

# Influenza Monthly Surveillance Report, NSW

## December 2016 (including a summary for the year 2016)

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 December 2016:

- 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 was low and below the epidemic threshold.
- Of the 11,009 respiratory specimens tested, 440 (4.0%) were positive for influenza. While this is still consistent with inter-seasonal activity, it is higher than previous years. Influenza A viruses predominated over B strains.

### From 1 January to 31 December 2016:

- ILI presentations to selected emergency departments were high during a 12 week period from late June to late September, with a peak in late August. Activity was elevated above the expected historical range but similar to the high levels seen in 2014 and 2015.
- There were a total of 35,409 influenza notifications, with the peak of notifications in the week ending 4 September, and with population rates generally highest in metropolitan Sydney.
- At the peak of influenza activity (week ending 4 September), sentinel laboratory surveillance reported 4,180 positive influenza tests and an influenza test positivity rate of 31.7 per cent.
- Of the 32,391 cases of laboratory-confirmed influenza A reported through sentinel surveillance, 4,195 (13%) were the H3N2 strain and 3,398 (10%) were the H1N1 strain. The remaining cases were not further typed.
- There were 3,797 cases of influenza B reported in NSW; both influenza B/Phuket (Yamagata lineage) and B/Brisbane (Victoria lineage) circulated at low levels throughout the season.
- Influenza A(H1N1) strains predominated during the early part of the year and up to July; influenza A(H3N2) became the predominant strain thereafter.
- At least 191 patients with influenza were admitted to intensive care or coronary care units.
- There were 15 cases of influenza with severe complications in children less than 15 years of age in NSW reported to the Australian Paediatric Surveillance Unit (APSU).
- Surveillance of death certificates noted 215 deaths reported in association with influenza in 2016. Overall, the rates for deaths associated with influenza and pneumonia trended slightly higher in 2016 than in 2015.
- There were 279 influenza outbreaks reported in institutions, a marked increase over previous years. Outbreaks were predominantly in residential care facilities and due to influenza A.

## 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 signal for the start of the influenza season in NSW as it suggests influenza is circulating widely in the community.

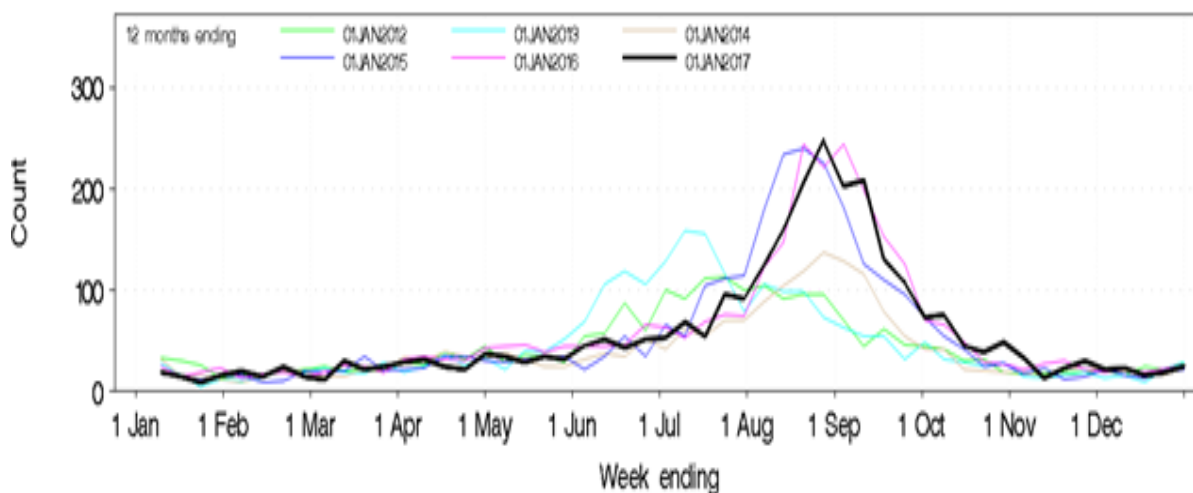
### In December 2016:

- The index of increase for ILI presentations was 2.6 at the end of December, well below the seasonal threshold.
- ED presentations for ILI were within the historical average for this time of year (Figure 1).
- ED presentations for pneumonia [3] were within the historical average (Figure 2).
- Pneumonia or ILI presentations which resulted in admissions to critical care units for ILI and pneumonia were within the historical average (Figure 3).
- Bronchiolitis presentations were slightly above the usual range for this time of year (Figure 4).

### From January 1 to December 31 2016

- Based on the index of increase, the 2016 influenza season lasted for 12 weeks. It crossed the threshold level of 15 on 26 June (indicating the start of the influenza season), peaked on 28 August and ended on 27 September.
- Overall, ILI presentations were similar to those seen in 2015 but with a later peak (Figure 1).

**Figure 1:** Total weekly counts of ED visits for influenza-like illness, from January – December 2016 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.

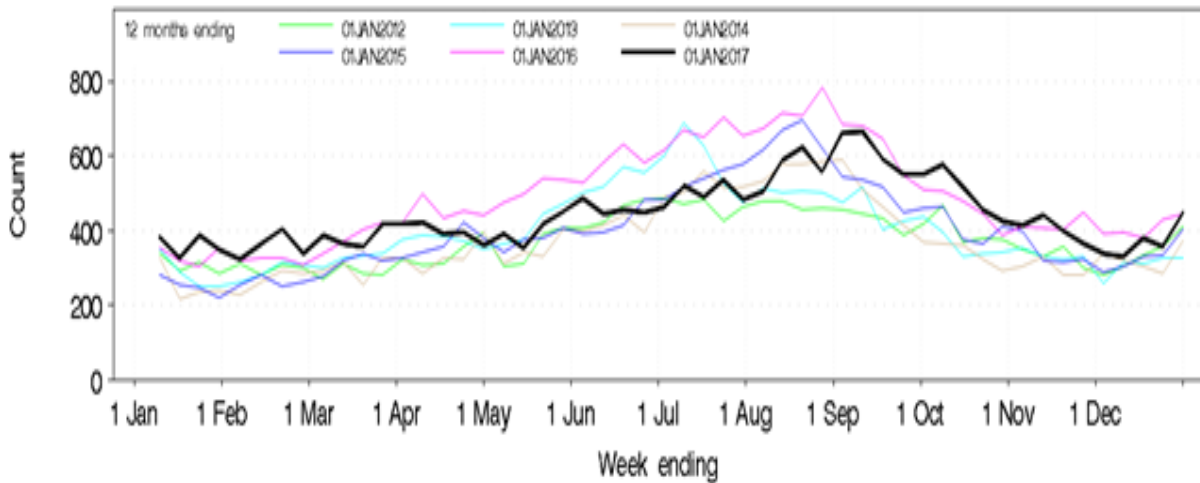


[1] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system. Managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change. This includes data from 59 NSW emergency departments (EDs), representing approximately 85% of metropolitan ED presentations and approximately 60% of rural ED presentations.

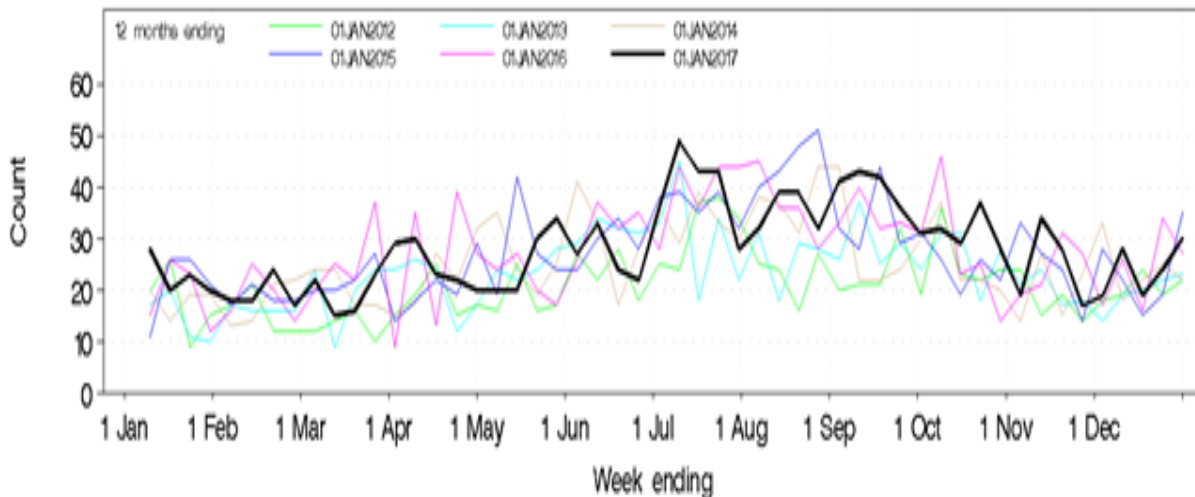
[2] ILI is when the treating ED doctor makes a provisional clinical diagnosis of ILI Syndrome, which includes: 'influenza-like illness' or 'influenza' (including 'pneumonia with influenza').

[3] Pneumonia is when there is a provisional clinical diagnosis of Pneumonia Syndrome, which includes: 'viral, bacterial or unspecified pneumonia', 'SARS', or 'legionnaire's disease'. Excludes the diagnosis 'pneumonia with influenza'.

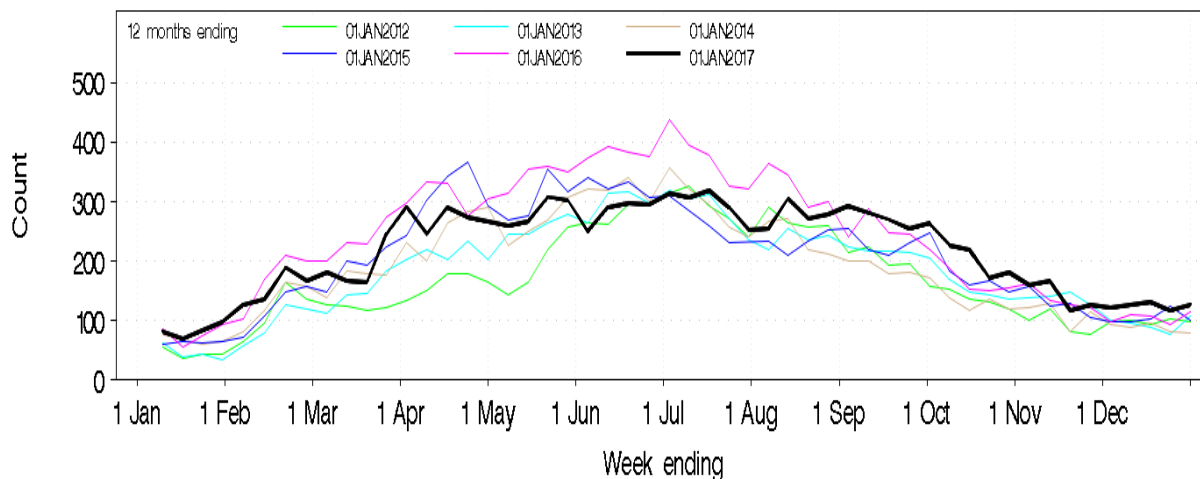
**Figure 2:** Total weekly counts of ED presentations for pneumonia, from January – December 2016 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.



**Figure 3:** Total weekly counts of ED presentations for pneumonia or influenza-like illness and admitted to a critical care ward, from January – December 2016 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.



**Figure 4:** Total weekly counts of ED presentations for bronchiolitis, from January - December 2016 (black line), compared with each of the five previous years (coloured lines), persons of all ages, for 59 NSW hospitals.



## ***APSU Paediatric Surveillance of influenza with severe complications***

The Australian Paediatric Surveillance Unit (APSU), based at The Children's Hospital at Westmead, is a national research resource established in 1993 to facilitate active surveillance of uncommon childhood diseases, rare serious complications of common diseases or rare adverse effects of treatment.

APSU contributors are clinicians working in paediatrics and child health who provide weekly reports on 17 different conditions under surveillance. All positive reports of cases generate a brief questionnaire requesting de-identified information about the child's demographics, details of diagnosis, management and short-term outcome from the clinician. (For more details on APSU methods please see the APSU website: [www.apsu.org.au](http://www.apsu.org.au)).

Since 2009, surveillance for severe complications from influenza has been conducted by the APSU from July to September. For this reporting period in 2016 there were 15 cases of influenza with severe complications in children less than 15 years of age in NSW reported to the APSU with the following characteristics:

- Fourteen of the cases involved infections with influenza A strains, with one case due to influenza B infection. Two-thirds of the cases were female. The median age of cases was 1.7 years (range 0.1-14.6 years), with three cases (20%) under six months of age.
- Of the 12 cases aged 6 months or older (and so old enough to be vaccinated for influenza), two cases who were known to have not been vaccinated for influenza. The influenza vaccination status of the other 10 cases was not known.
- Nine (60%) of the cases had an underlying chronic medical condition.
- Twelve (80%) cases required intensive care admission during their hospitalisation but there were no deaths recorded. The median length of stay in hospital was 7 days (range 2-76 days).

Complications were recorded for all 15 cases and included pneumonia, bacterial co-infections (including infective endocarditis), encephalitis (one case), and a severe exacerbation of asthma.

## **Influenza Complications Alert Network (FluCAN)**

In 2009, [A Rapid Alert System for Severe Respiratory Illness: The FluCAN Surveillance system](#) was created with the involvement and support of the Thoracic Society of Australia and New Zealand and funding from the [NH&MRC](#).

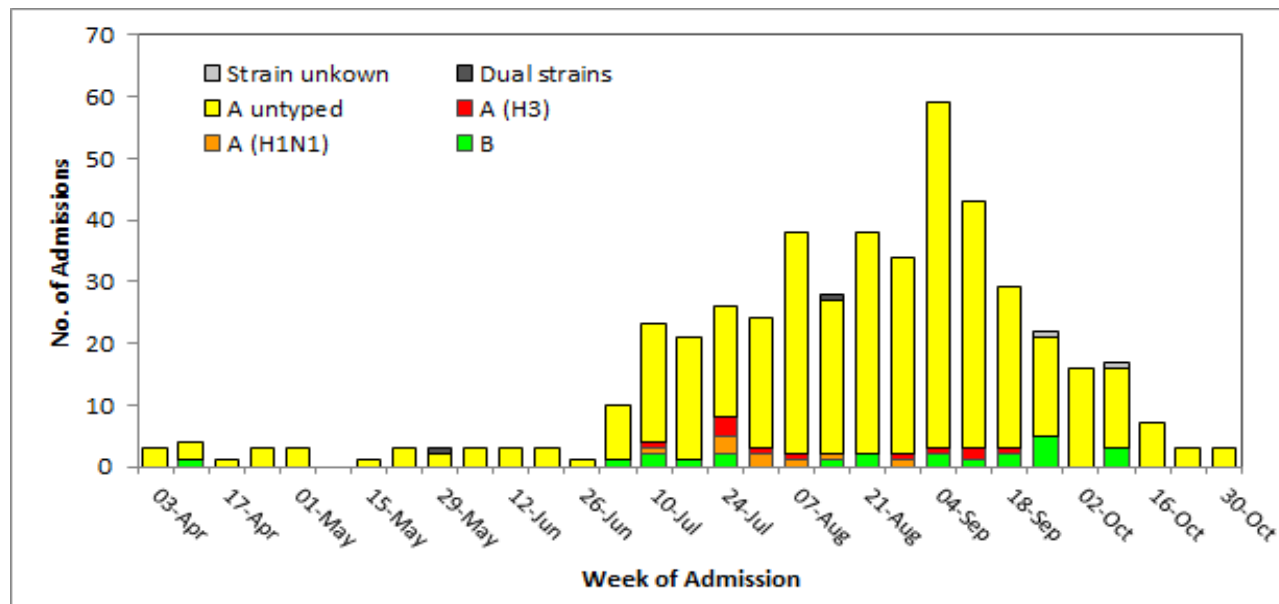
The aim of FluCAN was to establish and maintain a real-time sentinel hospital surveillance system for acute respiratory disease requiring hospitalisation, which could provide a reliable and timely source of information that could be used to inform public health policy. Since 2010, this FluCAN surveillance has been supported by the Department of Health, with data management provided by Monash University, Melbourne. In NSW, the FluCAN includes three sentinel monitoring sites for influenza hospitalisations: The Children's Hospital at Westmead, John Hunter Hospital and Westmead Hospital.

From 3 April to 30 October 2016, FluCAN reported 509 hospital admissions with confirmed influenza from the three NSW sites (Figure 5), with the following characteristics:

- 471 (93%) cases were admitted to either a general ward or a respiratory ward and 38 (7%) were admitted to an intensive care unit.
- 477 (94%) cases were influenza A positive, of these 10 were influenza A (H1N1) and 11 were influenza a (H3), 24 (5%) of cases were influenza B, one case was an A-B co-infection and seven strains were unknown.

- 38 cases were admitted to ICU, all were positive for influenza A.
- 124 (25%) cases were in children <15 years, 98 (19%) people were aged 15 to 49 years and 287 (56%) were aged 50 years and older.
- 27 (5%) cases were in pregnant women: 3 A(H1N1), 26 A(untyped) and 1 A-B co-infection.

**Figure 5:** FluCAN – Number of confirmed influenza hospital admissions in NSW, April – October 2016



## Laboratory testing summary for influenza

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

### In December 2016:

- A total of 11,009 tests for respiratory viruses were performed at sentinel NSW laboratories and 440 (4.0%) were positive for influenza (Table 1).
- 322 specimens tested positive for influenza A: 57 of these tested positive for A(H3N2), 3 tested positive for influenza A(H1N1) and 262 were not typed further (Table 1, Figures 6 and 7).
- 118 cases of influenza B were reported (Table 1, Figures 6 and 7).

Although influenza activity continued to decline and is at low levels, it is still above the historical average for this time of year.

Rhinoviruses were the leading respiratory viruses identified by laboratories this month; other respiratory viruses were circulating as expected for this time of year.

[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.

**Participating sentinel laboratories:** 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 & Nepean), Douglas Hanley Moir Pathology, VDRLab, Laverty Pathology, SydPath (St Vincent’s), Medlab, and Laverty. HAPS data not included for week 41 2015.

## From 1 January to 31 December 2016:

- 259,344 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1).
- 32,391 tests were positive for influenza A (Table 1, Figure 6).
  - 3,398 were H1N1 (of these, 162 were characterised as A/California/7/2009-like).
  - 4,195 were H3N2 (of these, 122 were characterised as A/Victoria/361/2011-like).
  - 24,798 influenza A samples were not further typed.
- 3,797 tests were positive for influenza B (Table 1, Figure 6).
  - 173 influenza B samples were sent for further characterisation, with 31 able to be identified as B/Phuket/3073/2013-like (Yamagata lineage) and 19 identified as B/Brisbane/60/2008-like (Victoria lineage).
- Sentinel laboratories reported that at least 191 of the patients with confirmed influenza were known to have been admitted to either an intensive care or coronary care unit.

The peak of influenza testing activity was in the week ending 4 September when there were 4,180 tests positive for influenza and an influenza test positivity rate of 31.7 per cent (Figure 6).

Although the majority of influenza A strains were not further typed it was possible to detect a change in influenza A strain predominance during the season. The influenza A(H1N1) strain predominated in the early part of the season up until July when the influenza A(H3N2) strain became the dominant strain.

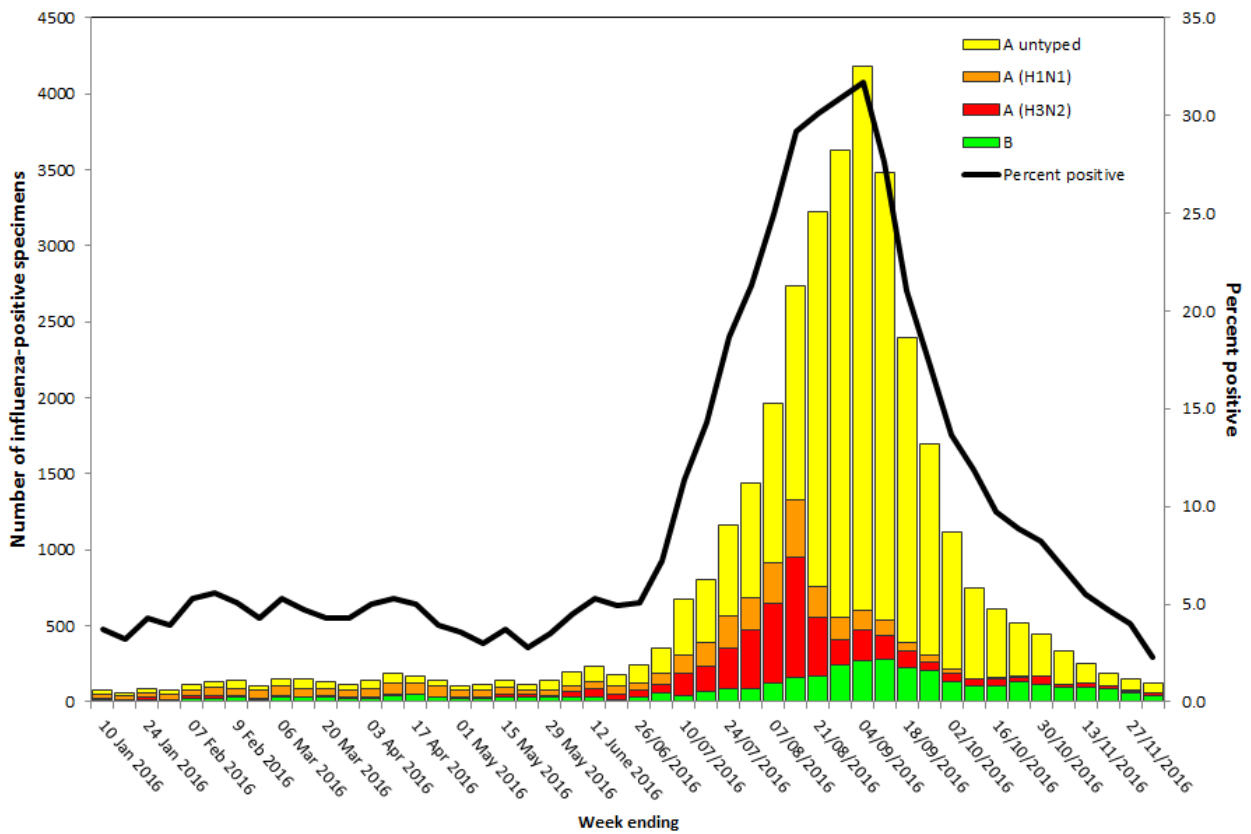
**Table 1:** Summary of testing for influenza and other respiratory viruses at sentinel NSW laboratories, 1 January to 1 January 2017.

| 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 (%A)  | Total (%A)    | Total (%)    | Total (%)   | Total (%)     |             |       |             |       |                  |      |       |         |        |
| 31/01/2016         | 8079        | 270 (3.3%)    | 45 (16.7%)   | 114 (42.2%) | 111 (41.1%)   | 38 (0.5%)   | 202   | 179         | 202   | 941              | 73   | 96    |         |        |
| 28/02/2016         | 9810        | 397 (4.0%)    | 54 (13.6%)   | 199 (50.1%) | 144 (36.3%)   | 96 (1.0%)   | 208   | 244         | 323   | 1484             | 80   | 150   |         |        |
| 03/04/2016*        | 14699       | 555 (3.8%)    | 34 (6.1%)    | 273 (49.2%) | 248 (44.7%)   | 138 (0.9%)  | 282   | 412         | 937   | 1862             | 68   | 188   |         |        |
| 01/05/2016         | 13614       | 461 (3.4%)    | 16 (3.5%)    | 270 (58.6%) | 175 (38.0%)   | 152 (1.1%)  | 271   | 371         | 1189  | 1470             | 71   | 128   |         |        |
| 29/05/2016         | 15760       | 398 (2.5%)    | 57 (14.3%)   | 157 (39.4%) | 184 (46.2%)   | 115 (0.7%)  | 350   | 358         | 1488  | 2211             | 111  | 138   |         |        |
| 03/07/2016*        | 22487       | 1065 (4.7%)   | 227 (21.3%)  | 269 (25.3%) | 569 (53.4%)   | 167 (0.7%)  | 707   | 636         | 2626  | 2866             | 300  | 420   |         |        |
| 31/07/2016         | 24176       | 3796 (15.7%)  | 1021 (26.9%) | 722 (19.0%) | 2052 (54.1%)  | 291 (1.2%)  | 753   | 527         | 2339  | 2240             | 484  | 404   |         |        |
| 28/08/2016         | 40031       | 10853 (27.1%) | 1853 (17.1%) | 1002 (9.2%) | 7999 (73.7%)  | 705 (1.8%)  | 1114  | 721         | 2347  | 2739             | 1046 | 398   |         |        |
| 02/10/2016*        | 54948       | 11742 (21.4%) | 575 (4.9%)   | 355 (3.0%)  | 10814 (92.1%) | 1128 (2.1%) | 1826  | 1587        | 2197  | 5022             | 2527 | 584   |         |        |
| 30/10/2016         | 23910       | 1867 (7.8%)   | 168 (9.0%)   | 23 (1.2%)   | 1676 (89.8%)  | 466 (1.9%)  | 973   | 1113        | 705   | 3946             | 1267 | 302   |         |        |
| 04/12/2016*        | 20536       | 656 (3.2%)    | 88 (13.4%)   | 11 (1.7%)   | 555 (84.6%)   | 383 (1.9%)  | 886   | 1006        | 398   | 4389             | 735  | 340   |         |        |
| 01/01/2017         | 11294       | 331 (2.9%)    | 57 (17.2%)   | 3 (0.9%)    | 271 (81.9%)   | 118 (1.0%)  | 485   | 665         | 290   | 2286             | 270  | 248   |         |        |
| <b>Week ending</b> |             |               |              |             |               |             |       |             |       |                  |      |       |         |        |
| 11/12/2016         | 3315        | 101 (3.0%)    | 23 (22.8%)   | 0 (0.0%)    | 78 (77.2%)    | 40 (1.2%)   | 152   | 199         | 59    | 698              | 86   | 69    |         |        |
| 18/12/2016         | 3126        | 62 (2.0%)     | 8 (12.9%)    | 0 (0.0%)    | 54 (87.1%)    | 38 (1.2%)   | 147   | 194         | 85    | 646              | 80   | 80    |         |        |
| 25/12/2016         | 2793        | 88 (3.2%)     | 14 (15.9%)   | 2 (2.3%)    | 72 (81.8%)    | 23 (0.8%)   | 109   | 161         | 78    | 586              | 65   | 64    |         |        |
| 01/01/2017         | 1775        | 71 (4.0%)     | 12 (16.9%)   | 1 (1.4%)    | 58 (81.7%)    | 17 (1.0%)   | 77    | 111         | 68    | 356              | 39   | 35    |         |        |

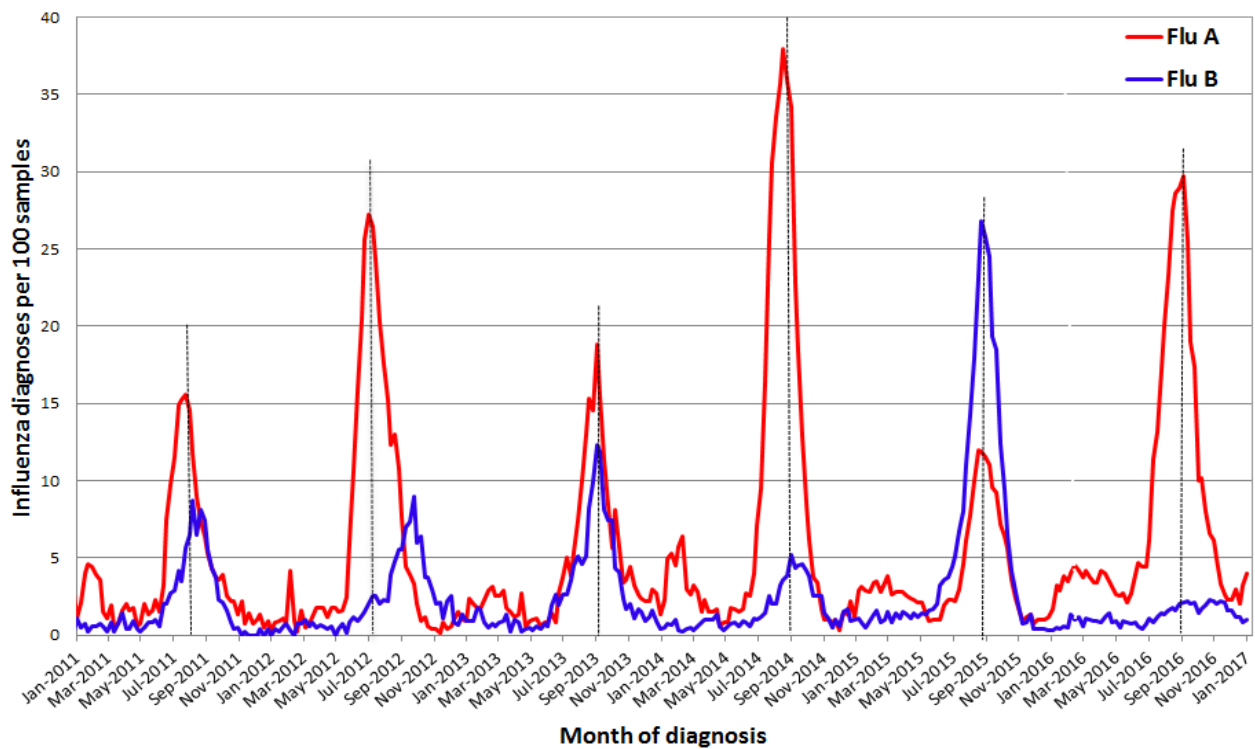
**Notes:** \* Five week reporting period used; \*\* HMPV - Human metapneumovirus.

Note that while all samples are tested for influenza viruses, not all samples are tested for all of the other viruses listed.

**Figure 6:** Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, 1 January to 1 January 2017.



**Figure 7:** Percent of weekly laboratory tests positive for influenza A and influenza B reported by NSW sentinel laboratories, 1 January 2011 to 1 January 2017.



## Community Surveillance

### *Influenza notifications by Local Health District (LHD)*

#### **In December 2016:**

During December there were 405 notifications of influenza confirmed by polymerase chain reaction (PCR) testing. Notifications have been trending down since September but still above the usual range for this time of year. Rates were similar across all LHDs (data not shown).

#### **From 1 January to 31 December 2016:**

There were a total of 35,409 influenza notifications with the highest weekly number of notifications (3628) reported in week 36 (week ending 4 September). Northern Sydney LHD had the highest number of influenza notifications and the highest rate per 100,000 population in the state (Table 2). Influenza notifications and population rates were generally higher in metropolitan Sydney LHDs.

**Table 2:** Annual notifications of laboratory-confirmed influenza by Local Health District \*

| Local Health District | 1 January - 31 December 2016 |                             |
|-----------------------|------------------------------|-----------------------------|
|                       | Number of notifications      | Rate per 100 000 population |
| Central Coast         | 1,080                        | 319.41                      |
| Far West              | 25                           | 82.02                       |
| Hunter New England    | 3,264                        | 356.15                      |
| Illawarra Shoalhaven  | 1,251                        | 310.6                       |
| Mid North Coast       | 475                          | 218.4                       |
| Murrumbidgee          | 1,106                        | 380.72                      |
| Nepean Blue Mountains | 2,081                        | 555.24                      |
| Northern NSW          | 963                          | 320.67                      |
| Northern Sydney       | 6,406                        | 706.44                      |
| South Eastern Sydney  | 4,311                        | 477.02                      |
| South Western Sydney  | 3,721                        | 385.14                      |
| Southern NSW          | 556                          | 266.56                      |
| Sydney                | 3,331                        | 529.96                      |
| Western NSW           | 658                          | 237.25                      |
| Western Sydney        | 6,181                        | 652.85                      |

Note: \* All data are preliminary and may change if late notifications are received.

### *Influenza outbreaks in institutions*

In December 2016, there were six influenza A outbreaks reported this month, of which five were in aged care facilities and one was in a hospital renal unit. Overall in 2016 there was a marked increase in the number of influenza outbreaks in institutions reported (Table 3). Of the total of 279 outbreaks reported, 269 were due to influenza A, 3 were due to influenza B, and both A and B strains were identified in the remaining 7. A total of 4,093 residents were reported to have had ILI symptoms and 475 were hospitalised. There were also 192 deaths in residents linked to these outbreaks; all in residents who were noted to have other significant co-morbidities.

**Table 3:** Reported influenza outbreaks in NSW institutions per year, 2010-2016.

| Year                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------------------|------|------|------|------|------|------|------|
| Number of outbreaks | 2    | 4    | 39   | 12   | 120  | 103  | 279  |



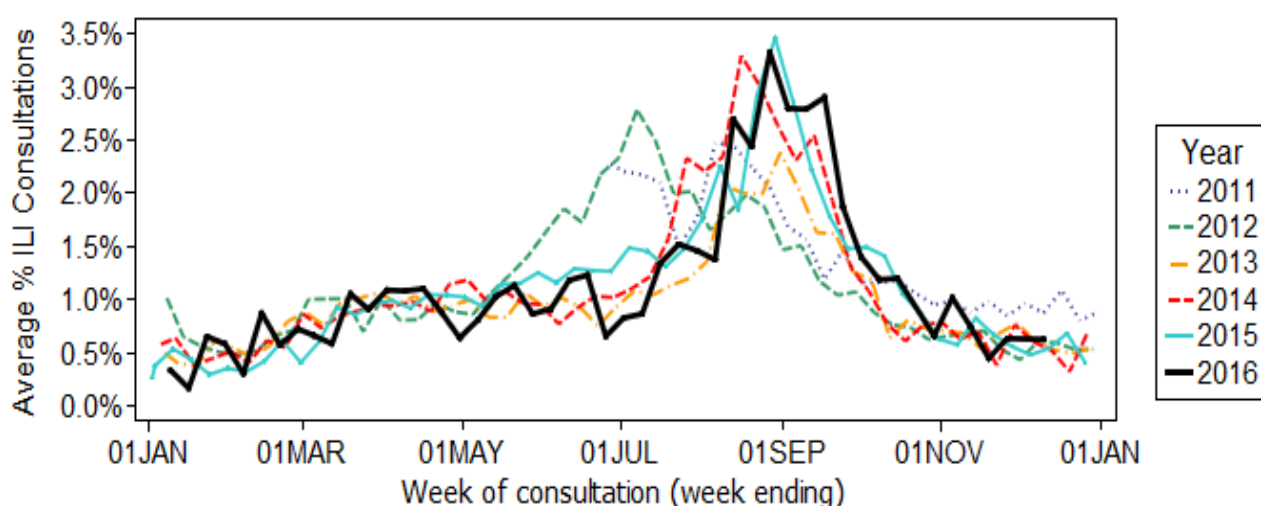
## Electronic General Practice Surveillance (eGPS)

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 2016, weekly reports were received on average from 5 sentinel practices.
- The highest weekly ILI activity reported by GP's was during the month of September (week ending 11 Sept) where the average rate for patient consultations with ILI was 3.1% (range 1.6 – 6%). This was slightly lower than the peak in 2015 (Figure 8).

**Figure 8.** ILI consultations as a percentage of all consultations at sentinel general practices, by week of consultation, July 2011 to December 2016.



### 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.

## The Australian Sentinel Practices Research Network (ASPREN)

ASPREN is a network of sentinel general practitioners (GPs) run through the RACGP and University of Adelaide that has collected de-identified information on influenza like illness and other conditions seen in general practice since 1991.

GP's participating in the program report on the proportion of patients presenting with an ILI. The number of GP's participating on a weekly basis may vary. For 2016, an average of 40 NSW GP practices provided activity reports each week. During this time, the consultation rate peaked at 3.1 per cent during week 36 (week ending 11 September), which was lower than the peak seen in recent years.

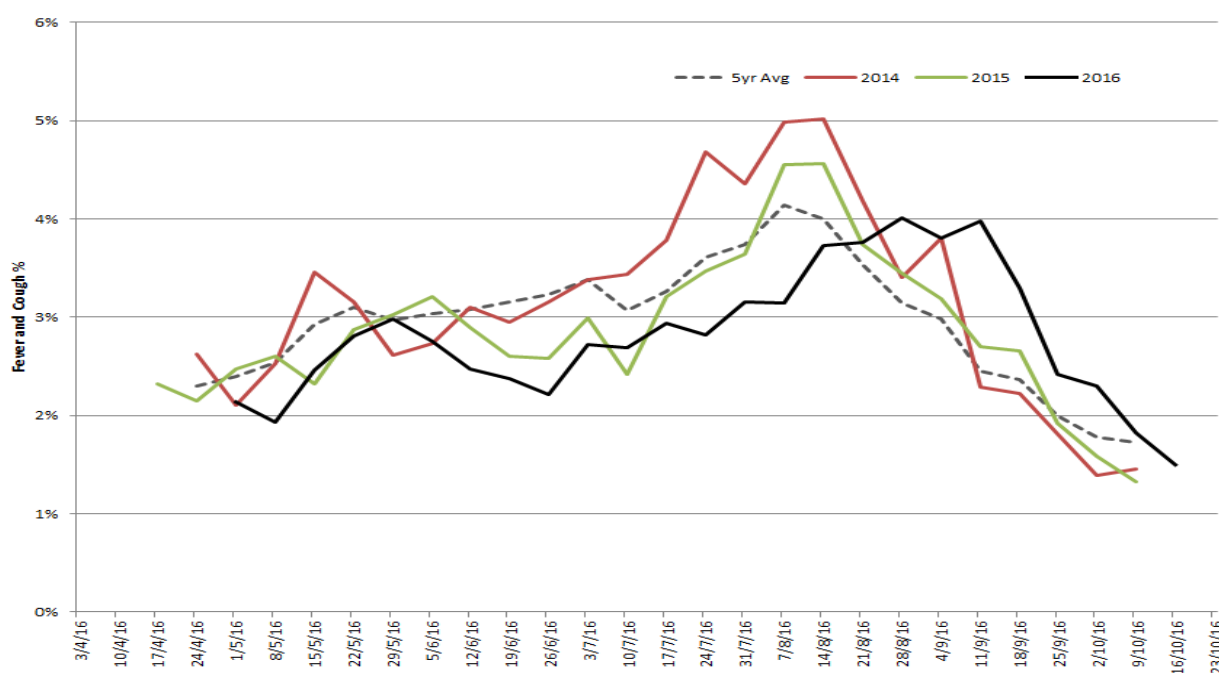
For further information please see the [ASPREN](#) website.

## FluTracking.net

[FluTracking.net](http://FluTracking.net) is an online health surveillance system to detect epidemics of influenza. It involves participants from around Australia completing a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

- For 2016, the peak and magnitude of ILI symptom reporting in NSW was lower and later than that seen in previous years (Figure 9).
- The highest weekly ILI symptom activity reported from FluTracking participants in NSW was for the week ending 11 of September when reports were received for 6420 individuals. The number of respondents reporting fever and cough for this week was 4.0%, higher than the usual range for this time but lower than the peak activity seen in previous years (Figure 9).
- Overall, 2.8% of respondents reported fever, cough and absence from normal duties.

**Figure 9:** FluTracking – Weekly percentage of NSW respondents reporting influenza like illness (fever and cough) from April to October for the years 2010 – 2016.



For further information please see the [FluTracking](http://FluTracking) website.

## 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.

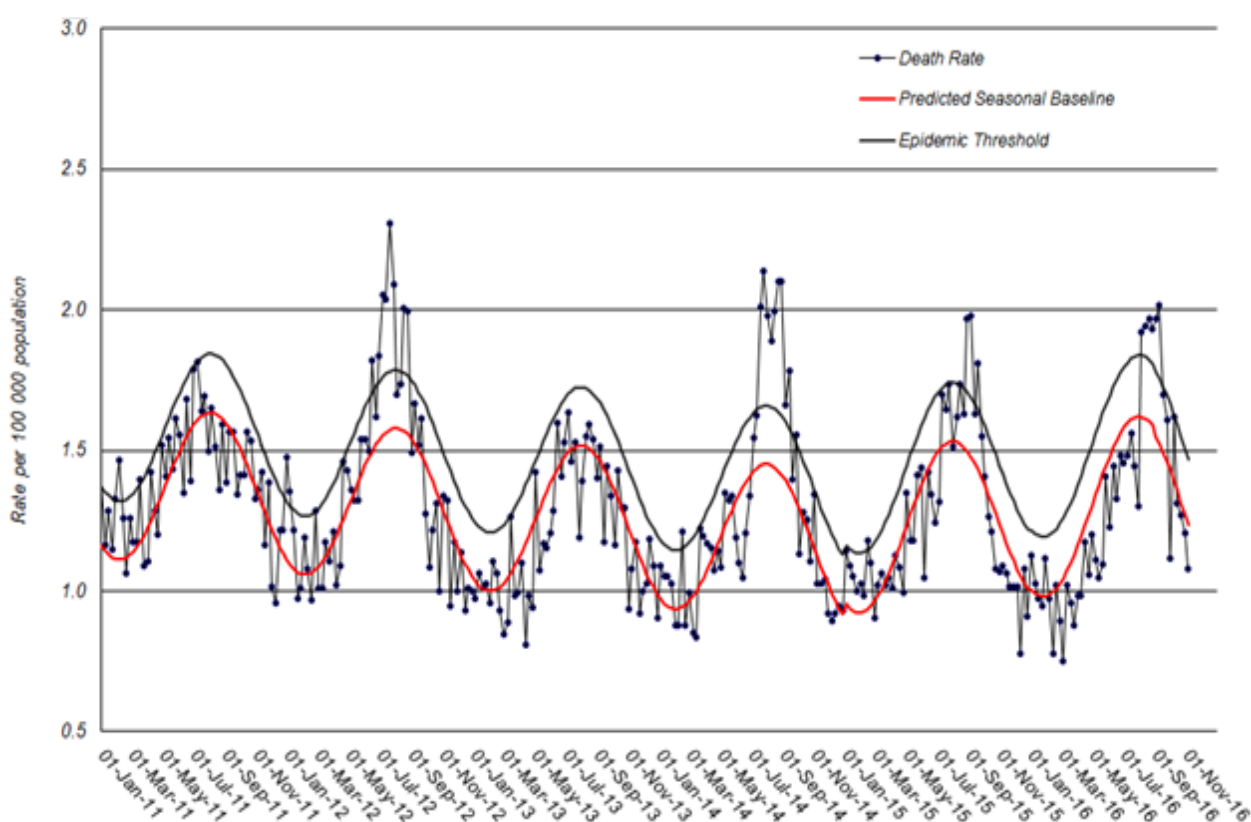
### For the week ending 23 December 2016:

There were 0.68 pneumonia or influenza deaths per 100,000 NSW population, which is below the epidemic threshold of 1.23 per 100,000 population (Figure 10).

## From 1 January to 23 December 2016:

- In 2016, among all 50,969 death certificates there were 215 which mentioned influenza: one death was in a person aged 15 to 24 years, four deaths were in people aged 25 to 54 years, six deaths were in people aged 55 to 64 years, and 204 deaths were in people aged 65 years and over.
- A total of 9.5% (4820/50,969) of death certificates mentioned pneumonia as a contributing cause of death.
- Death rates for both influenza and pneumonia as a proportion of the NSW population exceeded the forecast epidemic threshold in the week ending 5 August and remained elevated until the week ending 9 September. Overall, death rates trended slightly higher in 2016 compared with the previous year (Figure 10).

**Figure10:** Rate of deaths classified as influenza and pneumonia per 100 000 NSW population, 2011 - 2016.



**Source:** NSW Registry of Births, Deaths and Marriages.

### Notes on interpreting death data:

- 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.
- 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.
- 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.

## National and International Influenza Surveillance

### **National summary**

Nationally, and in most jurisdictions, the seasonal peak of laboratory-confirmed notifications of influenza occurred in the fortnight ending 2 September 2016 (week 34 and 35). Notifications peaked two weeks later in South Australia and four weeks later in the Northern Territory. Notifications have decreased this reporting fortnight, however are higher than at the same time in recent years. This is likely driven by a later season onset and persistent regional activity.

- Throughout the 2016 season national indicators of ILI in the community remained on the lower range of activity reported in previous years until late September, when they were at the higher end of the historical range. National indicators of ILI in the community continued to decline this fortnight and have reached baseline levels. Rhinovirus was the primary cause of ILI presentations to sentinel general practitioners this fortnight.
- The 2016 season was characterised by a return to the predominance of influenza A strains. Early inter-seasonal activity was driven by influenza A(H1N1), with influenza A(H3N2) predominating throughout the season from July.
- Notification rates for this year to date have been highest in adults aged 75 years or older, with a secondary, smaller peak in the very young, aged less than 5 years. This is consistent with influenza A(H3N2) being typically more prevalent in older age groups.
- There were fewer admissions with confirmed influenza to sentinel hospitals this year than in the past two years. The overall proportion of patients admitted directly to intensive care units was higher than last year, but consistent with a season of moderate severity. Aboriginal and Torres Strait Islander Peoples and pregnant women were identified at greater risk of being admitted to ICU than other admitted patients this season.
- To date, the seasonal influenza vaccines appear to be a good match for circulating virus strains.

Follow the link for the archive of [Australian Influenza Surveillance Reports](#).

### **Global human influenza update**

The [WHO global update on 9 January 2017](#) provides data up to 25 December. Influenza activity in the temperate zone of the northern hemisphere continued to increase, with many countries especially in Europe and East Asia passing 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](#).

### **Global 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 19 December 2016. 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](#).

## **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 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.