

Influenza Monthly Epidemiology Report, NSW

April 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 April 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 April. The rate of bronchiolitis activity was high, consistent with laboratory reports of increased respiratory syncytial virus (RSV) detections.
- [Laboratory surveillance](#) – laboratory data indicated usual pre-season influenza activity for this time of year. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B were all circulating at low levels. RSV was the most commonly identified respiratory virus.
- [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 March.
- [National and International influenza surveillance](#) – Fewer new cases of infection with the novel avian influenza A(H7N9) strain from China; otherwise decreasing influenza activity worldwide.
- [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 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

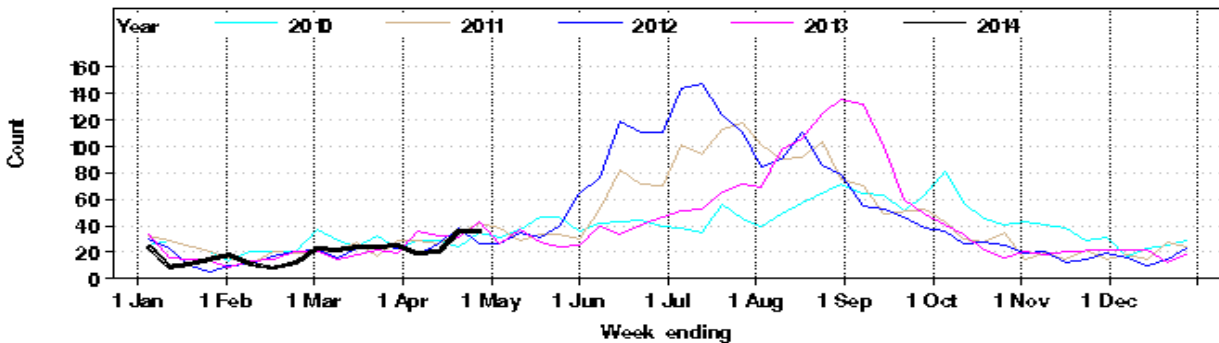
Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts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

- On 27 April 2014 the index of increase for ILI presentations was 8.5, increasing but consistent with the usual low levels of activity at this time of year.
- In April there were few ILI presentations (115; rate 0.7 per 1000 presentations), consistent with the historical average and similar to 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 sharp increase in presentations at the beginning of April (Figure 2).
- Weekly presentations for bronchiolitis continued to increase and were well above the usual range for this time of year. Bronchiolitis presentations in Sydney metropolitan LHDs were at their highest level in at least six years. 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 3).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 27 April 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 – 27 April 2014 (black line), compared with the 5 previous years (coloured lines).

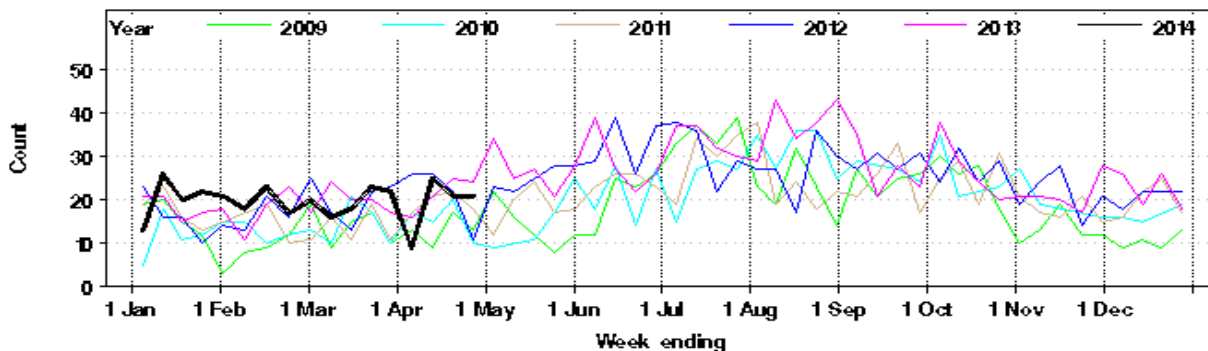
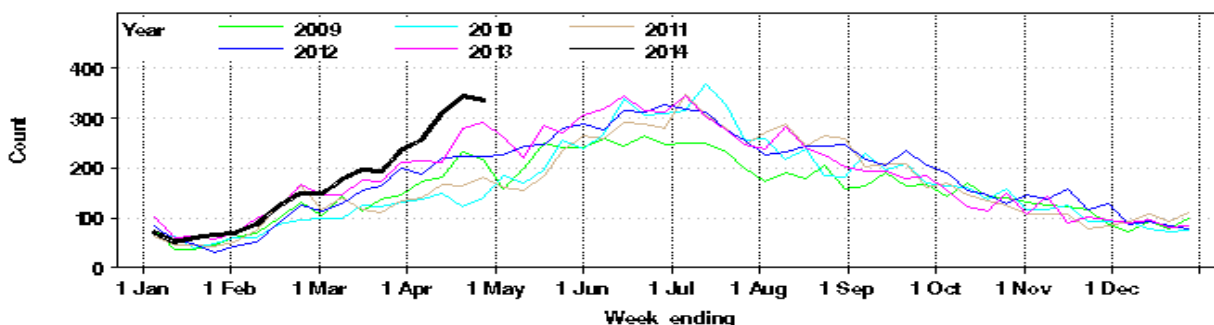


Figure 3: Total weekly counts of ED visits for bronchiolitis, from January – 27 April 2014 (black line), compared with the 5 previous years (coloured lines).



2. Laboratory Surveillance

In April 2014:

- 5360 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 64 specimens tested positive for influenza A – 3 of these tested positive for A(H3N2), and 14 tested positive for influenza A(H1N1)pdm09. The remainder (47) were not typed (Table 1, Figure 4).
- 45 cases of influenza B were reported (Table 1, Figure 4).
- The total number of positive influenza tests in April was fewer than the previous month and has returned to pre-seasonal levels consistent with earlier years.

Influenza A was the dominant influenza strain circulating. Respiratory syncytial virus (RSV) was the leading respiratory virus identified by laboratories this month, as is usual for this time of year, and rhinovirus activity also remained high.

Table 1: Summary of tests and results for influenza and other respiratory viruses at NSW laboratories, 1 January to 27 April 2014.

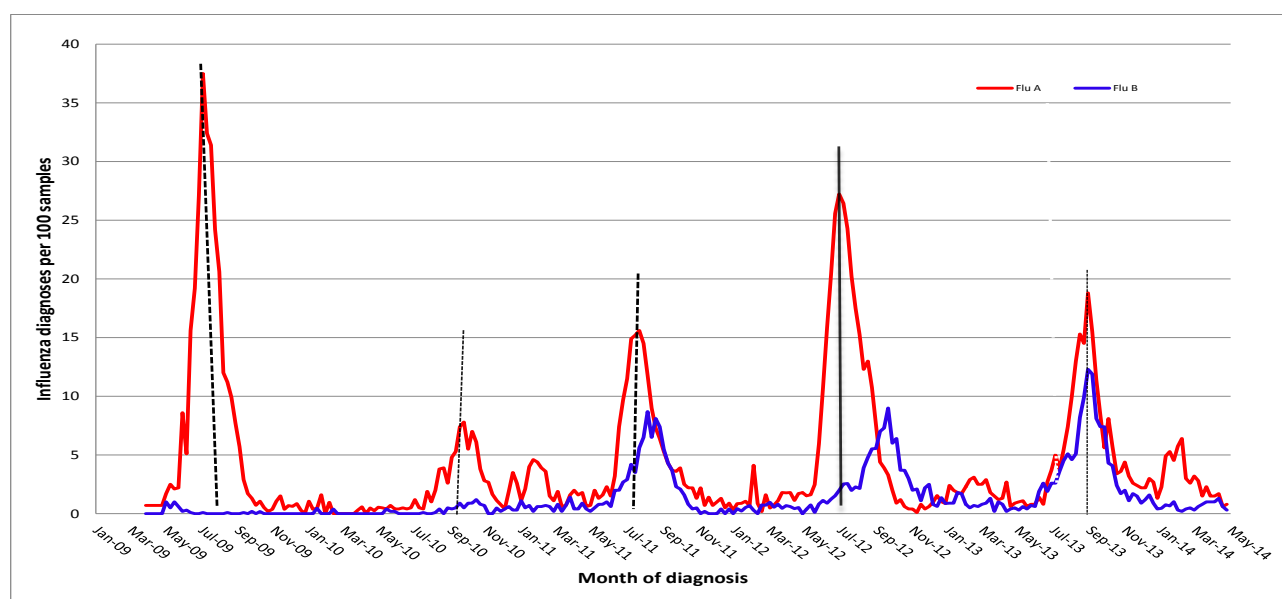
Month ending	Total Tests	TEST RESULTS *													
		Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV
		Total		H3N2 **		H1N1 pdm09		A (Not typed)							
Total	(%)	Total	(%A) **	Total	(%A)	Total	(%A)	Total	(%)						
02/02/2014*	3541	163 (4.6%)	36 (22.1%)	31 (19.0%)	96 (58.9%)	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%)	14 (21.9%)	47 (73.4%)	45 (0.8%)	103	177	753	535	30	50			
Week ending															
06/04/2014	1455	22 (1.5%)	0 (0.0%)	2 (9.1%)	20 (90.9%)	15 (1.0%)	30	46	146	131	8	12			
13/04/2014	1431	25 (1.7%)	2 (8.0%)	4 (16.0%)	19 (76.0%)	18 (1.3%)	29	49	169	141	11	10			
20/04/2014	1319	8 (0.6%)	0 (0.0%)	3 (37.5%)	5 (62.5%)	8 (0.6%)	25	44	221	122	7	12			
27/04/2014	1155	9 (0.8%)	1 (11.1%)	5 (55.6%)	3 (33.3%)	4 (0.3%)	19	38	217	141	4	16			

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 – 27 April 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 residential care facilities and other settings

There were no further influenza outbreaks in institutions reported this month, leaving just the two outbreaks in aged care facilities reported in January (Table 2).

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

- For April, reports were received on average from 17 sentinel practices for two weeks only.
- The average rate for patient consultations with ILI was 1.0% (range 0.1 – 2.9), consistent with the historical average but higher than the previous month.

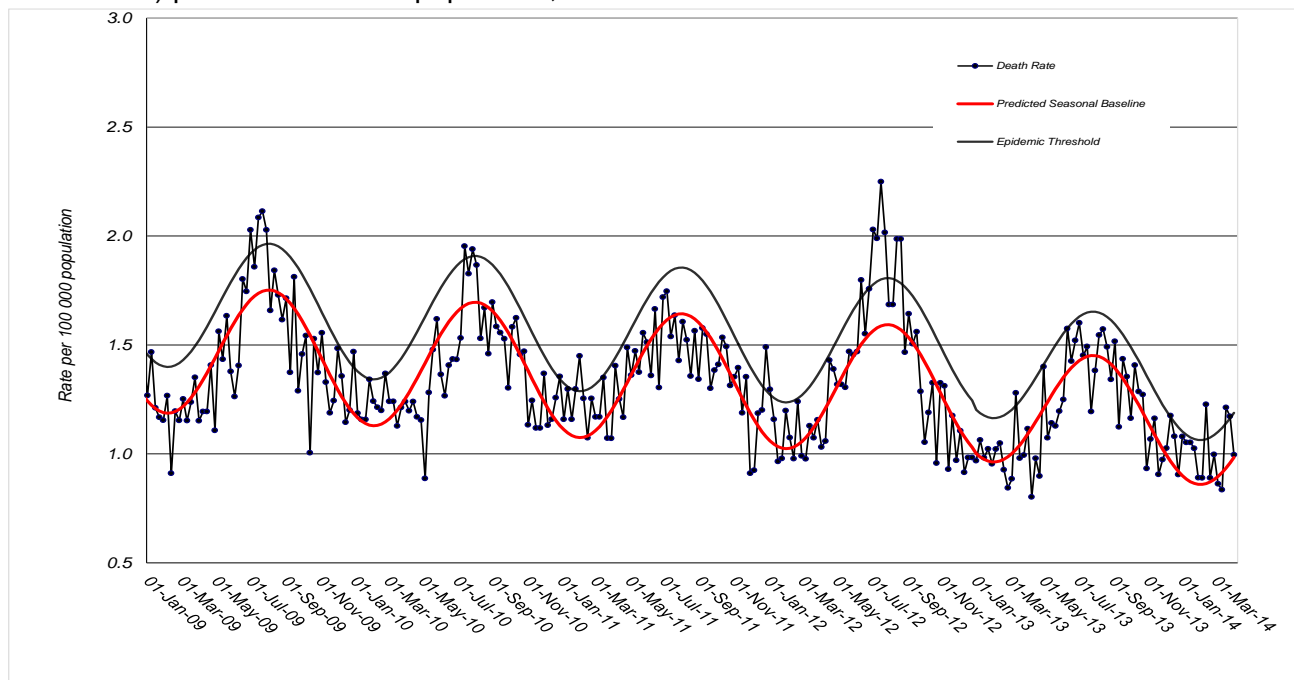
4. Deaths with pneumonia or influenza reported on the death certificate

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 4 April:

- There were 1.0 pneumonia or influenza deaths per 100 000 NSW population, which is below the epidemic threshold of 1.19 per 100 000 population (Figure 6).
- Up to 4 April, out of 12 163 deaths there were four death certificates mentioning influenza, and 1050 mentioning pneumonia. Of the deaths mentioning influenza, all were in elderly people.

Figure 6: Rate of deaths classified as influenza and pneumonia (by NSW Registered Death Certificates) per 100 000 NSW population, 2009 - 2014.



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.

5. National and International Influenza Surveillance

National Influenza Surveillance

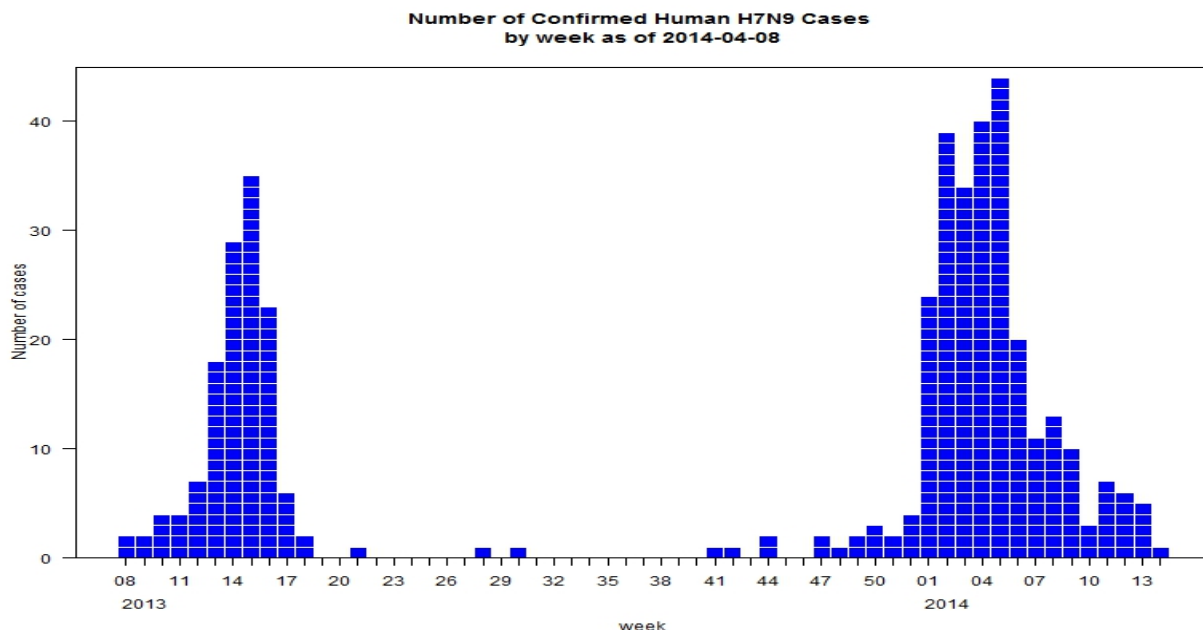
Although national influenza surveillance reports are not produced at this time of year, many jurisdictions are reporting increased influenza activity. Total national reports of laboratory-confirmed influenza in March remained high, and almost double the number reported in March 2013.

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> .

Avian influenza in Humans – World Health Organization (WHO) updates

Human infection with avian influenza A(H7N9) viruses: as of 8 April WHO reported that China had notified 240 cases in 2014. There has been a declining trend in reports in recent weeks (Figure 7).

Figure 7: Number of confirmed human H7N9 cases by week as of 8 April 2014.



Source: WHO

http://www.who.int/influenza/human_animal_interface/influenza_h7n9/15_ReportWebH7N9Number_20140311.pdf

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.

Human infection with avian influenza A(H7N9) viruses: WHO reported that from 2003 through to 24 March 2014 there had been 664 laboratory-confirmed human cases of avian influenza A(H5N1) virus infection reported from 15 countries. Of these cases, 391 have died. Since 25 February 2014,

there have been six new laboratory-confirmed human cases of influenza A(H5N1) virus infection reported to WHO; three cases from Cambodia and two from Egypt.

As this influenza A(H5N1) virus does not currently appear to transmit easily among people the risk of community-level spread of this virus remains low.

Influenza activity worldwide

WHO summaries of global influenza activity for weeks 9 and 10 noted the following:

- In North America, influenza levels continued to decline. Late season circulation of influenza B continued; however, the overall numbers of influenza detections remained low.
- In Europe, influenza activity continued to decrease, as the region appeared to be coming to an end of the influenza season. A rise in the percentage of influenza specimens testing positive was observed, but the overall number of specimens declined. Influenza A(H3N2) and A(H1N1)pdm09 co-circulated, with low numbers of influenza B virus detected. In eastern Europe, influenza activity was higher later in the season compared to the north and the south-west, but detections have begun to decline as well.
- In eastern Asia, influenza activity approached inter-seasonal levels, and influenza B comprised the majority of influenza detections.
- In tropical parts of Asia, influenza activity continued to decline.
- In northern Africa and western Asia, influenza activity remained low in most countries, with influenza B the predominant virus detected.
- In the Southern Hemisphere, influenza activity remained low and detections were sporadic.

WHO FluNet laboratory reporting during weeks 13 and 14 (23 March to 5 April 2014) noted:

- Of the 44 319 respiratory specimens tested, 6717 (15.2%) were positive for influenza viruses. Of these, 62% were typed as influenza A and 38% as influenza B.
- Of the sub-typed influenza A viruses, 47% were influenza A(H1N1)pdm09 and 53% were influenza A(H3N2).
- Of the characterized B viruses, 83% belonged to the B-Yamagata lineage and 17% to the B-Victoria lineage.

For further information see the full WHO report at: [WHO influenza update No209](#).

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.

6. 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

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/> .

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

WHO has recommended that trivalent vaccines for use in the [2014-2015 influenza season](#) (northern hemisphere winter) should contain the same influenza strains as for the 2014 southern hemisphere influenza vaccines (as above).