

Influenza Monthly Epidemiology Report, NSW

November 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 November 2013:

- [Emergency Department surveillance](#) - the rate of influenza-like illness (ILI) presentations to selected emergency departments was low and within the normal range expected for November.
- [Laboratory surveillance](#) – laboratory data indicated a decline in influenza activity. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B were all circulating at low 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 November.
- [National and International influenza surveillance](#) – One new human case 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 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

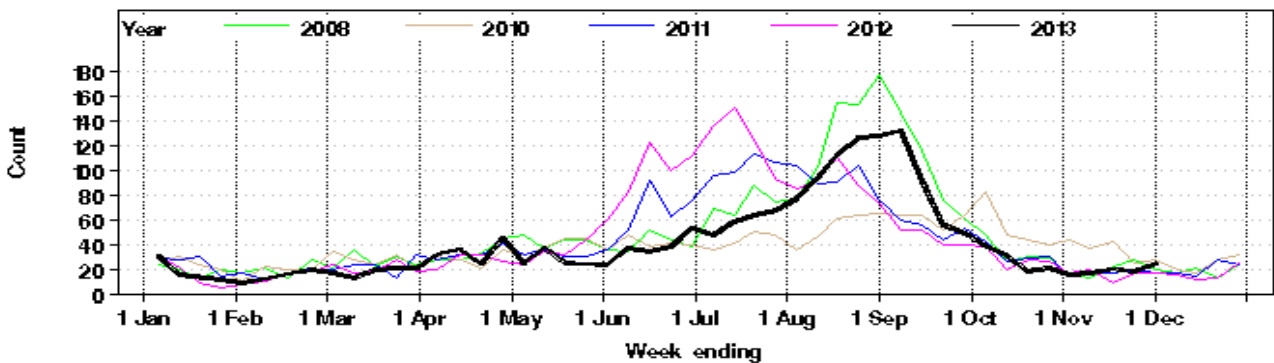
Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts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

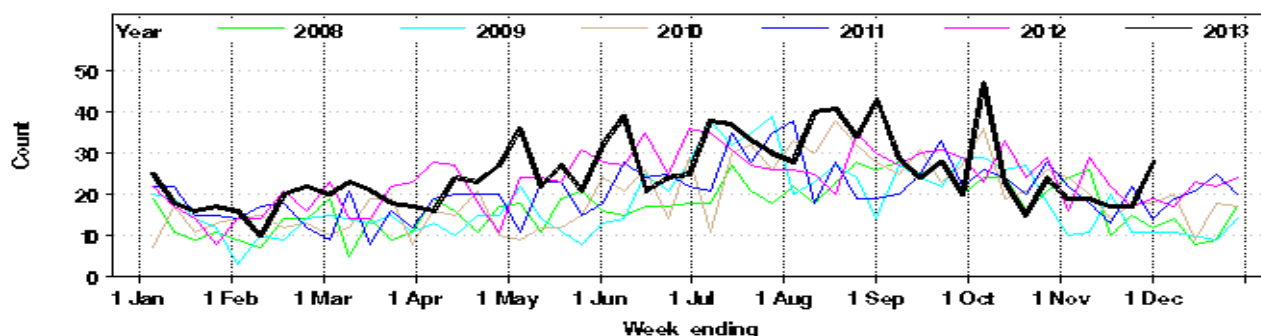
- On 1 December 2013, the index of increase for ILI presentations was 3.1. Monitoring of the index of increase suggests that this year’s influenza season started around 26 June, peaked on 20 August and ended around 17 September.
- In November 2013 there were 124 presentations with influenza-like illness (rate 0.5 per 1,000 presentations). The rate of influenza-like illness presentations to EDs in April was lower than the previous month (October – 124 presentations, rate 0.6 per 1,000 presentations), and compares to the count of 67 (rate 0.4 per 1,000 presentations) for the month of November in 2012. The total count for ILI presentations was within the historical average for November (Figure 1).
- Admissions from ED to critical care units for influenza-like illness and pneumonia were steady up to the last week of November, when there was a sharp increase in presentations which was above the usual range for this time of year. The majority of these were from the Hunter region and upon investigation there was no source identified (Figure 2).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 1 December 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: Includes 2009 data.

2. Laboratory Surveillance

In November 2013:

- 4,017 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 105 specimens tested positive for influenza A – 37 of these tested positive for A(H3N2), and 14 tested positive for influenza A(H1N1)pdm09. The remainder (110) were not typed (Table 1, Figure 3).
- 52 cases of influenza B were reported (Table 1, Figure 3).
- the total number of positive influenza tests in November was lower than the previous month but slightly higher than that for the same month in 2012.

Laboratory testing indicates that influenza has continued to decrease over the month of November. Influenza A(H1N1)pdm09, influenza A(H3N2), and influenza B are all circulating. 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 1 December 2013.

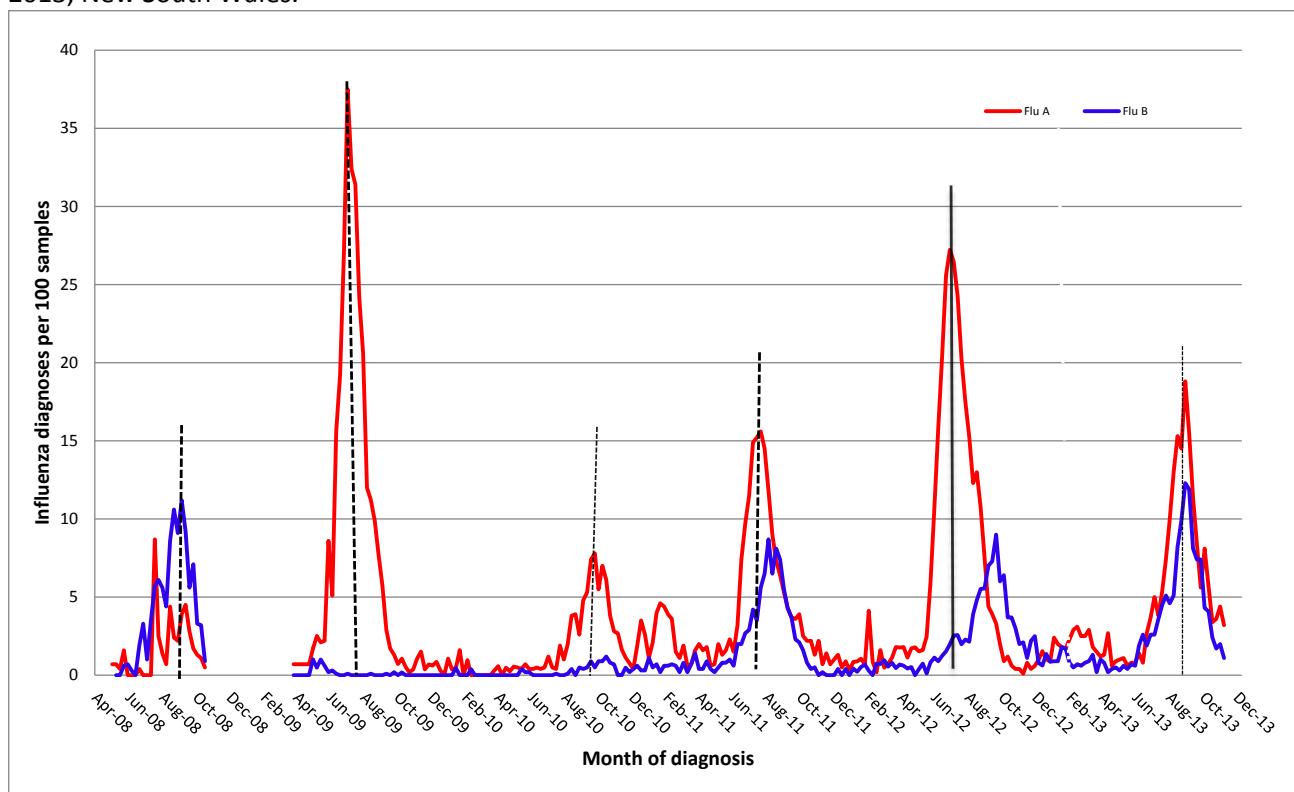
Month ending	Total Tests	TEST RESULTS *													
		Influenza A						Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV
		Total		H3N2 **		H1N1 pdm09		A (Not typed)							
		Total	(%)	Total	(%A) **	Total	(%A)	Total	(%A)	Total	(%)				
01/02/2013*	2199	44 (2.0%)	13 (29.5%)	14 (31.8%)	17 (38.6%)	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			
01/12/2013	4017	105 (2.6%)	37 (35.2%)	14 (13.3%)	54 (51.4%)	52 (1.3%)	137	148	71	509	12	39			
Week ending															
08/11/2013	1050	34 (3.2%)	11 (32.4%)	3 (8.8%)	20 (58.8%)	12 (1.1%)	40	40	20	133	3	17			
15/11/2013	1065	28 (2.6%)	12 (42.9%)	5 (17.9%)	11 (39.3%)	18 (1.7%)	30	43	20	131	4	9			
22/11/2013	892	21 (2.4%)	7 (33.3%)	3 (14.3%)	11 (52.4%)	13 (1.5%)	24	30	13	114	0	3			
29/11/2013	1010	22 (2.2%)	7 (31.8%)	3 (13.6%)	12 (54.5%)	9 (0.9%)	43	35	18	131	5	10			

* Five week reporting period

- 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 – 1 December 2013, 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

One new laboratory confirmed influenza A outbreak was reported in a correctional facility in rural NSW this month. In the year to date (up to week 48), there have been twelve laboratory-confirmed influenza outbreaks in institutions reported to NSW Public Health Units (Table 2): eight influenza A, two influenza B and one mixed influenza A and B outbreak. At least 143 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	12

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

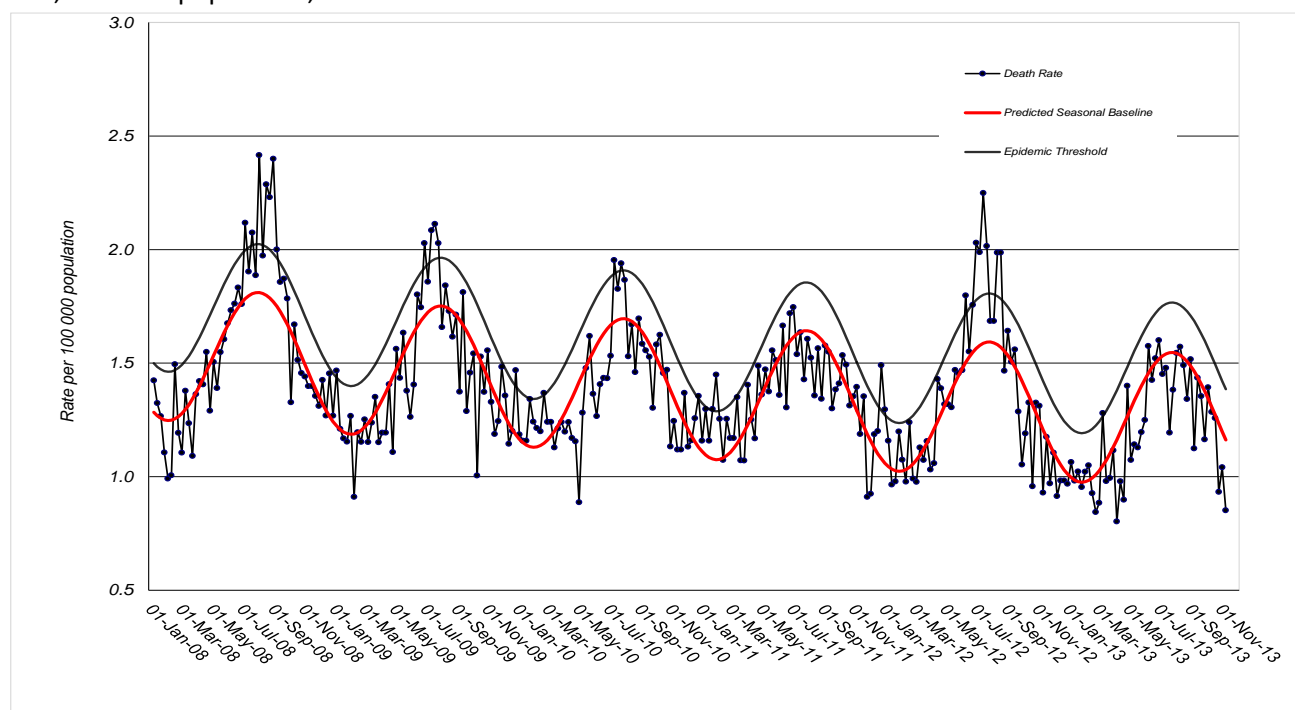
Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death. 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 15 November:

- There were 0.85 pneumonia or influenza deaths per 100,000 NSW population, which is below the epidemic threshold of 1.39 per 100,000 population (Figure 4).
- Up to 15 November, out of 43,752 deaths there were 35 death certificates mentioning influenza, and 4,023 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 widespread 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 and 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

China has now reported 140 H7N9 cases, 45 of them fatal. Most of the cases were reported earlier this year. After a summer lull the country has reported six cases since the end of August [2013]. Only three other cases have been reported outside the mainland, one in a Taiwan in a man who had visited the outbreak area for work and two in Hong Kong, both visitors.

Influenza activity worldwide

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

- Overall influenza activity in North America increased slightly over the past three weeks, but remained at low levels throughout the region.
- Countries from the WHO European Region continued to report low levels of influenza activity with only a few countries reporting sporadic influenza detections among samples from sentinel and non-sentinel sources.
- In northern Asia, influenza activity slightly increased in the north of China and Mongolia.
- Influenza transmission in southern Asia was low. In Hong Kong Special Administrative Region, China, and in the south of China influenza detections decreased. In South East Asia, influenza activity decreased in Viet Nam, but increased in Cambodia, Lao People's Democratic Republic and Thailand. In this area, co-circulation of influenza A(H1N1)pdm09, influenza A(H3N2) and influenza B virus was reported.

- In the Caribbean region of Central America and tropical South America, influenza A detections remained at low levels. Respiratory syncytial virus (RSV) continued to predominate in certain countries, but the RSV activity largely remained within expected seasonal levels.
- The influenza season in the southern hemisphere is largely over [WHO influenza update No199](#).

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

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.