

Influenza Monthly Epidemiology Report, NSW

February 2017

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

- Influenza activity decreased during February but still remained higher than usually seen at this time of year. Influenza A(H3N2) remained the most common strain identified.
- The rate of influenza like illness (ILI) presentations to selected emergency departments was low and consistent with inter-seasonal activity.
- The proportion of deaths attributed to pneumonia and influenza remained low.
- The current increased local influenza activity corresponds to high seasonal influenza activity reported in the Northern Hemisphere where the influenza A(H3N2) strain is also predominant.

2. Hospital Surveillance

NSW emergency department (ED) surveillance for influenza-like illness (ILI) and other respiratory illnesses is conducted through PHREDSS [1].

The PHREDSS surveillance system uses a statistic called the 'index of increase' to indicate when ILI presentations [2] 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 indicator for the start of the influenza season in NSW as it suggests influenza is circulating widely in the community.

In February 2017:

- The index of increase for ILI presentations was 1.7 at the end February, well below the seasonal threshold.
- ED presentations for ILI were within the historical range for this time of year (Figure 1).
- ED presentations for pneumonia [3] were also within the historical range (Figure 2).
- Pneumonia or ILI presentations which resulted in admissions to critical care units for ILI and pneumonia were within the usual range for this time of year (data not shown).
- Bronchiolitis presentations were within the usual range for this time of year, although increasing (Figure 3).

[1] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system. Centre for Epidemiology and Evidence, NSW Ministry of Health. Comparisons are made with data for the preceding five years. Recent counts are subject to change. As of 31 March 2016, data from 60 NSW emergency departments (EDs), representing approximately 82% of ED visits in the 2015-16 financial year. The coverage of rural EDs is lower than the metropolitan EDs. Data shown represents unplanned presentations to hospital EDs.

[2] The ED 'ILI' syndrome includes provisional diagnosis selected by a clinician of 'influenza-like-illness' or 'influenza' (including 'pneumonia with influenza'), avian and other new influenza viruses.

[3] The ED 'Pneumonia' syndrome includes provisional diagnoses selected by a clinician of 'viral, bacterial atypical or unspecified pneumonia', 'SARS', or 'legionnaire's disease'. It excludes the diagnosis 'pneumonia with influenza'.

- The category combining all respiratory, fever and unspecified infection presentations was within the usual range for this time of year overall. However, during the last week of February presentations were elevated in adults aged 65 years and over and at Kempsey Hospital (data not shown).

Figure 1: Total weekly counts of ED visits for influenza-like illness, February 2017 (black line), compared with each of the 5 previous years (coloured lines), for 60 NSW hospitals.*

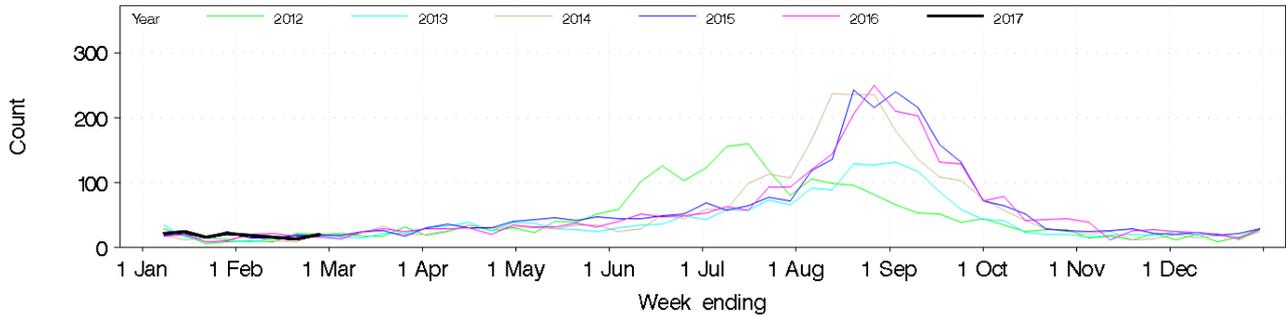


Figure 2: Total weekly counts of ED presentations for pneumonia, February 2017 (black line), compared with each of the 5 previous years (coloured lines), for 60 NSW hospitals.

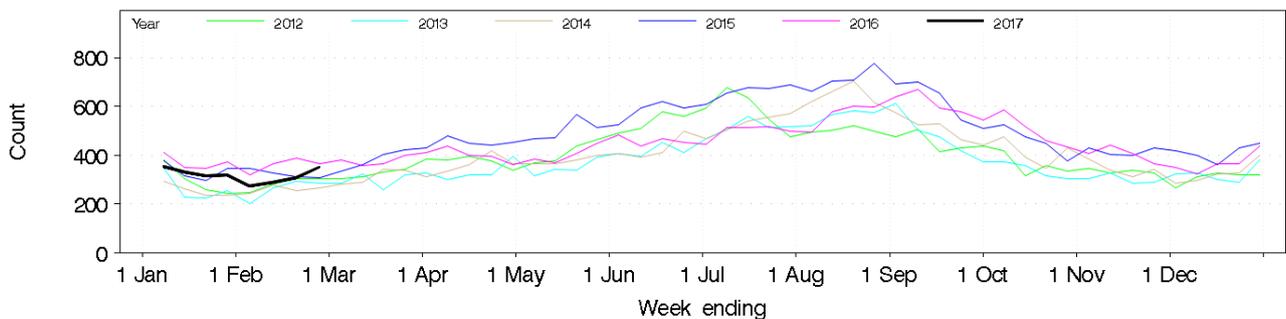
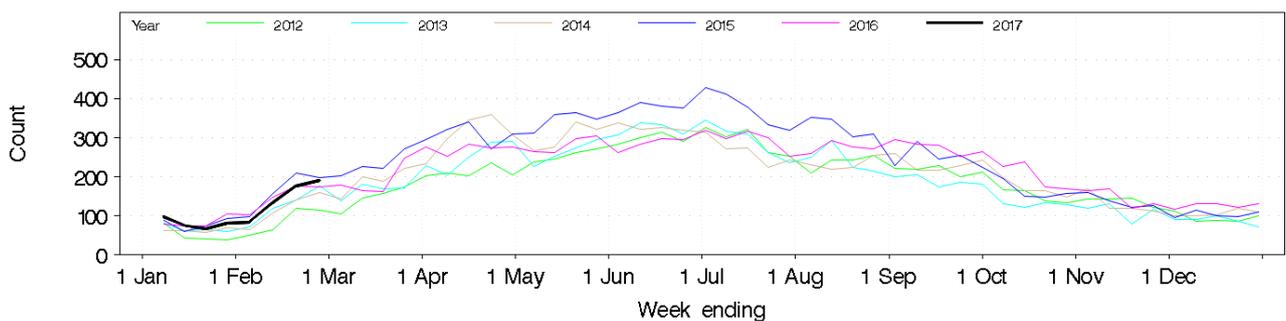


Figure 3: Total weekly counts of Emergency Department visits for bronchiolitis, February 2017 (black line), compared with the 5 previous years (coloured lines).



3. Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year [4].

[4]: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Point-of-care test results have been included since August 2012 but serological diagnoses are not included. Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. **Participating sentinel laboratories:** Pathology North (Hunter, Royal North Shore Hospital), Pathology West (Nepean, Westmead), South Eastern Area Laboratory Services, Sydney South West Pathology Service (Liverpool, Royal Prince Alfred Hospital), The Children's Hospital at Westmead, Australian Clinical Labs, Douglas Hanly Moir Pathology, Laverty Pathology, Medlab, SydPath, VDRLab to June 2016

In February 2017:

- A total of 12,273 tests for respiratory viruses were performed at sentinel NSW laboratories and 647 (5.3%) were positive for influenza (Table 1).
- 564 specimens tested positive for influenza A – 78 of these tested positive for A(H3N2), 7 tested positive for influenza A(H1N1) and 479 were not typed further (Table 1, Figure 4 & 5).
- 83 cases of influenza B were reported (Table 1, Figure 4 & 5).

Influenza activity has decreased compared to January but it remains high for this time of year. While the number of tests requested each month continues to be higher than usual, the overall influenza test positivity rate (5.3%) still far exceeds previous rates for this time of year.

Respiratory syncytial virus (RSV) activity has started to increase with twice as many positive tests as the previous month. This fits with the historical pattern of increasing RSV activity during the autumn months and is consistent with the rise in emergency department presentations for bronchiolitis noted in the PHREDSS data.

Rhinoviruses were the leading respiratory viruses identified by laboratories.

Table 1: Summary of testing for influenza and other respiratory viruses at sentinel NSW laboratories, 2 January to 26 February 2017.

Month ending	Total Tests	TEST RESULTS											
		Influenza A				Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Entero
		Total	H3N2	H1N1 pdm09	A (Not typed)	Total	Total						
Total (%)	Total (%A)	Total (%A)	Total (%A)	Total (%)	Total (%)								
29/01/2017	9981	489 (4.9%)	53 (10.8%)	4 (0.8%)	432 (88.3%)	92 (0.9%)	374	433	323	1462	236	131	
26/02/2017	12273	564 (4.6%)	78 (13.8%)	7 (1.2%)	479 (84.9%)	83 (0.7%)	430	458	719	2772	170	248	
Week ending													
05/02/2017	2732	173 (6.3%)	24 (13.9%)	1 (0.6%)	148 (85.5%)	24 (0.9%)	101	108	124	432	39	23	
12/02/2017	2699	113 (4.2%)	13 (11.5%)	1 (0.9%)	99 (87.6%)	21 (0.8%)	87	95	123	563	35	65	
19/02/2017	3159	139 (4.4%)	17 (12.2%)	4 (2.9%)	118 (84.9%)	19 (0.6%)	122	106	224	780	46	71	
26/02/2017	3683	139 (3.8%)	24 (17.3%)	1 (0.7%)	114 (82.0%)	19 (0.5%)	120	149	248	997	50	89	

Notes: ** HMPV - Human metapneumovirus.

All samples are tested for influenza viruses but not all samples are tested for all of the other viruses listed.

Figure 4: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 2 January to 26 February 2017.

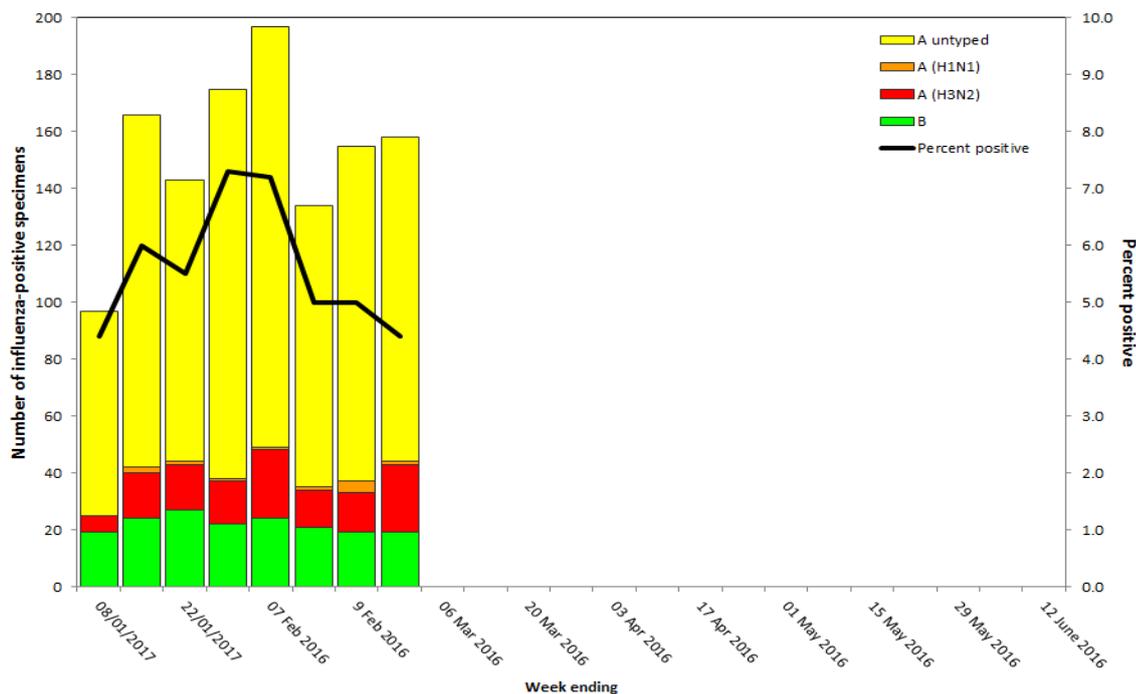
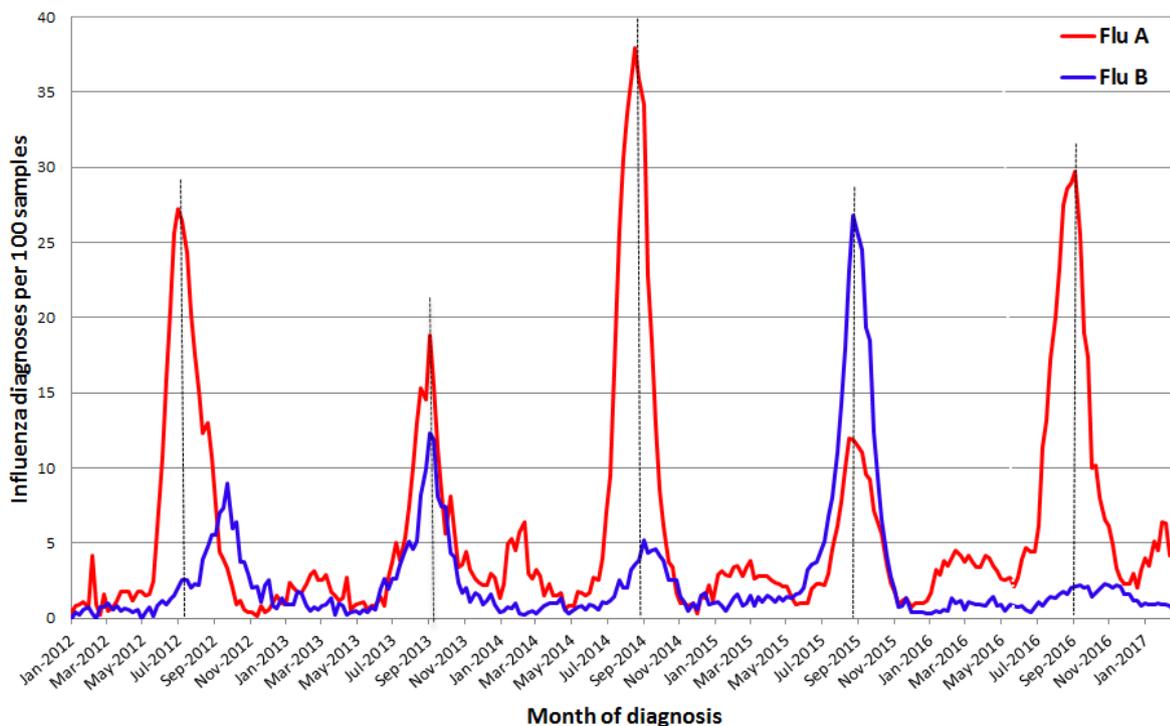


Figure 5: Percent of laboratory tests positive for influenza A and influenza B reported by NSW sentinel laboratories, 2 January 2012 to 26 February 2017.



4. Community Surveillance

Influenza notifications by Local Health District (LHD)

During February there were 589 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 447 influenza notifications reported for February 2016.

Rates were low and similar across all LHDs with the exception of Northern Sydney who reported the highest notification rate well above other LHDs (Table 2).

Table 2: Weekly notifications of laboratory-confirmed influenza by Local Health District.

Local Health District	Week ending 26 Feb 2017		Average (previous 4 weeks)	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	4	1.16	3	0.87
Far West	0	0	1	3.27
Hunter New England	7	0.75	14	1.48
Illawarra Shoalhaven	11	2.69	12	2.88
Mid North Coast	1	0.45	3	1.35
Murrumbidgee	2	0.83	2	0.69
Nepean Blue Mountains	6	1.56	5	1.36
Northern NSW	5	1.63	5	1.55
Northern Sydney	31	3.39	32	3.47
South Eastern Sydney	25	2.69	36	3.88
South Western Sydney	18	1.82	17	1.67
Southern NSW	1	0.47	2	1.09
Sydney	8	1.22	12	1.79
Western NSW	1	0.36	2	0.72
Western Sydney	14	1.44	15	1.57

Note: * All data are preliminary and may change as more notifications are received. Excludes notifications based on serology.

Influenza outbreaks in institutions

There were five respiratory outbreaks reported this month in residential care facilities. Three were caused by influenza strains (influenza A not further typed), bringing the cumulative total for this year to four (Table 3). The other two outbreaks were found to be caused by other respiratory pathogens.

People in older age-groups are at higher risk of infection from influenza A(H3N2) strains than from the influenza A(H1N1) strain. The influenza A(H3N2) strain predominated in 2012, 2014 and 2016 and was associated with an increase in influenza outbreaks in institutions, particularly residential aged care facilities (Table 3).

Table 3: Reported influenza outbreaks in NSW institutions, January 2010 to February 2017.

Year	2010	2011	2012	2013	2014	2015	2016	2017*
No. of outbreaks	2	4	39	12	120	103	279	4

Notes: * 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

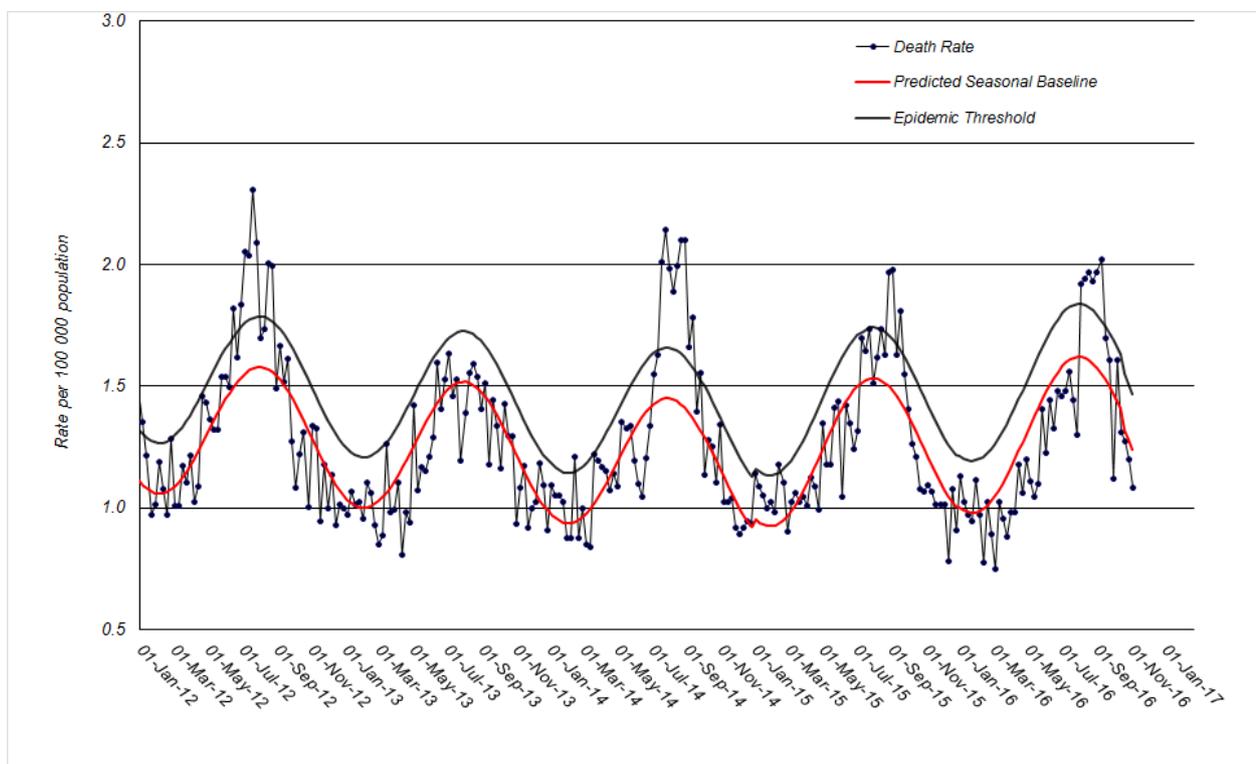
activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death.

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 10 February 2017:

- In 2017 two of 5,135 death certificates mentioned influenza
- A total of 420 of 5,135 death certificates mentioned pneumonia.
- There were 0.79 influenza and pneumonia deaths per 100 000 NSW population, which was below the epidemic threshold of 1.17 per 100 000 population (Figure 7).

Figure 7: Rate of deaths classified as influenza and pneumonia per 100 000 NSW population, 2012 - 2017.



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 January were high compared to 2016 and to 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 latest [WHO global update on 20 February 2017](#) provides data up to 5 February. WHO reports that influenza activity in the temperate zone of the northern hemisphere continued to increase, with many countries especially in East Asia and Europe having passed their seasonal threshold early in comparison with previous years. Worldwide, influenza A(H3N2) virus was predominant.

Follow the link for the [WHO influenza surveillance reports](#).

Avian Influenza Update:

Human infections with avian influenza viruses

WHO has published its monthly updated risk assessment of human infections with avian influenza viruses [Influenza at the human-animal interface](#) as of 16 January 2017. This report provides updated information on human cases of infection with H5 and H7 clade viruses and outbreaks among animals.

The overall risk assessment for these viruses remains unchanged. Whenever avian influenza viruses are circulating in poultry, sporadic infections and small clusters of human cases are possible in people exposed to infected poultry or contaminated environments, therefore sporadic human cases would not be unexpected.

For H7N9, WHO has noted current evidence suggests that this virus has not acquired the ability of sustained transmission among humans but it is possible that limited human-to-human transmission may have occurred where there was unprotected close contact with symptomatic human cases.

Other sources of information on avian influenza and the risk of human infection include:

- US CDC [Avian influenza](#)
- European CDC (ECDC) [Avian influenza](#)
- Public Health Agency of Canada [Avian influenza H7N9](#).

7. Composition of 2017 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the 2017 Southern Hemisphere was held in Geneva on 26-28 September 2016.

Following the Consultation, WHO announced its recommendations for the composition of trivalent vaccine for use in the 2017 Southern Hemisphere influenza season as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Hong Kong/4801/2014 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus (Victoria lineage)

WHO also recommended that quadrivalent vaccines containing two influenza B viruses and should contain the above three viruses and a B/Phuket/3073/2013-like virus.

Of note, there has been replacement of the A/California/7/2009 (H1N1)pdm09-like virus component with an A/Michigan/45/2015 (H1N1)pdm09-like virus in the vaccine recommendations, the first time the recommended A(H1N1) strain has changed since 2010.

More details about the most recent influenza vaccine recommendations can be found at:

http://www.who.int/influenza/vaccines/virus/recommendations/2017_south/en/.

The WHO consultation on the composition of influenza vaccines for the Northern Hemisphere 2017-18 influenza season was held in February 2017. The recommended composition was unchanged from the composition recommended for the 2017 Southern Hemisphere vaccines. Information about the Northern Hemisphere vaccine recommendations can be found at: [WHO | Recommended composition of influenza virus vaccines for use in the 2017-2018 northern hemisphere influenza season](#).