far fewer than the previous month and has returned to pre-seasonal levels consistent with earlier years.

Rhinovirus was the leading respiratory virus identified by laboratories this month, as 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 2 November 2014.

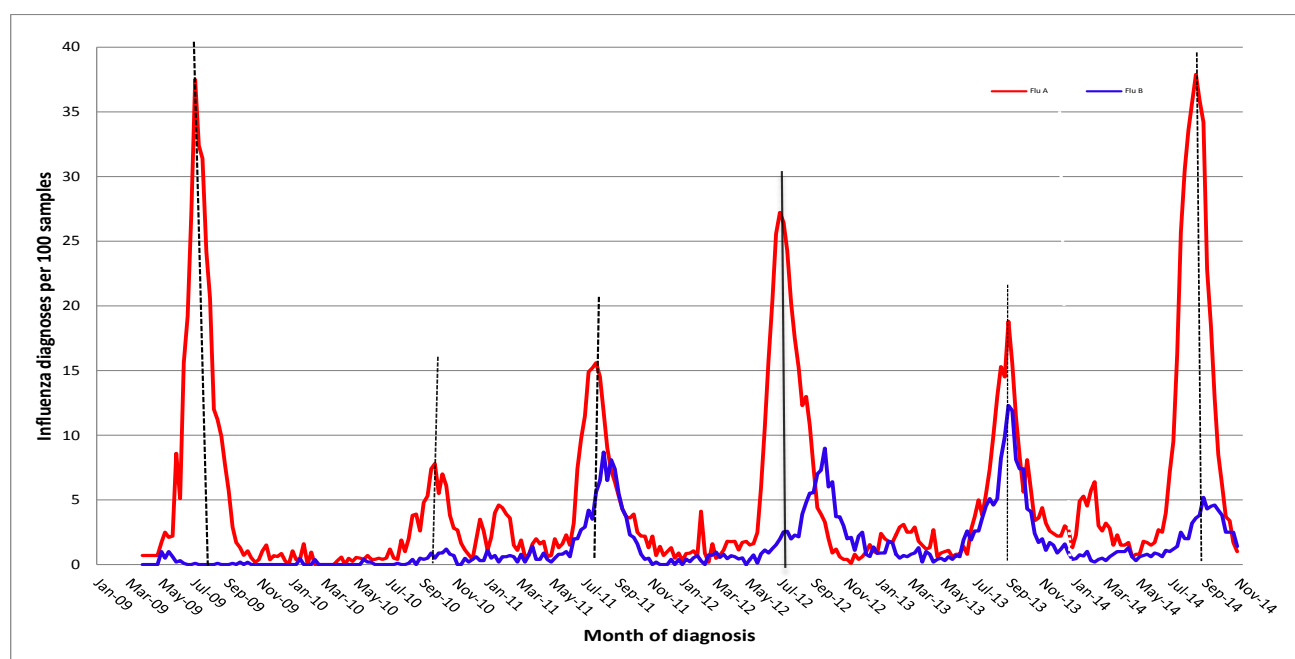
Month ending	Total Tests	TEST RESULTS													
		Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV
		Total	H3N2 **		H1N1 pdm09		A (Not typed)		Total						
Total	(%)	Total	(%A) **	Total	(%A)	Total	(%A)	Total	(%)						
02/02/2014*	3541	163 (4.6%)	36 (22.1%)	31 (19.0%)	96 (58.9%)	23 (0.6%)	98	123	90	339	12	32			
02/03/2014	3413	127 (3.7%)	19 (15.0%)	39 (30.7%)	69 (54.3%)	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			
29/06/2014	6572	280 (4.3%)	90 (32.1%)	34 (12.1%)	156 (55.7%)	58 (0.9%)	102	88	792	560	39	92			
03/08/2014*	13818	3497 (25.3%)	959 (27.4%)	327 (9.4%)	2215 (63.3%)	264 (1.9%)	216	143	852	926	22	245			
31/08/2014	22209	7982 (35.9%)	1642 (20.6%)	661 (8.3%)	5679 (71.1%)	893 (4.0%)	275	155	416	990	41	319			
28/09/2014	17167	2831 (16.5%)	475 (16.8%)	173 (6.1%)	2183 (77.1%)	754 (4.4%)	371	227	264	1210	76	369			
02/11/2014*	11047	382 (3.5%)	55 (14.4%)	19 (5.0%)	308 (80.6%)	292 (2.6%)	349	257	171	1179	66	296			
Week ending															
05/10/2014	2630	160 (6.1%)	24 (15.0%)	13 (8.1%)	123 (76.9%)	100 (3.8%)	89	55	51	238	7	89			
12/10/2014	2384	100 (4.2%)	8 (8.0%)	3 (3.0%)	89 (89.0%)	64 (2.7%)	68	54	42	209	9	48			
19/10/2014	2024	69 (3.4%)	13 (18.8%)	1 (1.4%)	55 (79.7%)	50 (2.5%)	64	50	35	212	36	66			
26/10/2014	2023	34 (1.7%)	6 (17.6%)	0 (0.0%)	28 (82.4%)	50 (2.5%)	59	55	18	245	3	47			
02/11/2014	1986	19 (1.0%)	4 (21.1%)	2 (10.5%)	13 (68.4%)	28 (1.4%)	69	43	25	275	11	46			

Note Five week reporting period used for the month.

* 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 4: Percent of respiratory samples positive for influenza A or influenza B, 1 January 2009 – 2 November 2014, New South Wales.



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 Nepean [no data from Oct 2010 to June 2011], Douglas Hanley Moir Pathology, VDRLab [data from 5 March 2010], Laverty Pathology [data from 1 April 2010 to February 2011], SydPath (St Vincent’s) Pathology [data from Nov 2010], Medlab, and Laverty [data from September 2013].

Laboratory-confirmed influenza outbreaks in institutions

There were four influenza outbreaks in residential care facilities reported for the month of October.

In the year to date there have been 120 laboratory-confirmed influenza outbreaks in institutions reported to NSW public health units (Table 3). Of these, 111 outbreaks have been in residential care facilities (RCF), with at least 1887 residents affected and resulting in 214 hospitalisations. Ninety deaths in residents linked to these RCF outbreaks have been reported, although influenza has not been confirmed for all of the fatal cases.

People in older age-groups are at higher risk of infection from influenza A(H3N2) strains (currently the dominant strain in NSW) than from the influenza A(H1N1)pdm09 strain. An influenza A(H3N2) strain also predominated in 2012 and was associated with an increase in influenza outbreaks in institutions, particularly aged care facilities (Table 3).

Table 2. Reported influenza outbreaks in NSW institutions, 2006 to October 2014.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014**
No. of outbreaks	2	25	9	1	2	4	39	12	120

Note: * Summary figures are subject to change as they also include updates from previously reported outbreaks.

** Year to date.

3. Community Illness Surveillance

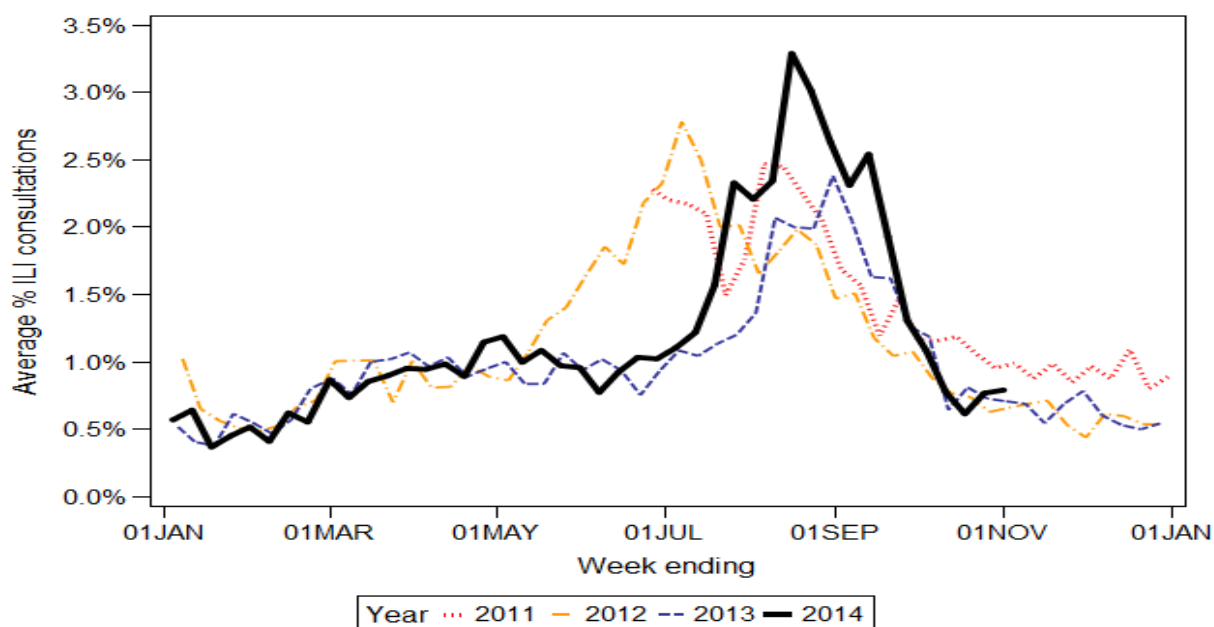
Electronic General Practice Surveillance (eGPS)

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.

- For October, reports were received on average from 15 sentinel practices.
- The average rate for patient consultations with ILI was 0.8% (range 0.0 – 2.3), consistent with the historical average and lower than the previous month

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



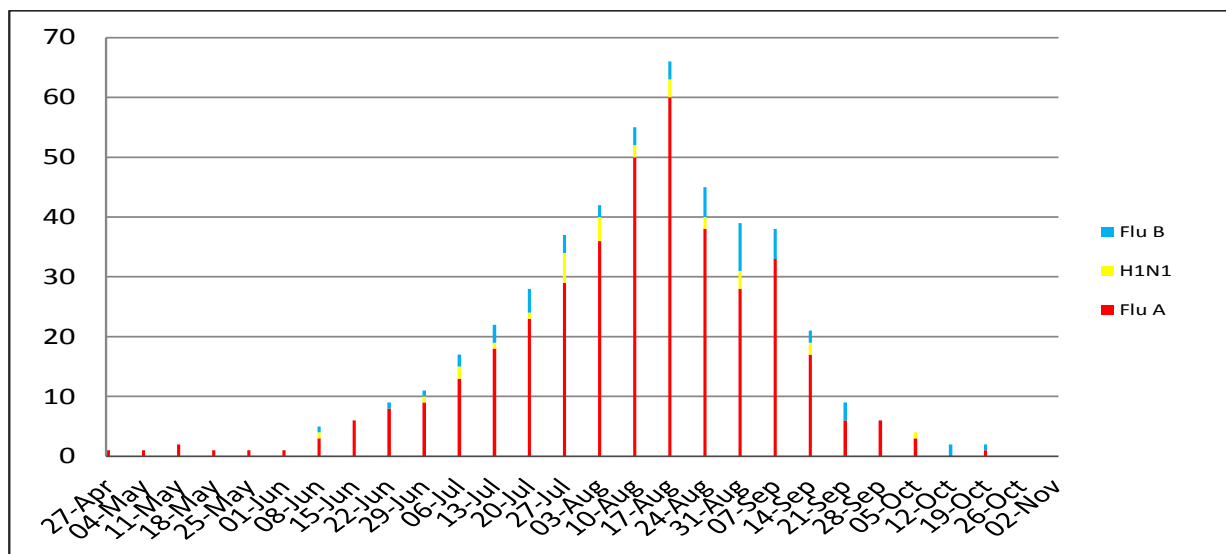
FluCAN (The Influenza Complications Alert Network)

In 2009, the [FluCAN](#) surveillance system was created with the involvement and support of the Thoracic Society of Australia and New Zealand and with funding from the NHMRC to be a rapid alert system for severe respiratory illness. 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.

- During October there were 11 influenza admissions reported in NSW sentinel hospitals (Figure 7).
- Since 7 April 2014, there have been 476 hospital admissions reported for influenza: 422 with influenza A and 54 with influenza B (Figure 7).
- Of these admissions, 152 were paediatric (<16 years of age) cases and 324 were in adults. Forty-nine of the cases were admitted to an ICU/HDU.

Figure 6: FluCAN – Number of confirmed influenza hospital admissions in NSW, April – October 2014.



4. National and International Influenza Surveillance

Australian Influenza Activity Update (week ending 10 October 2014)

The Australian Department of Health has reported the following:

Nationally, influenza activity continued to decrease this fortnight with no regions reporting widespread activity.

- There have been 62,918 cases of laboratory confirmed influenza reported, which is almost three times the notifications received for the same period in 2013.
- Over the 2013-14 inter-seasonal period, higher than usual numbers of influenza notifications were reported from most jurisdictions. Rates of inter-seasonal influenza have been generally increasing since the 2009 influenza pandemic. Notification data trends for 2014, show a sharp increase in mid-July, a peak in mid-August followed by a rapid decline to inter-seasonal levels in early October. Overall influenza activity remained elevated for approximately 12 weeks. Nationally, the timing of the season peak was similar to 2013 and 2011.
- Across jurisdictions, influenza activity peaked in mid to late August and was followed by rapid declines. However in South Australia (SA) and Victoria (VIC), there was sustained peak activity for up to five weeks. While the majority of notifications this year were from New South Wales (NSW) (31%) and Queensland (QLD) (27%), two of the most populous jurisdictions, notification rates were highest in SA.
- Nationally influenza A was the predominant influenza virus type however the distribution of influenza types and subtypes was variable between jurisdictions and has changed as the season progressed. Influenza A(H1N1)pdm09 predominated across most jurisdictions throughout the season, however influenza A(H3N2) was predominant in New South Wales and the Australian Capital Territory, with late season increases noted in QLD, Western Australia (WA), the Northern Territory (NT) and Tasmania (TAS). In recent weeks, the typical, late season increase in influenza B infections has also been noted.
- Notification rates have had a bimodal age distribution trend, with rates highest in those aged less than 5 years and in those aged 80 years and over, with a smaller peak among those aged 30-44 years. This age distribution trend, especially in the younger to middle aged populations is

consistent with previous years dominated by influenza A(H1N1)pdm09, whereas infections in older age groups is typical of influenza A(H3N2).

- The rate of influenza associated hospitalisations has declined steadily over the past month. The overall rate of influenza cases admitted directly to ICU was 10% which was less than the rate from 2012 and 2013 (around 12%). The majority of influenza associated hospitalisations in 2014 were due to influenza A infections, with very few associated with influenza B infection. Three quarters of hospitalisations had known medical co-morbidities reported.
- In Australia it has been estimated that there have been over 8,500 adult, influenza-associated hospitalisations since April 2014. The age distribution of hospital admissions shows a peak in the 0-4 year age group, with hospitalisations increasing with increasing age, especially among those aged 65 years and over.

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>

Recommended composition of 2015 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the Southern Hemisphere 2015 was held in Geneva on 22-24 September 2014. Following the Consultation, WHO changed its recommendations for the composition of trivalent vaccines for use in the 2015 influenza season (southern hemisphere winter) as follows:

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

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

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

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/ .

Influenza activity worldwide

The World Health Organization (WHO) influenza update released on 25 October 2014 noted that globally influenza activity was low, with the exception of some Pacific Islands

- In North America, influenza activity began to increase slightly but remained low.
- In Europe overall influenza activity remained at inter-seasonal levels.
- In tropical countries of the Americas, influenza detections decreased with respiratory syncytial virus (RSV) causing most influenza-like illness (ILI) and severe acute respiratory infections (SARI).
- In Africa, eastern and western Asia, influenza activity was low.
- In tropical Asia, influenza activity continued to decrease or remained low with influenza B predominant in India and Viet Nam.
- In the southern hemisphere, influenza activity reached inter-seasonal levels except in several Pacific Islands where ILI activity remained high.

WHO FluNet laboratory reporting during Weeks 41 and 42 (4 to 18 October 2014) noted:

- Of the 31 820 respiratory specimens tested, 1318 (4.2%) were positive for influenza viruses. Of these, 59% were typed as influenza A and 41% as influenza B.
- Of the sub-typed influenza A viruses, 11% were A(H1N1)pdm09 and 89% were A(H3N2).
- Of the characterized B viruses, 100% belonged to the B-Yamagata lineage and 0% to the B-Victoria lineage.

For further information see the full WHO report at: [WHO influenza update No 223](#).

Avian influenza in Humans

Human infection with avian influenza A(H7N9) viruses:

On 25 October 2014, the National Health and Family Planning Commission of China notified the World Health Organization (WHO) of two new laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus. Since this time there have been no further cases.

According to the most recent update on avian influenza A(H7N9) available on the Hong Kong Centre for Health Protection [website](#), a total of 455 human cases of avian influenza A(H7N9) have been confirmed in the mainland. This has been the first report of cases of avian influenza A(H7N9) since July 2014.

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.

Influenza vaccines for the 2014-2015 northern hemisphere influenza season

Travellers to the northern hemisphere should note that the composition of [influenza vaccines recommended by WHO for the 2014-2015 northern hemisphere influenza season](#) is the same as was recommended for influenza vaccines for the 2014 southern hemisphere influenza season.

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.