



The Department of Health acknowledges the providers of the many sources of data used in this report and greatly appreciates their contribution.

KEY MESSAGES

- In the fortnight ending 19 August 2016, influenza activity continued to increase at the national level, with most regions of Australia reporting widespread and increasing activity.
- Influenza-like illness (ILI) also continued to increase nationally. More than half of all patients presenting to sentinel general practitioners with ILI and tested were positive for influenza this fortnight.
- Influenza A(H3N2) continued to be the dominant circulating influenza virus nationally in recent weeks, noting jurisdictional variation. Notifications of influenza B increased slightly in recent weeks, but remained at low levels overall.
- Notification rates this year to date have been highest in adults aged 85 years or older, with a secondary 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.
- Clinical severity for the season to date, as measured through the proportion of patients admitted directly to ICU and deaths attributed to pneumonia or influenza, is low to moderate.
- To date, the seasonal influenza vaccines appear to be a good match for circulating virus strains.

ANALYSIS

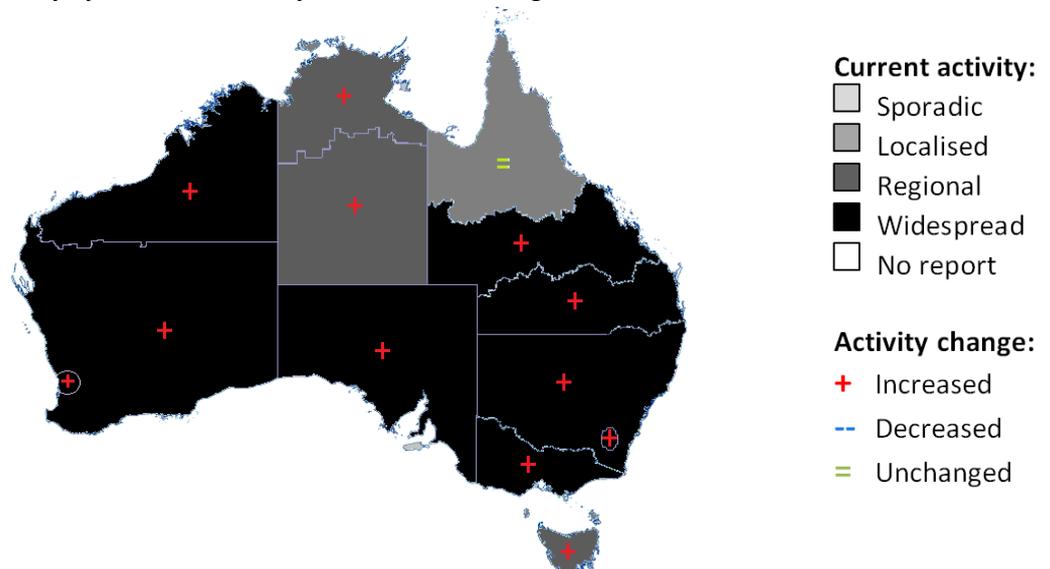
1. Geographic Spread of Influenza Activity in Australia

In the fortnight ending 19 August 2016 (week 33), influenza activity was reported by state and territory health departments as increased when compared with the previous fortnight in all regions except Tropical region of Queensland (QLD) where activity has remained unchanged (Figure 1).

The geographic spread of influenza activity was reported as localised in the Tropical region of QLD; regional in Tasmania (TAS) and the Central Australia and Top End regions of the Northern Territory (NT); and widespread in all other regions of Australia.

Influenza-like illness (ILI) activity reported from syndromic surveillance systems when compared with the previous fortnight was reported as increasing in all jurisdictions; except South Australia (SA) where activity was unchanged.

Figure 1. Map of influenza activity by state and territory, Australia, 6 - 19 August 2016.

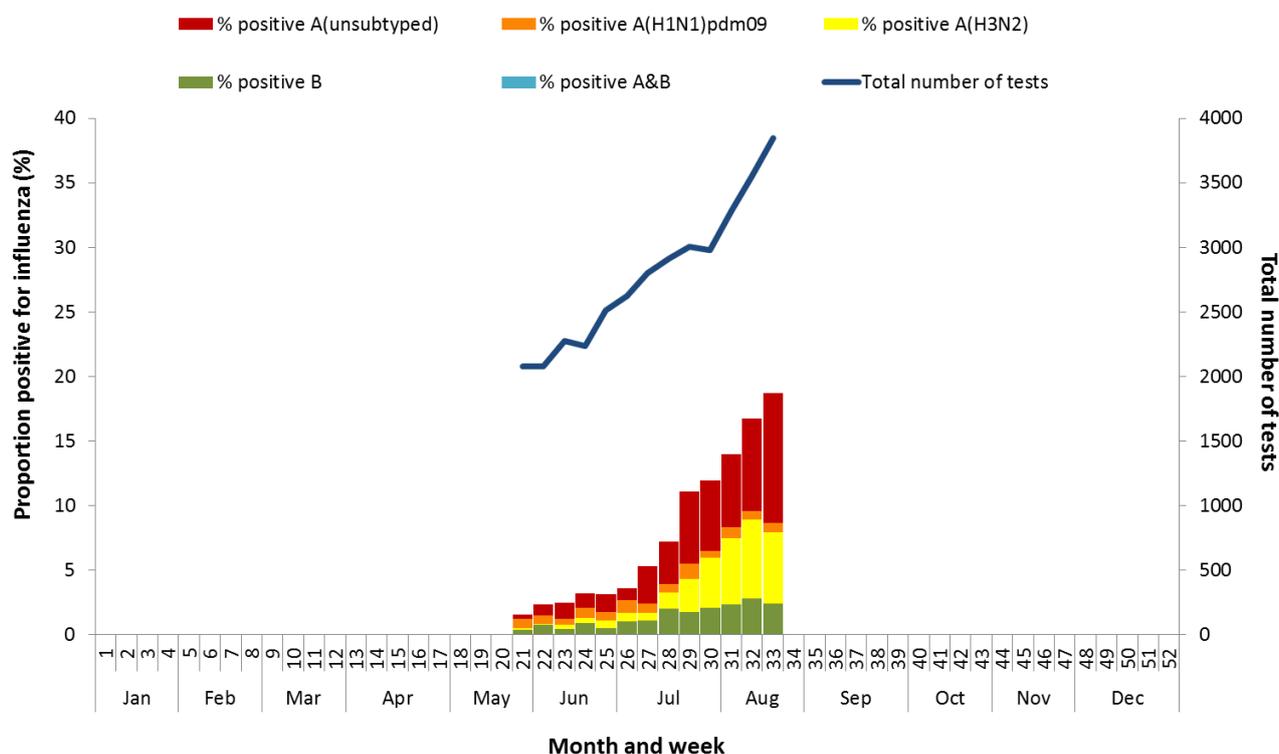


2. Laboratory Confirmed Influenza Activity

Sentinel Laboratory Surveillance

Influenza was detected by sentinel laboratories at increasing levels in weeks 32 and 33. The percentage of tests positive for influenza across all sentinel laboratories was 18.7% in week 33, an increase from 16.7% in week 32 (Figure 2). Influenza A was the respiratory virus most commonly detected by sentinel laboratories in New South Wales (NSW), Victoria (VIC) and Western Australia (WA) this reporting fortnight. However, rhinovirus was the respiratory virus most commonly detected by the sentinel laboratory in SA and respiratory syncytial virus (RSV) in TAS.

Figure 2. Proportion of sentinel laboratory tests positive for influenza, 21 May to 19 August 2016, by subtype and month and week.



Participating sentinel laboratories: National Influenza Centres (NSW, VIC, WA) and TAS* and SA^ public laboratories.
*PCR testing only; ^Reporting period ends on a Sunday.

Notifications of Influenza to Health Departments

Notifications of laboratory confirmed influenza to the National Notifiable Diseases Surveillance System (NNDSS) have continued to increase this reporting fortnight (Figure 3). For the year to 19 August, a total of 37,266 notifications of laboratory confirmed influenza were reported to the NNDSS: 15,775 in NSW; 10,709 in QLD; 4,518 in VIC; 3,460 in WA; 1,893 in SA; 646 in the Australian Capital Territory (ACT); 297 in TAS and 213 in the Northern Territory (Figure 4). Nationally, the number of notifications reported this fortnight has accounted for 31% of the notifications received this year to date. This indicator ranges jurisdictionally from 20% in the NT to 54% in the ACT.

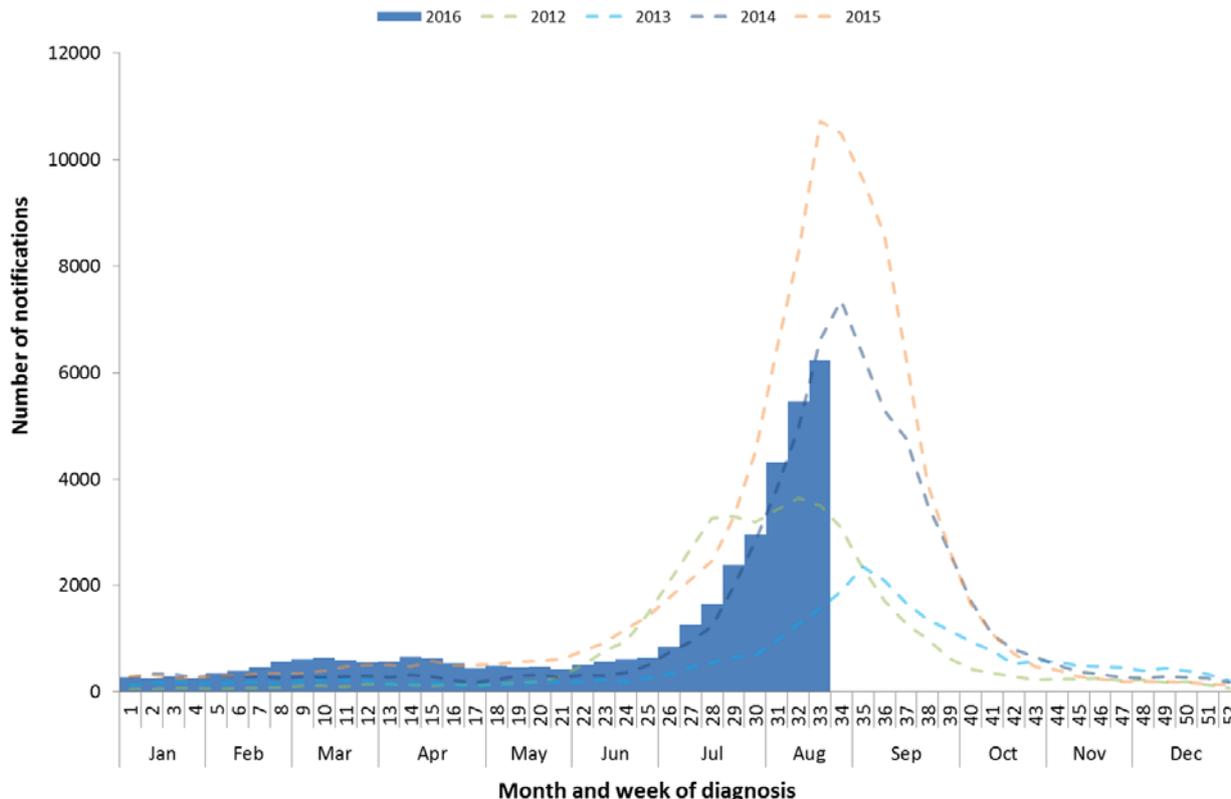
For the year to 19 August, 88% of notifications of laboratory confirmed influenza to the NNDSS were influenza A (63% A(untyped), 12% influenza A(H1N1)pdm09 and 14% influenza A (H3N2)), 11% were influenza B and less than 1% were influenza C, influenza A&B co-infections or untyped (Figure 5). In the most recent fortnight, 94% of notifications of laboratory confirmed influenza to the NNDSS were influenza A (73% A(untyped), 5% influenza A(H1N1)pdm09 and 16% influenza A (H3N2)), 6% were influenza B and less than 1% were influenza C, influenza A&B co-infections or untyped.

Nationally, the number of influenza A(H3N2) notifications continued to exceed the number of influenza A(H1N1)pdm09 notifications for the seventh consecutive week, with more than three notifications of influenza A(H3N2) reported to the NNDSS for every one influenza A(H1N1)pdm09 in the reporting fortnight.

Nationally, notifications of influenza B increased slightly in recent weeks, however remained at low levels overall. This recent increase was most noticeable in WA, and to a lesser extent in the ACT and NSW.

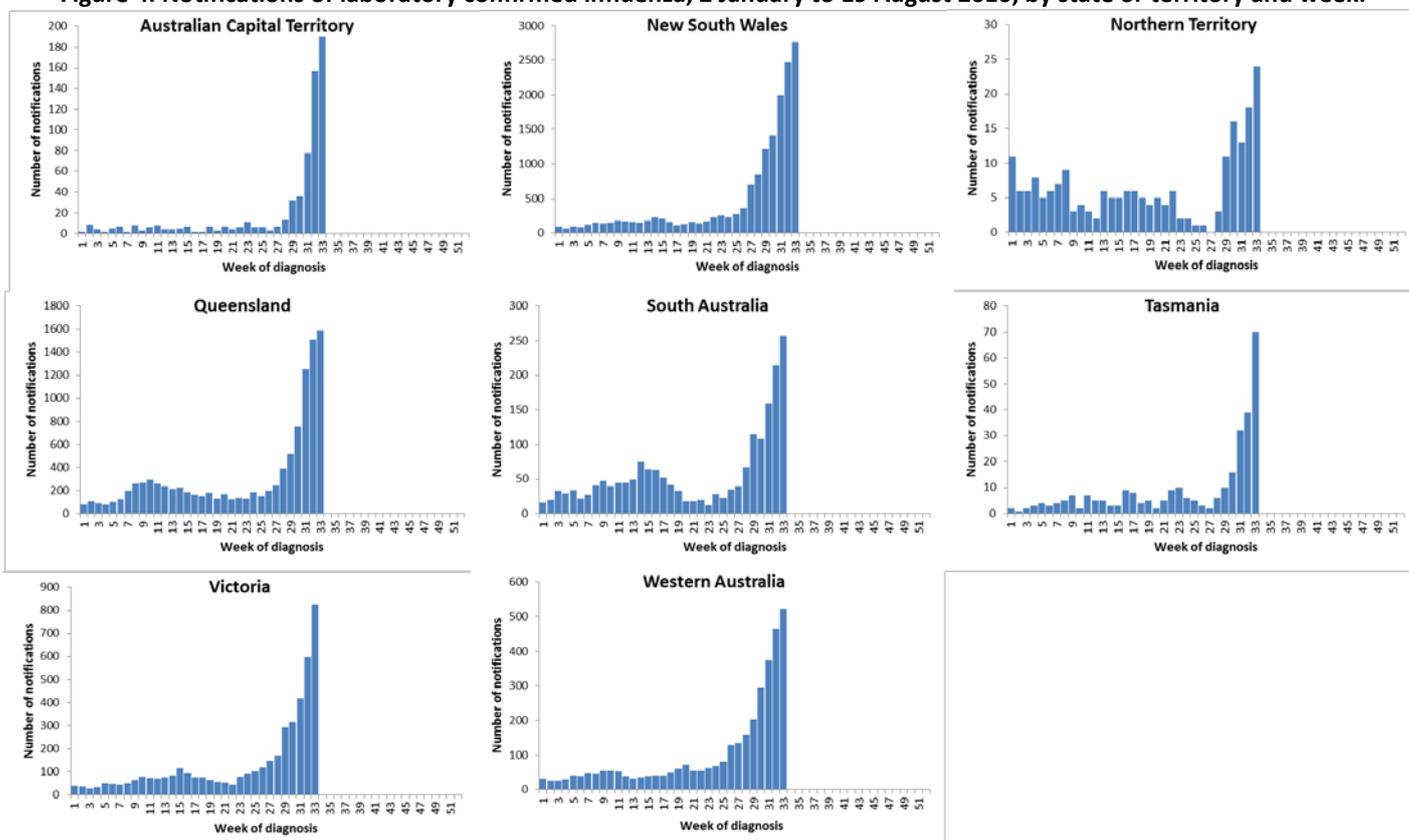
So far in 2016, notification rates have been highest in adults aged 85 years or older, with a secondary peak in the very young, aged less than 5 years (Figure 6). While influenza A(H3N2) is detected across all age groups, it accounts for a greater proportion of influenza A where subtyping is available in people aged 65 years or older, than in any other age group (Figure 7).

Figure 3. Notifications of laboratory confirmed influenza, Australia, 1 January 2012 to 19 August 2016, by month and week of diagnosis.



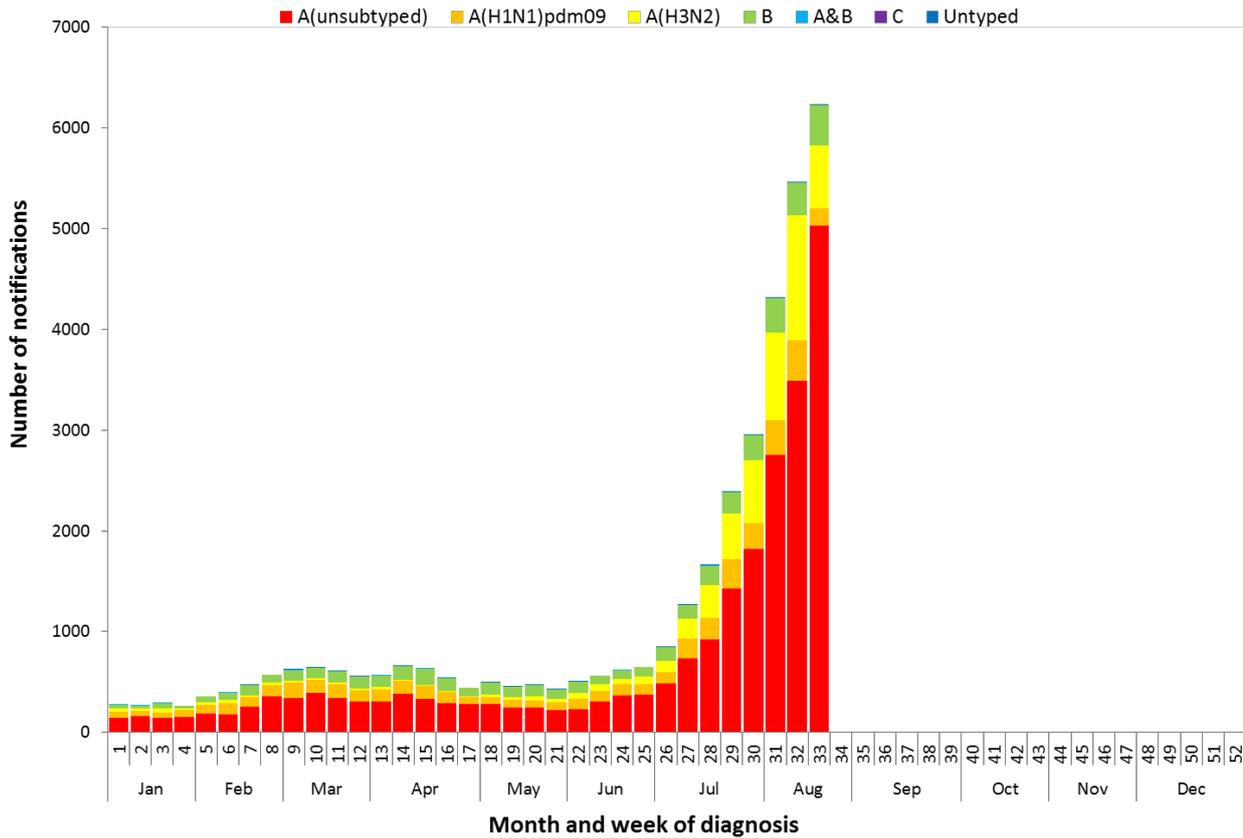
Source: NNDSS

Figure 4. Notifications of laboratory confirmed influenza, 2 January to 19 August 2016, by state or territory and week.



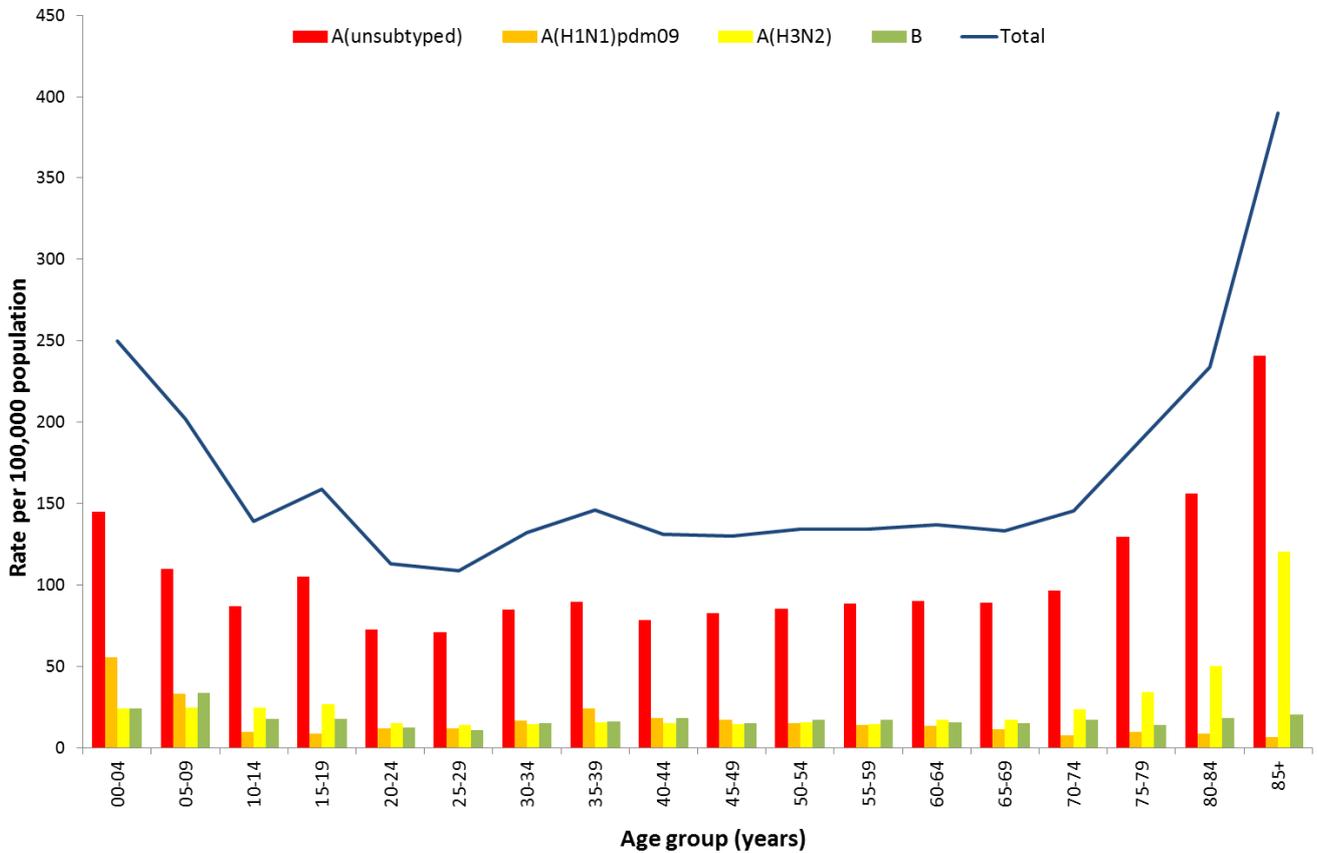
Source: NNDSS

Figure 5. Notifications of laboratory confirmed influenza, Australia, 2 January to 19 August 2016, by subtype and week.



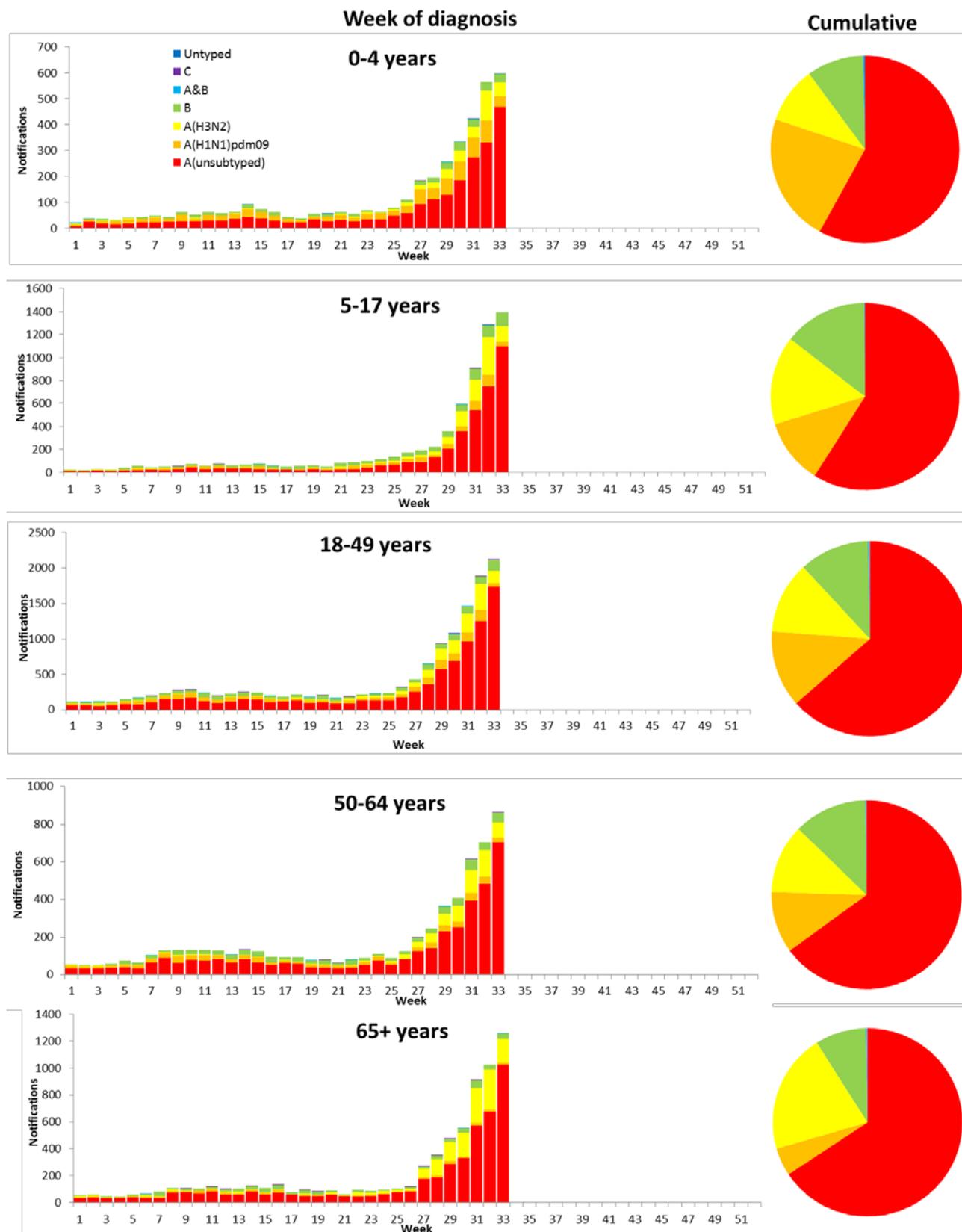
Source: NNDSS

Figure 6. Rate of notifications of laboratory confirmed influenza, Australia, 1 January to 19 August 2016, by age group and subtype.



Source: NNDSS

Figure 7. Notifications of laboratory confirmed influenza by week of diagnosis and cumulative year to date, Australia, 2 January to 19 August 2016, by age group and subtype.

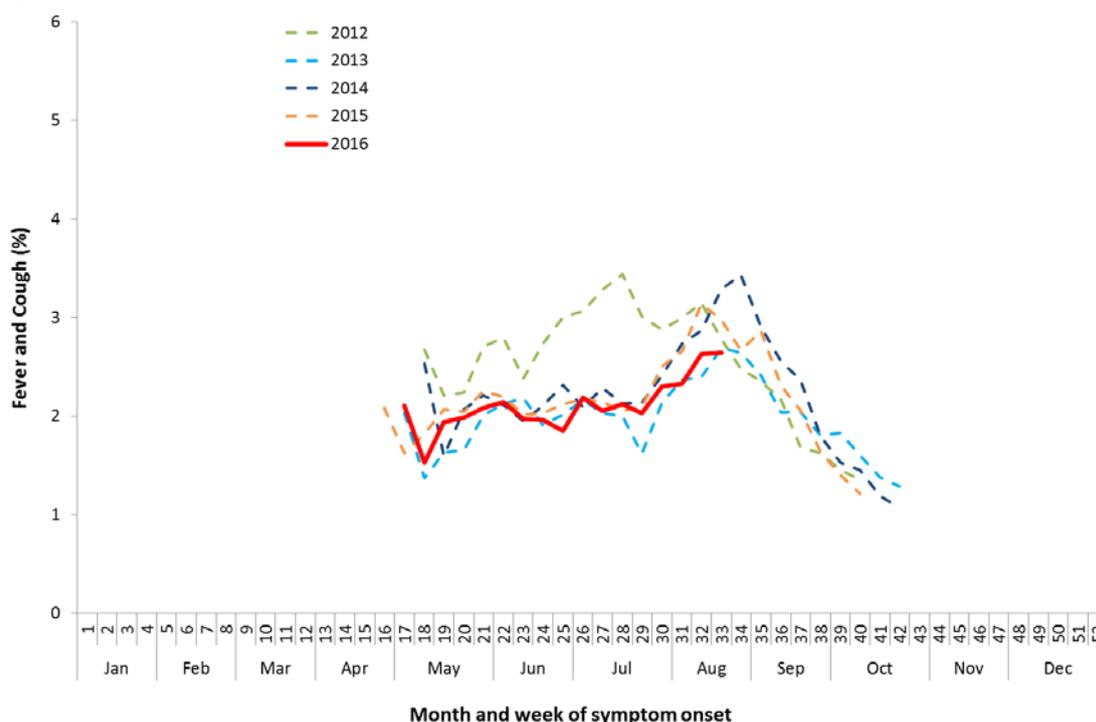


3. Influenza-like Illness Activity

Community Level Surveillance

FluTracking, a national online system for collecting data on ILI in the community, indicated that rates of ILI among participants so far this year remain on the lower range of recent seasons (Figure 8). The proportion of participants reporting fever and cough remained stable from week 32 (2.6%) to 33 (2.6%). The proportion of participants reporting fever, cough and absence from normal duties remained stable over the fortnight from 1.9% in week 32 to 1.9% in week 33. So far this year 60% of all participants and 80% of participants who identify as working face-to-face with patients reported receiving the seasonal influenza vaccine.¹

Figure 8. Proportion of fever and cough among FluTracking participants, Australia, between May and October, 2012 to 2016, by month and week.



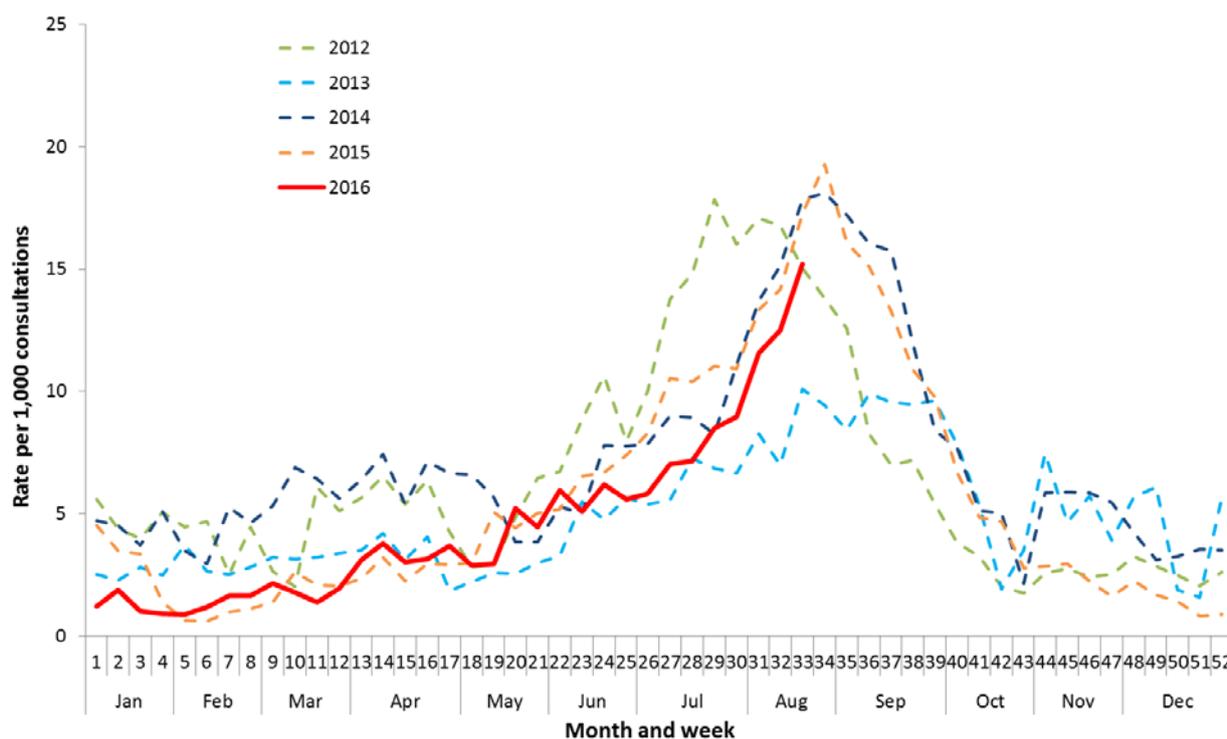
Source: FluTracking

Sentinel General Practice Surveillance

Sentinel general practitioner ILI consultations continued to increase this fortnight from 12.5 per 1,000 consultations in week 31 to 15.2 per 1,000 consultations in week 33 (Figure 9). This increase is consistent with and nearing the peak of previous years.

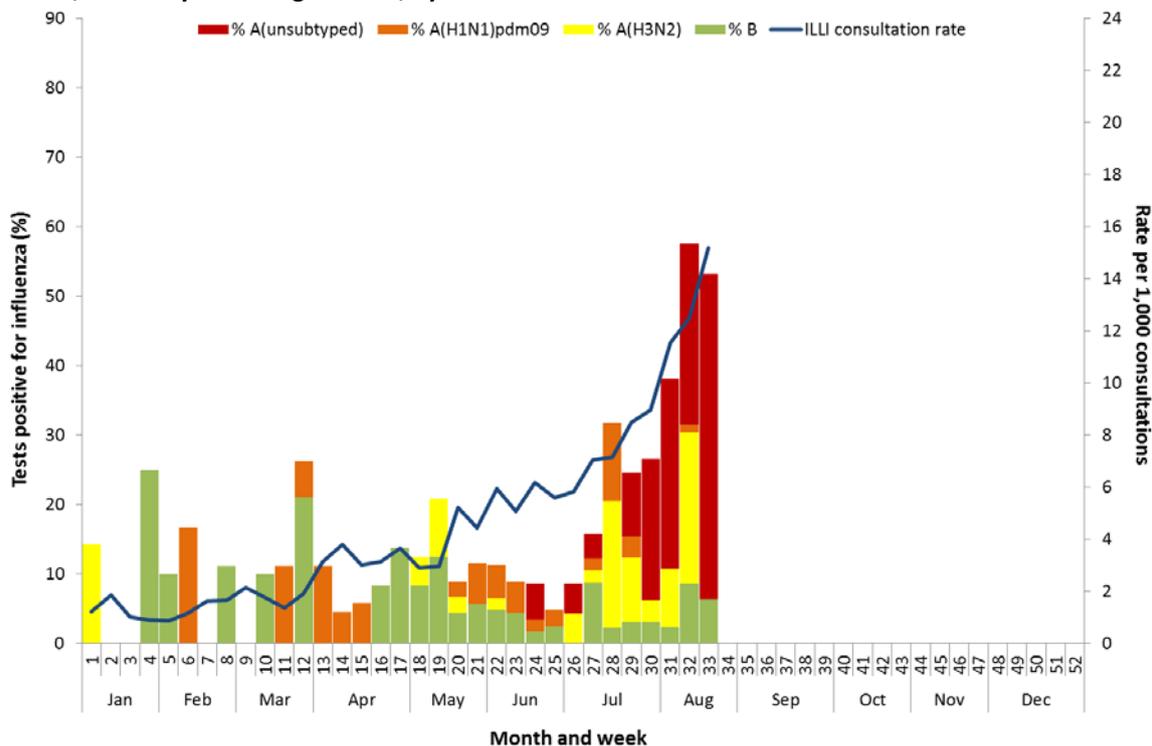
Of the 139 specimens taken from ILI patients seen by a sentinel practitioner during the current reporting fortnight, 78 (56%) were positive for influenza, with influenza A (H3N2) being the predominant influenza subtype identified (Figure 10). Consistent with nearing the peak of the season, influenza was the most common respiratory virus detected this fortnight.

Figure 9. Unweighted rate of ILI reported from sentinel GP surveillance systems, Australia, 1 January 2012 to 24 August 2016, by month and week.



SOURCE: ASPREN and VicSPIN

Figure 10. Proportion of respiratory viral tests positive for influenza in ASPREN ILI patients and ASPREN ILI consultation rate, Australia, 4 January to 21 August 2016, by month and week.



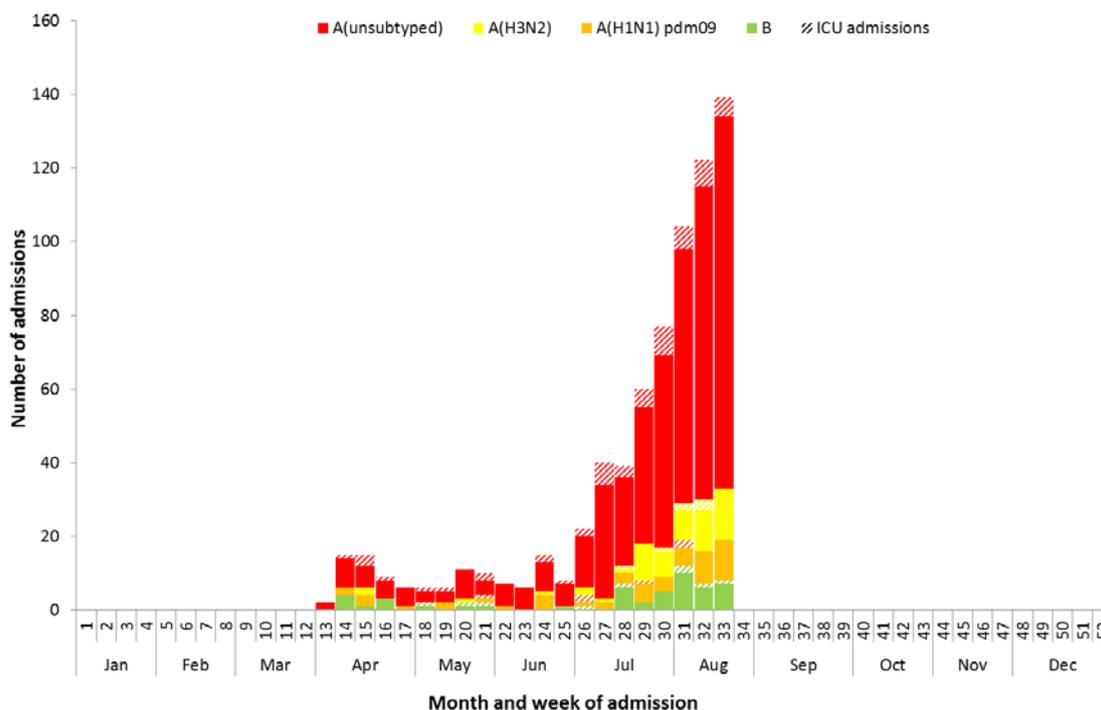
SOURCE: ASPREN

4. Hospitalisations

Sentinel Hospital Surveillance

Admissions with confirmed influenza to sentinel hospitals have continued to increase in the last fortnight (Figure 11). Since seasonal surveillance commenced through the Influenza Complications Alert Network (FluCAN) sentinel hospital surveillance system on 1 April 2016, a total of 719 people have been admitted with confirmed influenza, of which 159 (22%) were children aged less than 15 years and 281 (39%) were adults aged 65 years or older. Approximately 11% of influenza patients have been admitted directly to ICU and consistent with other systems, the majority of influenza admissions have been due to influenza A (92%). Overall, 72% of patients were reported with significant risk factors, with the presence of risk factors increasing with age.

Figure 11. Number of influenza hospitalisations at sentinel hospitals, 1 April to 19 August 2016, by month and week of and influenza subtype.



Source: FluCAN Sentinel Hospitals

Paediatric Severe Complications of Influenza

The Australian Paediatric Surveillance Unit (APSU) conducts seasonal surveillance between July and October annually of children aged 15 years and under who are hospitalised with severe complications of influenza. Between 1 July 2016 and 21 August 2016, there were 3 hospitalisations associated with severe complications of influenza reported to APSU. All three cases were aged less than 5 years and all were associated with influenza A infection. Two of three cases reported having no underlying chronic condition and none of the cases were vaccinated for influenza.

5. Deaths Associated with Influenza and Pneumonia

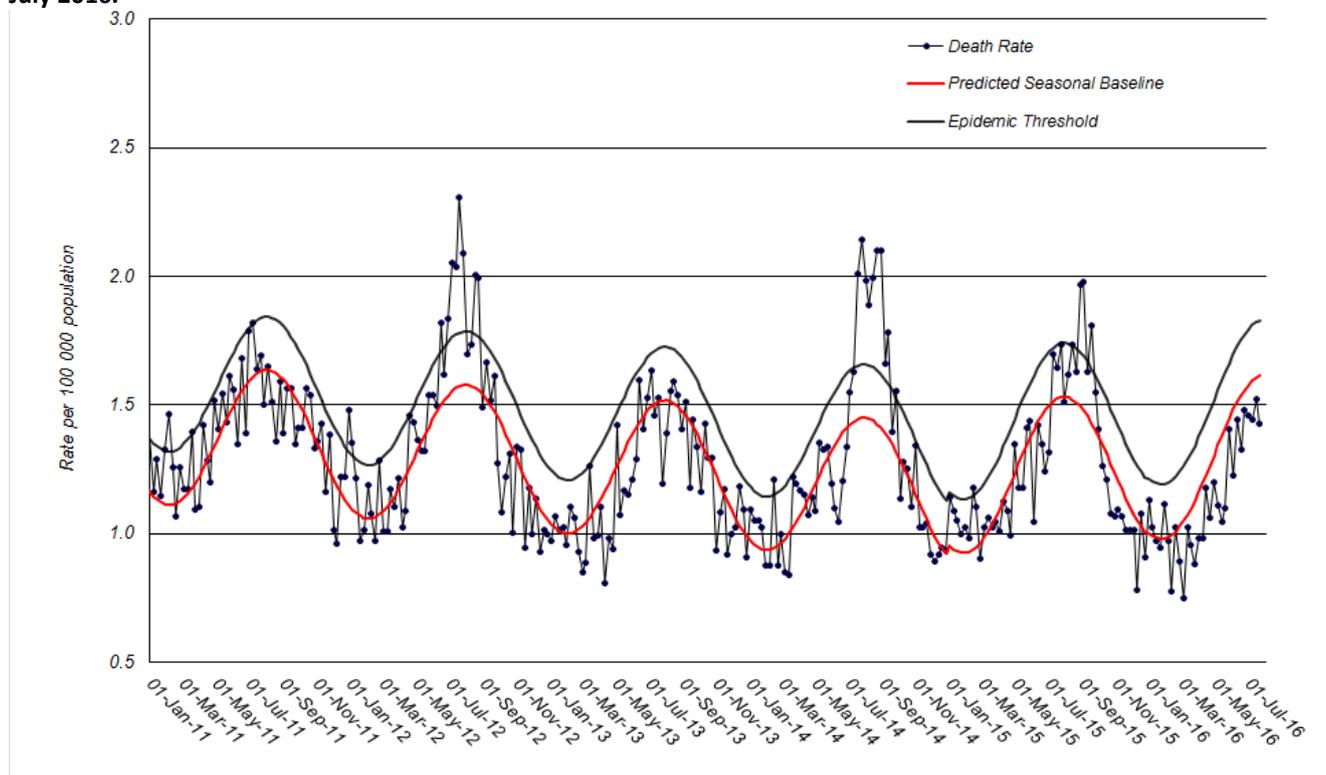
Nationally Notified Influenza Associated Deaths

So far in 2016, 27 influenza associated deaths have been notified to the NNDSS. The median age of deaths notified was 69 years (range 1 to 95 years). The number of influenza associated deaths reported to the NNDSS is reliant on the follow up of cases to determine the outcome of their infection and most likely does not represent the true mortality associated with this disease.

New South Wales Influenza and Pneumonia Death Registrations

Death registration data from NSW for 2016 up to the week ending 22 July 2016 show deaths attributed to pneumonia or influenza are low and below the epidemic threshold (Figure 12).²

Figure 12. Rate of deaths classified as influenza and pneumonia from the NSW Registered Death Certificates, 2011 to 22 July 2016.



Source: NSW Registry of Births, Deaths and Marriages

6. Virological Surveillance

Australian Influenza Vaccines Composition 2016

The influenza virus strains included in the 2016 seasonal influenza vaccines in Australia are:

- A/California/7/2009, (H1N1)pdm09-like virus;
- A/Hong Kong/4801/2014, (H3N2)-like virus;
- B/Brisbane/60/2008-like virus, Victoria lineage;
- B/Phuket/3073/2013-like virus, Yamagata lineage (Quadrivalent influenza vaccine only).

Typing and Antigenic Characterisation

In 2016, up to 22 August the World Health Organization Collaborating Centre for Reference and Research on Influenza (WHOCC) characterised 491 influenza viruses (Table 1). When further characterised for similarity to the vaccine components, isolates appeared to be well matched. All the influenza B isolates were characterised as similar to the vaccine components. A small number of influenza A(H1N1)pdm09 isolates (n=26) and influenza A(H3N2) isolates (n=8) were characterised as low reactors.

Table 1. Australian influenza viruses typed by HI from the WHOCC, 1 January to 22 August 2016.

Type/Subtype	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	TOTAL
A(H1N1) pdm09	3	120	14	143	25	6	35	7	353
A(H3N2)	3	38	0	7	12	3	12	1	76
B/Victoria lineage	3	9	1	14	5	0	0	3	35
B/Yamagata lineage	1	6	0	13	2	0	2	3	27
Total	10	173	15	177	44	9	49	14	491

SOURCE: WHO CC

Note: Viruses tested by the WHO CC are not necessarily a random sample of all those in the community. State indicates the residential location for the individual tested, not the submitting laboratory. There may be up to a month delay on reporting of samples.

Antiviral Resistance

The WHOCC reported that from 1 January to 22 August 2016, of the 553 influenza viruses tested for neuraminidase inhibitor resistance, two influenza A(H1N1)pdm09 viruses have shown highly reduced inhibition to the antiviral drug Oseltamivir.

7. International Surveillance

The World Health Organization reported that influenza activity varied in countries of temperate South America and increased steadily in the last few weeks in South Africa, but remained low overall in most of Oceania.³ Influenza activity in the temperate zone of the northern hemisphere was at inter-seasonal levels.

DATA CONSIDERATIONS

The information in this report is reliant on the surveillance sources available to the Department of Health. As access to sources vary throughout the season, this report will draw on available information.

Detailed notes on interpreting the data presented in this report are available at the Department of Health's [Australian Influenza Surveillance Report website](http://www.health.gov.au/flureport) (www.health.gov.au/flureport).

This report aims to increase awareness of influenza activity in Australia by providing an analysis of the various surveillance data sources throughout Australia. While every care has been taken in preparing this report, the Commonwealth does not accept liability for any injury or loss or damage arising from the use of, or reliance upon, the content of the report. Delays in the reporting of data may cause data to change retrospectively. For further details about information contained in this report please contact the [Influenza Surveillance Team](mailto:flu@health.gov.au) (flu@health.gov.au).

REFERENCES

- 1 FluTracking, FluTracking Weekly Interim Report, Week ending 21 August 2016. Available from [FluTracking Reports](http://www.flutracking.net/Info/Reports) (http://www.flutracking.net/Info/Reports) [Accessed 25 August 2016].
- 2 Personal communication, Robin Gilmour, Health Protection NSW, NSW Ministry of Health, 24 August 2016.
- 3 WHO, Influenza Update No. 270, 22 August 2016. Available from the [WHO website](http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/) (http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/) [Accessed 25 August 2016].