

# Influenza Monthly Epidemiology Report, NSW

March 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 March:

- The rate of influenza like illness (ILI) presentations to selected emergency departments was low and was within the normal range expected for March.
- 242 cases with laboratory-confirmed influenza A (predominantly H3N2) and 108 cases with influenza B were identified by sentinel NSW 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 emergency departments (ED) presentations for influenza-like illness (ILI) provides important information on the burden that influenza and other similar respiratory infections place 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.

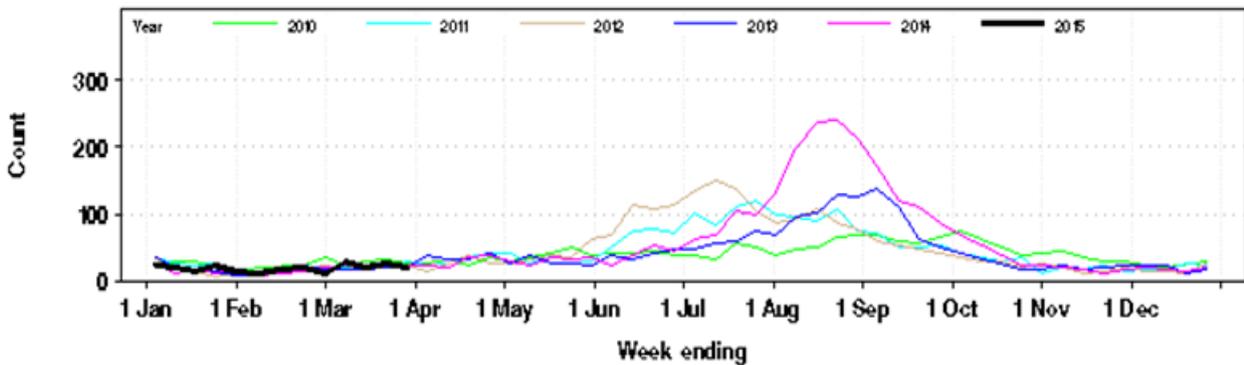
The PHREDSS surveillance system uses a statistic called the 'index of increase' to indicate when presentations are increasing at a statistically significant rate. It accumulates the difference between the previous day's count of presentations and the average for that weekday over the previous 12 months. 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 29 March 2015 the index of increase for ILI presentations was 1.9, up from the previous month but still consistent with the usual low levels of activity at this time of year.
- For the month of March there were 86 ED presentations with influenza-like illness (rate 0.5 per 1,000 presentations) consistent with the historical average for this time of year (Figure 1).
- The numbers of pneumonia presentations were elevated in March (Figure 2), particularly in people aged 17-34 years. Presentations for pneumonia typically increase substantially during

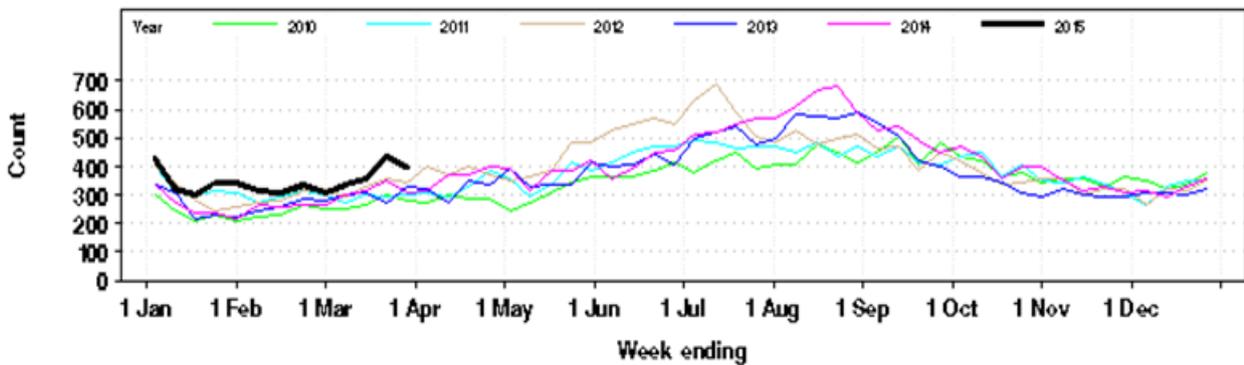
the influenza season, and this may represent primary influenza infections, secondary bacterial infections, or be unrelated to influenza.

- Admissions from EDs to critical care units for ILI and pneumonia were slightly elevated. There was a sharp increase in presentations towards the end of March and this was above the usual range for this time of year (Figure 3).
- Total presentations for bronchiolitis increased and were above the usual range for this time of year. Bronchiolitis presentations to EDs tend to increase around this time each year, and usually reflect increasing circulation of respiratory syncytial virus (RSV) infection in the community (Figure 4).

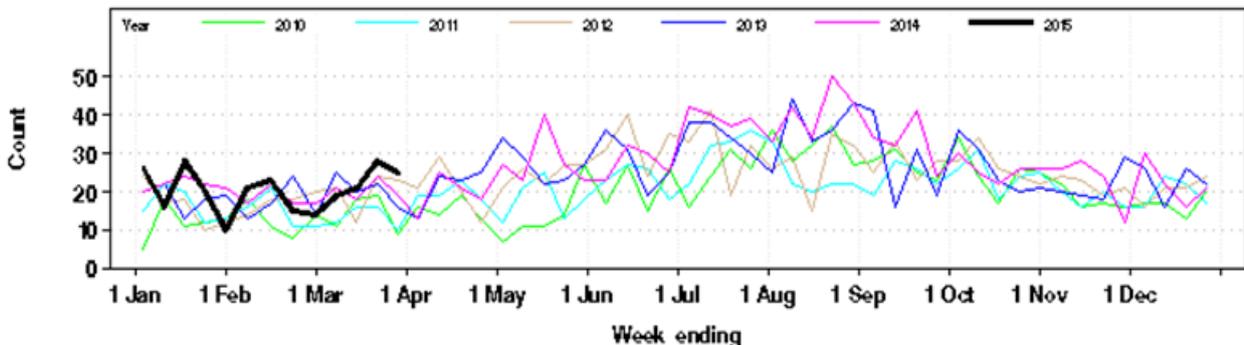
**Figure 1:** Total weekly counts of Emergency Department visits for influenza-like illness, from January – March 2015 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.\*



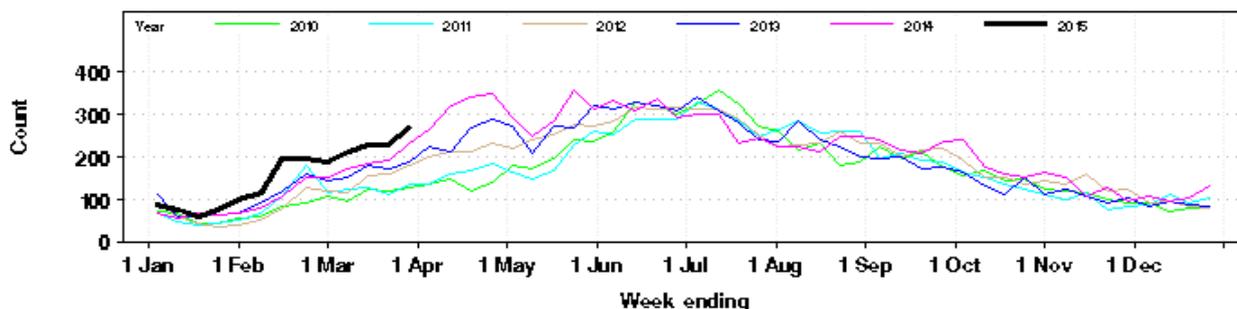
**Figure 2:** Total weekly counts of Emergency Department presentations for pneumonia, from January – March 2015 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals



**Figure 3:** Total weekly counts of Emergency Department presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – March 2015 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals



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



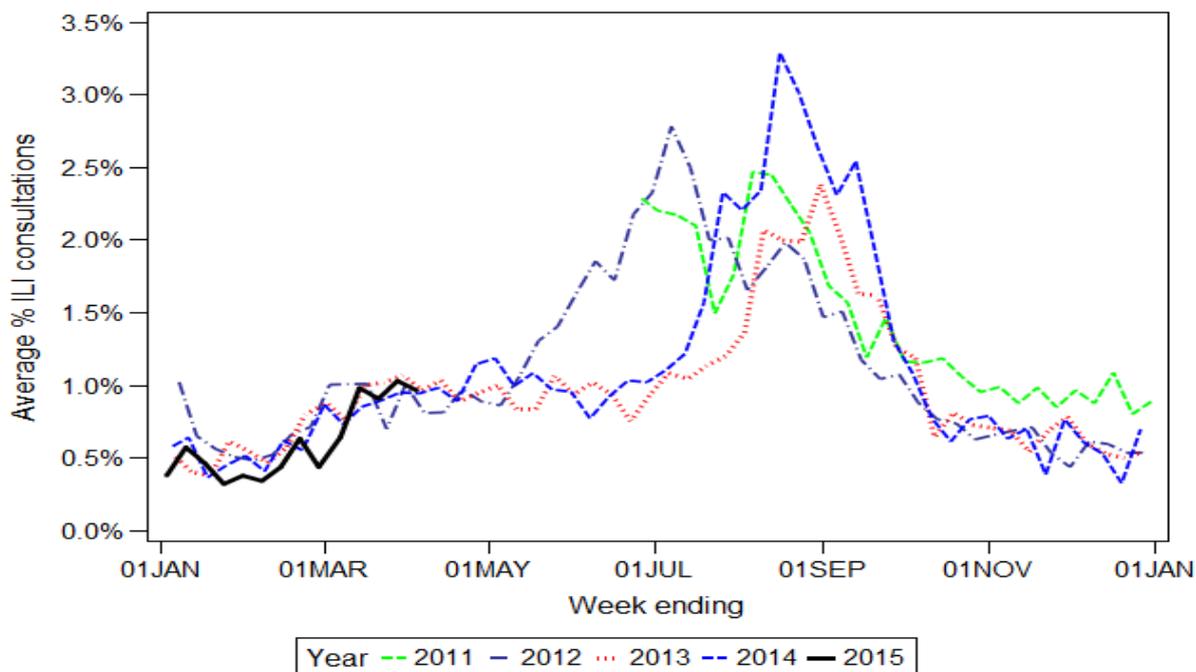
### 3. Community Illness Surveillance

#### 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 March, weekly reports were received on average from 14 sentinel practices.
- The average rate for patient consultations with ILI was 0.9% (range 0.1 – 2.9), consistent with the historical average (Figure 5).

**Figure 5.** 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.

### In March 2015:

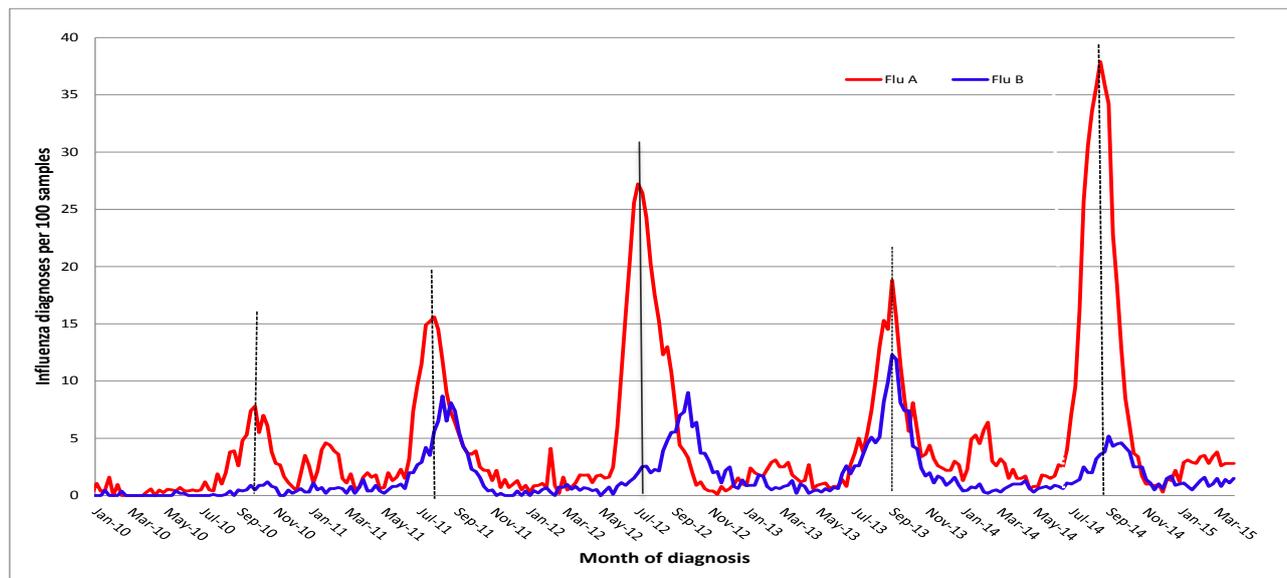
- 8 577 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 242 specimens tested positive for influenza A – 82 of these tested positive for A(H3N2), 21 tested positive for influenza A(pH1N1) and 140 were not typed further (Table 1, Figure 6).
- 108 cases of influenza B were reported (Table 1, Figure 6).

During March, 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) continuing 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 29 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	(%A) **	Total	(%A)	Total	(%A)	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%)	82	(33.9%)	21	(8.7%)	140	(57.9%)	108	(1.3%)	181	117	767	1084	52	34
Week ending																	
08/03/2015	1842	47	(2.6%)	11	(23.4%)	2	(4.3%)	34	(72.3%)	15	(0.8%)	40	28	112	234	9	9
15/03/2015	2083	64	(3.1%)	15	(23.4%)	9	(14.1%)	41	(64.1%)	31	(1.5%)	45	25	190	252	20	7
22/03/2015	2289	65	(2.8%)	28	(43.1%)	6	(9.2%)	31	(47.7%)	26	(1.1%)	46	24	229	277	7	7
29/03/2015	2363	66	(2.8%)	28	(42.4%)	4	(6.1%)	34	(51.5%)	36	(1.5%)	50	40	236	321	16	11

**Figure 6:** Percent of laboratory tests positive for influenza A and influenza B, 1 January 2010 – 29 March 2015, New South Wales. (see Notes below)



**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 March (Table 2). There were two cruise ships that reported outbreaks of influenza A. Influenza outbreaks on cruise ships are reasonably common at this time of year due to high number of people travelling between the northern and southern hemispheres.

Influenza outbreak reports increased dramatically in 2012 and 2014 when the influenza A(H3N2) strain predominated.

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

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015*
No. of outbreaks	25	9	1	2	4	39	12	120	5

\* Year to date.

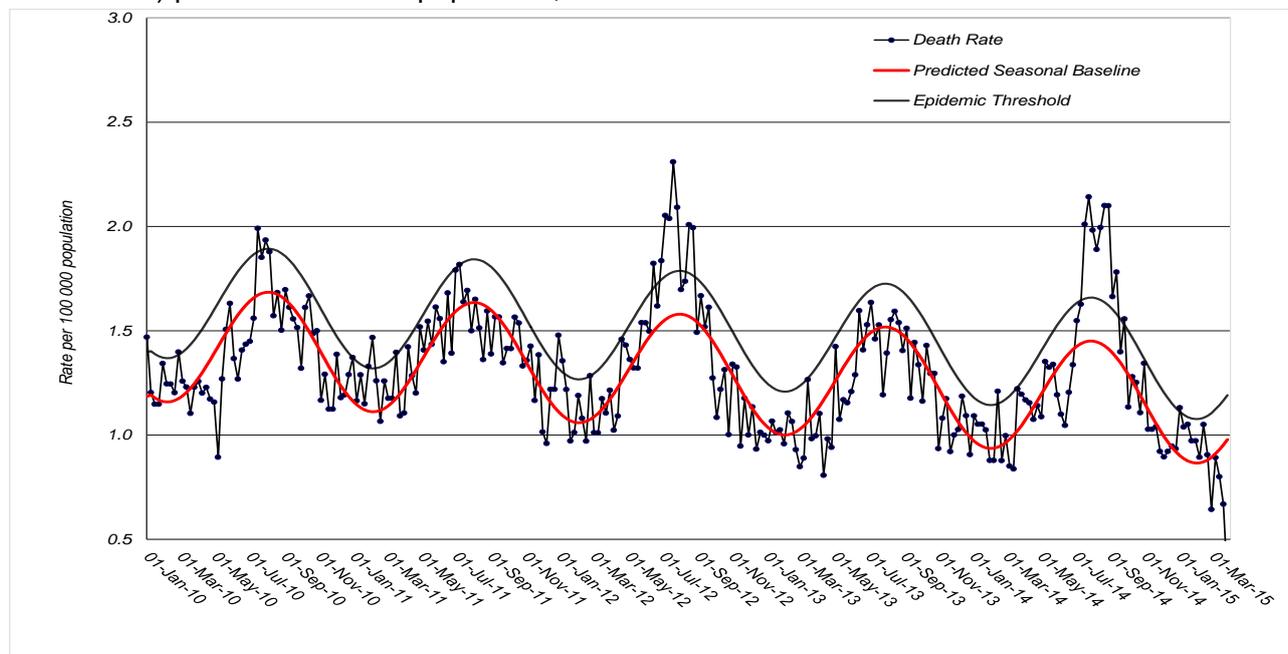
**5. Deaths with pneumonia or influenza reported on the death certificate**

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 27 March:

- There were 0.29 pneumonia or influenza deaths per 100 000 NSW population, which is below the epidemic threshold of 1.19 per 100 000 population (Figure 7).
- Up to 27 March, out of 9203 deaths there have been no death certificates mentioning influenza, and 809 mentioning pneumonia.

**Figure 7:** Rate of deaths classified as influenza and pneumonia (by NSW Registered Death Certificates) per 100 000 NSW population, 2010 - 2015.



**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.

## 6. 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 March were high, 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 on current influenza activity in the [WHO Global Influenza Update](#) of 6 April 2015 (with data up to 22 March) which indicated that:

- In North America, influenza activity continued to decrease but remained slightly above the seasonal threshold while the proportion of influenza B detections increased.
- In Europe, influenza activity continued to decline in most countries. Influenza A(H3N2) virus continued to predominate but there was also an increase in the proportion of influenza B detections in many countries.
- In North Africa and the Middle East, influenza activity decreased in most of the region, with influenza A(H1N1) the dominant strain in the region.
- In western Asia, influenza activity decreased in most countries in the region but influenza detections increased in Turkey with influenza B and influenza A(H1N1) co-circulating.
- In the temperate countries of Asia, influenza activity continued to decrease in most of the region but increased in the Republic of Korea. In north China, influenza B activity increased, while the peak of influenza activity occurred in the beginning of the year.
- In tropical countries of the Americas, influenza activity was reported to have decreased in most countries.
- In tropical Asia, influenza activity remained high and influenza A(H1N1) predominated in India and Bhutan. Influenza activity with influenza A(H3N2) and B continued to decrease from its peak in southern China and China Hong Kong Special Administrative Region.
- In the southern hemisphere, influenza activity remained at inter-seasonal levels.

It also reported influenza laboratory data for the period 8 to 21 March 2015, which noted:

- Of the 87 715 specimens, 17 828 were positive for influenza viruses, of which 9119 (51%) were typed as influenza A and 8707 (49%) as influenza B.
- Of the sub-typed seasonal influenza A viruses, 2558 (49.8%) were influenza A(H1N1) and 2579 (50.2%) were influenza A(H3N2).
- Of the characterized B viruses, 427 (97.7%) belonged to the B-Yamagata lineage and 10 (2.3%) to the B-Victoria lineage.

## Avian influenza Update

WHO has not posted any further updates on avian influenza since its report to [3 March 2015](#) (referred to in last month's report) which included updates on human infections with avian influenza A H5, H7 and H9 strains.

Other sources of more recent 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](#) .

## 7. 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 <sup>a</sup>;
- a B/Phuket/3073/2013-like virus.

<sup>a</sup> 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/](http://www.who.int/influenza/vaccines/virus/recommendations/2015_south/en/)

## **8. 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).