Australian Government
Department of Health

AUSTRALIAN INFLUENZA SURVEILLANCE REPORT

No. 05, 2018
16 to 29 July 2018

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

KEY MESSAGES

- **Activity** – Influenza and influenza-like illness (ILI) activity are low and remain at inter-seasonal levels. Rhinovirus was the most common respiratory virus detected in patients presenting with ILI to sentinel general practices this fortnight.
- **Severity** – Due to low numbers and the instability of data early in the season, there is no indication of the potential severity of the 2018 season at this time.
- **Impact** – Currently, the impact of circulating influenza on society is low.
- **Virology** – This fortnight, the majority of confirmed influenza cases reported nationally were influenza A (86%).

ANALYSIS

1. Activity

Activity measures the capacity of the circulating influenza to spread person to person and maybe measured indirectly through systems that monitor influenza-like illness and more directly through systems that monitor laboratory confirmed influenza.

Influenza-like illness

Overall, ILI in the community is low, at inter-seasonal levels and is within the historical range.

- **Flutracking:** 1.6% of Flutracking participants reported ILI (fever and cough) in the week ending 29 July 2018 (week 30; Figure 1). This is a slight decrease from the proportion reported in week 29 (1.7%). Activity this fortnight is below the range of the last five years.
- **Healthdirect:** 7.2% and 6.8% of calls to the Healthdirect public health hotline were related to ILI in weeks 29 and 30, respectively (Figure 2). When compared to trends in recent years, the level of ILI activity amongst callers is similar. In the last fortnight, there was a decrease in ILI related calls as a percentage of all calls.
- **Sentinel General Practitioners (ASPREN):** 5.6 per 1,000 consultations in sentinel general practices were due to ILI in week 29 (Figure 3). ILI consultations have remained low and relatively stable since mid-May. Due to transmission issues, data for week 30 is not available.

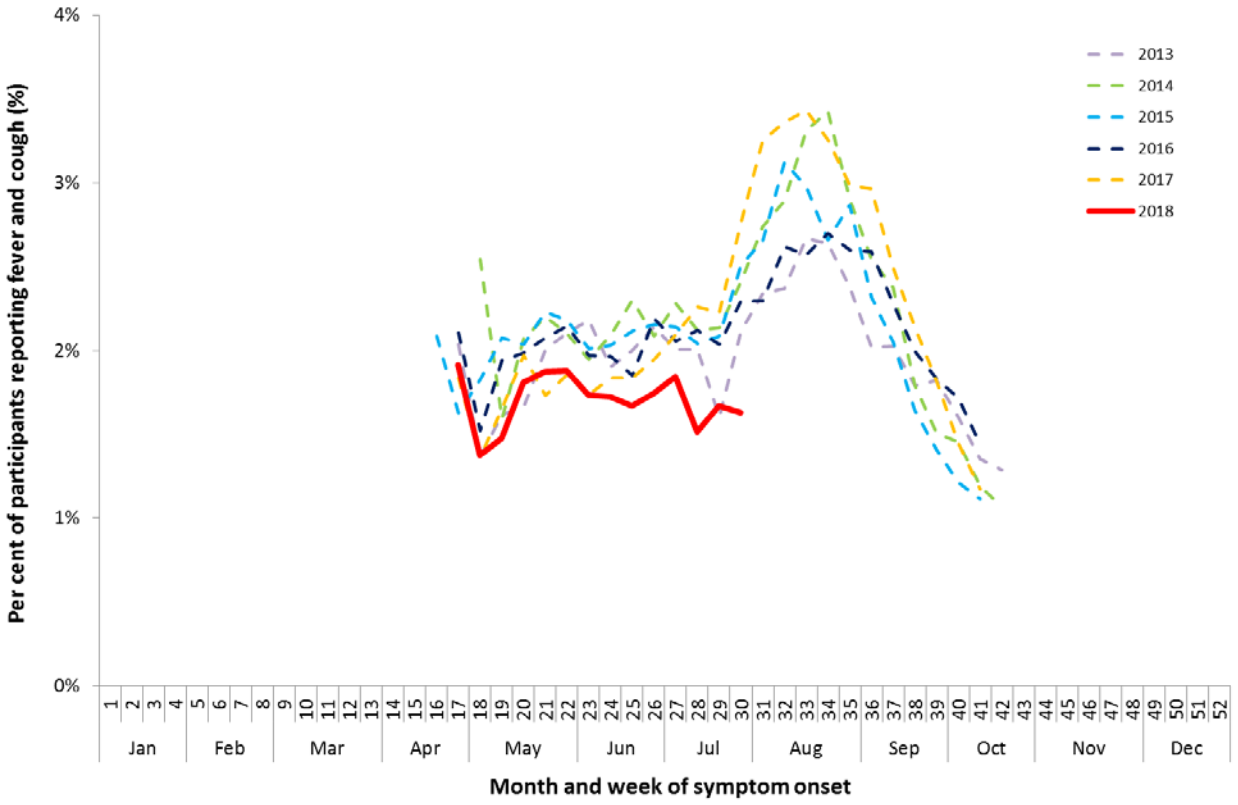
Confirmed influenza

Influenza is circulating at very low levels and is not a major cause of ILI this fortnight.

- **Proportion of ILI with confirmed influenza seen by sentinel GPs:** Of the 123 ILI cases presenting to sentinel ASPREN GPs this fortnight who were tested for influenza, 8 (6.5%) had a positive result. This is a decrease from the previous fortnight when 10.7% (12/112) of swabbed ILI patients tested positive for influenza. Rhinovirus was the most common respiratory virus detected in swabbed patients this fortnight (n=17, 13.8%).
- **Proportion of ILI with confirmed influenza in sentinel labs:** Detections of influenza across all sentinel laboratories this reporting fortnight remained low (Figure 4). The pooled unweighted percentage of tests positive for influenza across all sentinel laboratories was 3.7% in week 30, a slight increase from 3.5% reported in week 29. Respiratory syncytial virus (RSV) was the respiratory virus most commonly detected by PathWest and the Institute of Clinical Pathology and Medical Research (ICPMR) in this reporting fortnight. The most commonly detected respiratory virus detected by the Victorian Infectious Disease Reference Laboratory (VIDRL) was coronavirus, parainfluenza and RSV in week 29, and coronavirus and picornavirus in week 30. The respiratory virus most commonly detected by Tasmania was RSV in week 29 and rhinovirus in week 30.

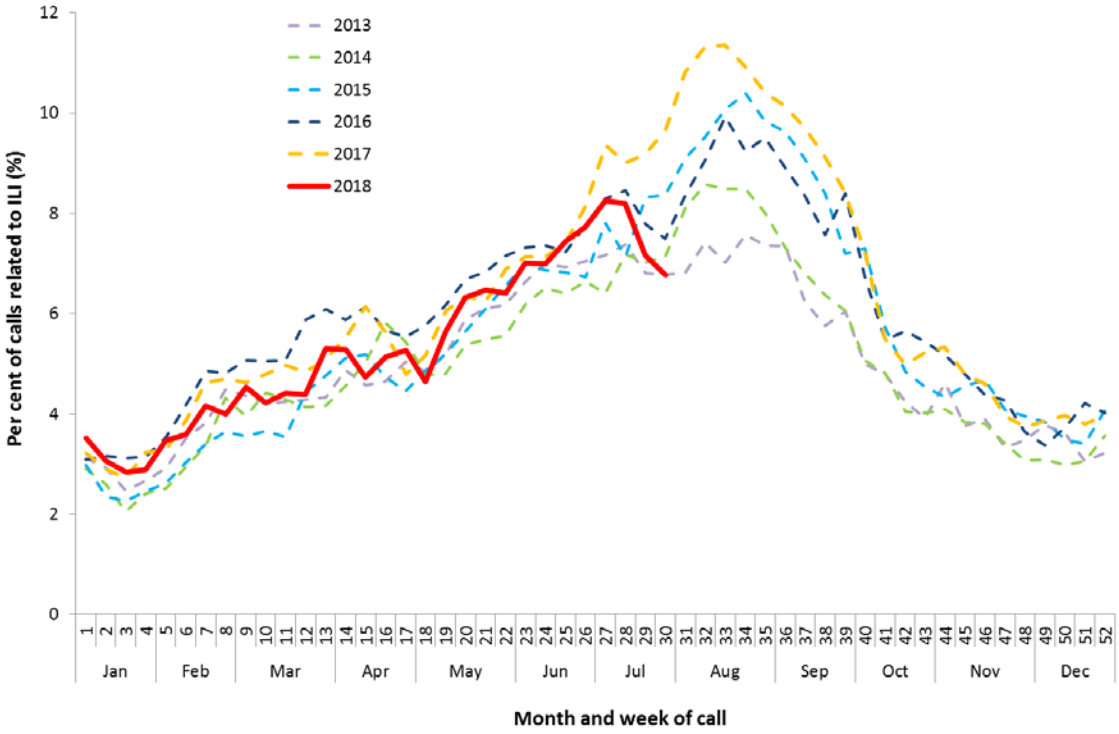
- **NNDSS notifications**: This fortnight there were 1,534 notifications of laboratory confirmed influenza to the National Notifiable Diseases Surveillance System (NNDSS), which is a decrease in reported cases compared to the previous fortnight (n=1,647). There have been 19,216 notifications year to date. While national notifications of laboratory confirmed influenza were higher than usual in January and February, consistent with high activity experienced in the Northern Hemisphere at that time, notifications returned to normal range by March (Figure 5).
- **FluCAN:** Since seasonal sentinel hospital surveillance began on 3 April 2018, a total of 149 people have been admitted with confirmed influenza (Figure 6). This is fewer hospitalisations than the 5 year average for the same period (n=507).

Figure 1. Proportion of fever and cough among FluTracking participants, Australia, between May and October, 2013 to 2018, by month and week.



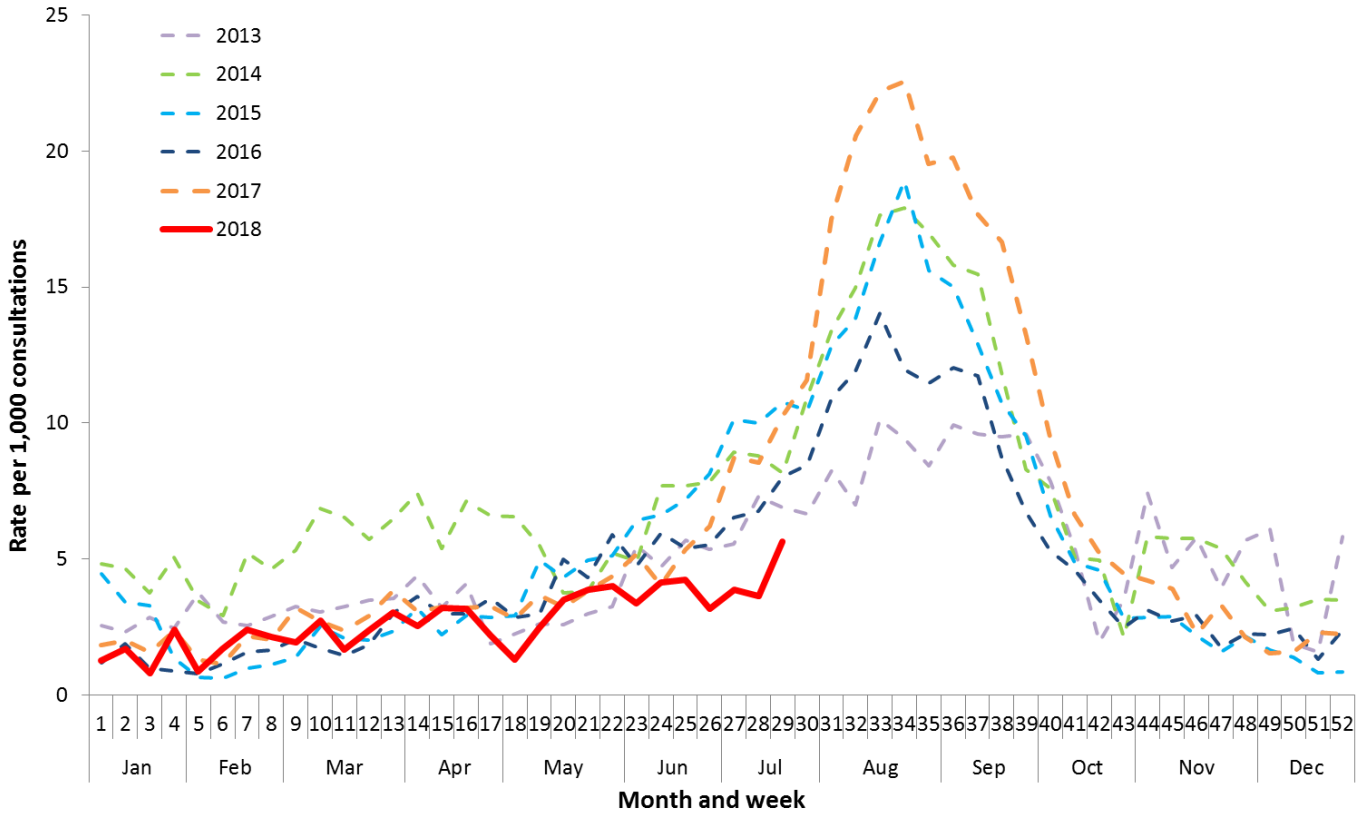
Source: FluTracking

Figure 2. Per cent of calls to Healthdirect related to ILI, Australia, 1 January 2013 to 29 July 2018, by month and week of call.



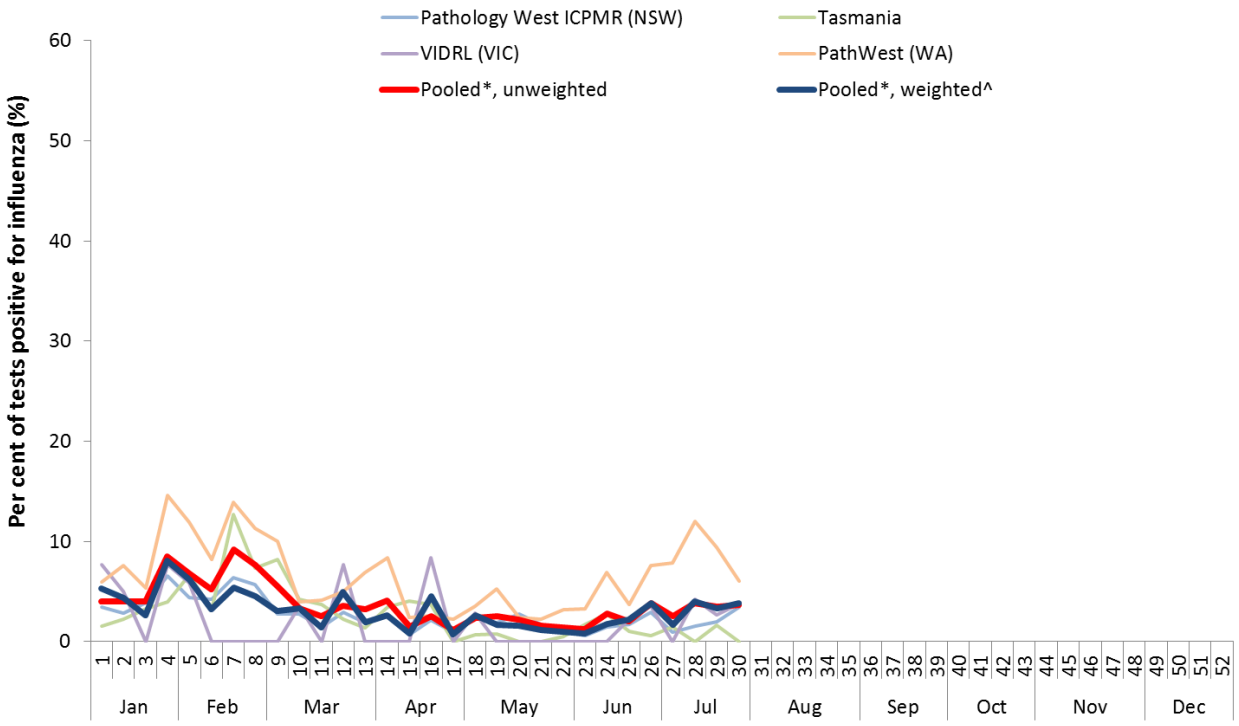
Source: Healthdirect

Figure 3. Unweighted rate of ILI reported from sentinel GP surveillance systems, Australia, 1 January 2013 to 29 July 2018, by month and week.*



Source: ASPREN and VicSPIN (weeks 29 and 30 of 2018 do not include VicSPIN data)
*Due to transmission issues, data for week 30 of 2018 is not available.

Figure 4. Proportion of sentinel laboratory tests positive for influenza, 1 January to 29 July 2018, by contributing laboratory or jurisdiction and month and week.

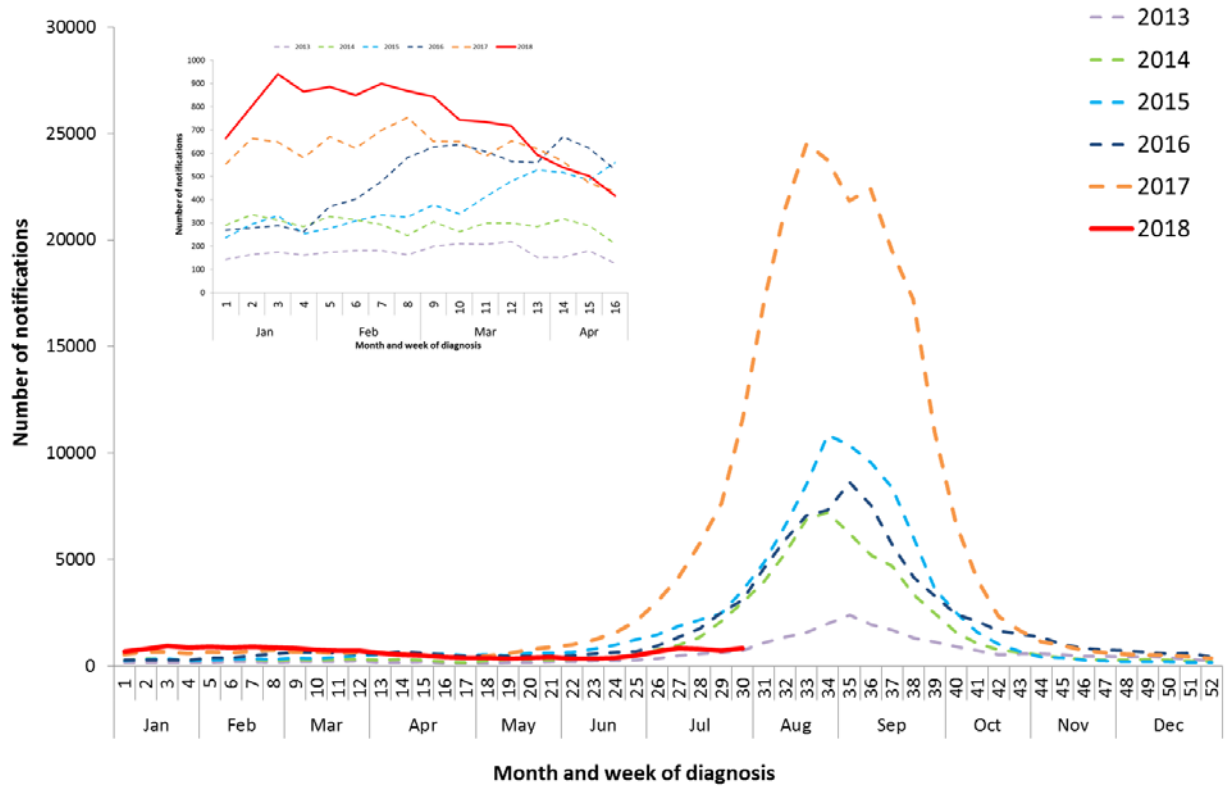


* Pooled percentage positive indicators should be interpreted with caution, noting that collectively pooled contributing laboratories are not representative of testing across Australia and individually contributing laboratories may not be representative of the jurisdiction in which they are located.

^ Weighted according to jurisdictional population in which laboratories are located.

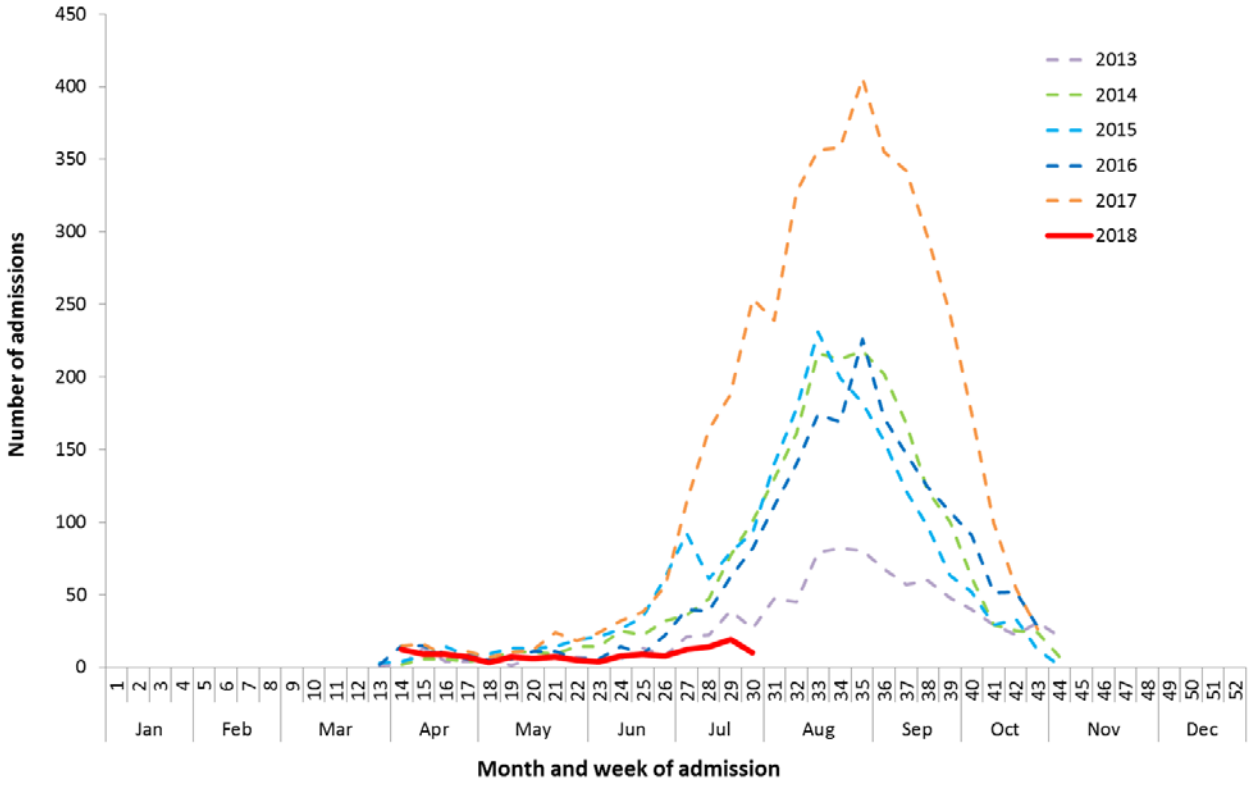
The percentage of tests positive for influenza in the interseasonal period should be interpreted with caution due to small numbers of tests being undertaken in this time, resulting in high variability in the indicators.

Figure 5. Notifications of laboratory confirmed influenza, Australia, 1 January 2013 to 29 July 2018, by month and week of diagnosis.



Source: NNDSS

Figure 6. Number of influenza hospitalisations at sentinel hospitals, between March and October, 2013 to 2018 by month and week.



Source: FluCAN

Geographical distribution of activity

- **Jurisdictional reports**: In the fortnight ending 29 July 2018, the geographic spread of influenza activity was reported by state and territory health departments as being sporadic in all jurisdictions, apart from Victoria and the rural south region in Western Australia (WA), which reported localised activity, South Australia, which reported regional activity, and the Perth metro region in WA, which reported widespread activity. There was no change in influenza activity compared to the previous fortnight in the Australian Capital Territory (ACT), all regions of Queensland (QLD), all regions of Northern Territory (NT), and all regions of WA. New South Wales, SA, Tasmania (TAS) and Victoria (VIC) reported an increase in activity (Figure 7).
- **NNDSS**: Of the 1,534 notifications of influenza reported to the NNDSS in the last fortnight, 597 were from NSW, 451 from QLD, 212 from WA, 161 from VIC, 78 from SA, 18 from ACT, 12 from TAS and 5 from NT (Figure 8). Of the 19,216 notifications of influenza reported to the NNDSS this year to 29 July 2018, 6,010 from NSW, 5,959 were from QLD, 2,915 from VIC, 2,278 from WA, 1,590 from SA, 192 from ACT, 144 from TAS and 128 from the NT.

For further information regarding influenza activity at the jurisdictional level, please refer to the following State and Territory health surveillance reports:

- ACT: Influenza report (http://health.act.gov.au/node/41)
- NSW: Influenza Surveillance Report (http://www.health.nsw.gov.au/Infectious/Influenza/Pages/reports.aspx)
- QLD: Statewide Weekly Influenza Surveillance Report (https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/surveillance/reports/flu)
- SA: Weekly Epidemiological Summary (Influenza section) (http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/about+us/health+statistics/surveillance+of+notifiable+conditions)

- TAS: fluTAS Reports (http://www.dhhs.tas.gov.au/publichealth/communicable_diseases_prevention_unit)
- VIC: Influenza Surveillance Reports (https://www2.health.vic.gov.au/public-health/infectious-diseases/infectious-diseases-surveillance/seasonal-influenza-reports)
- WA: Virus WAtch (http://ww2.health.wa.gov.au/Articles/F_I/Infectious-disease-data/Virus-WAtch)

Figure 7. Map of influenza activity by state and territory, Australia, 18 June to 29 July 2018.

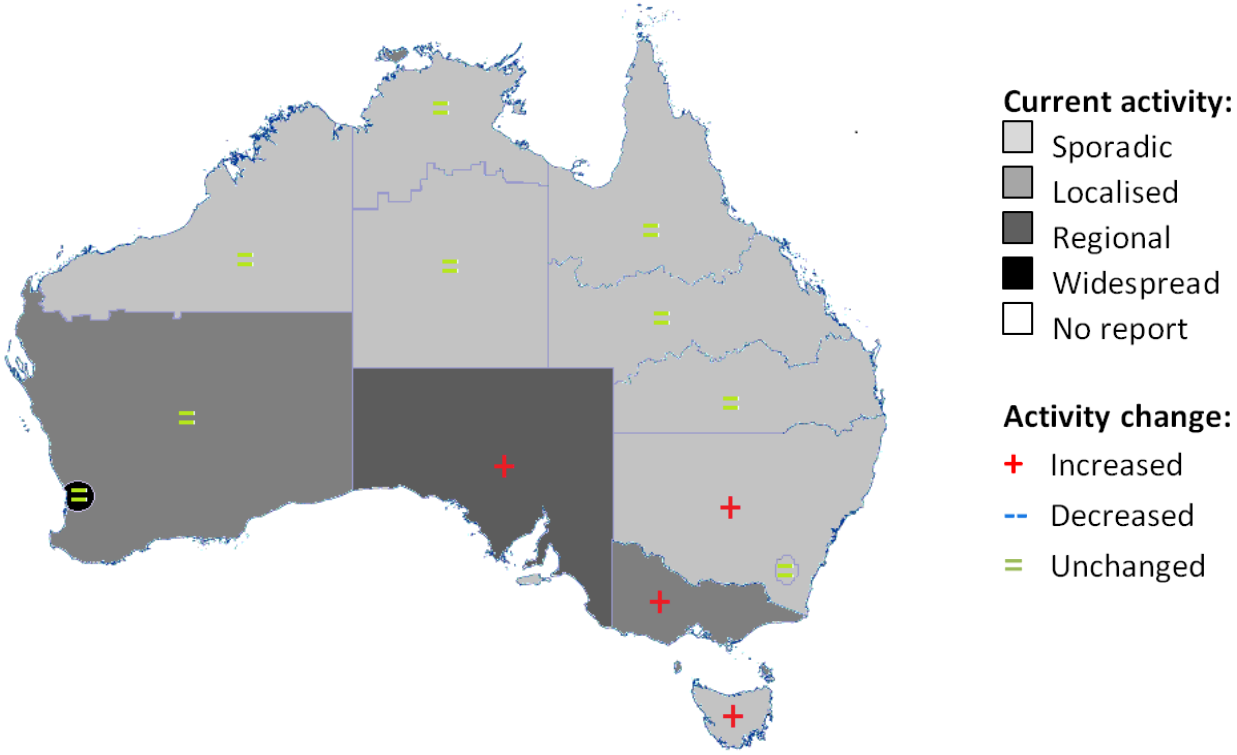
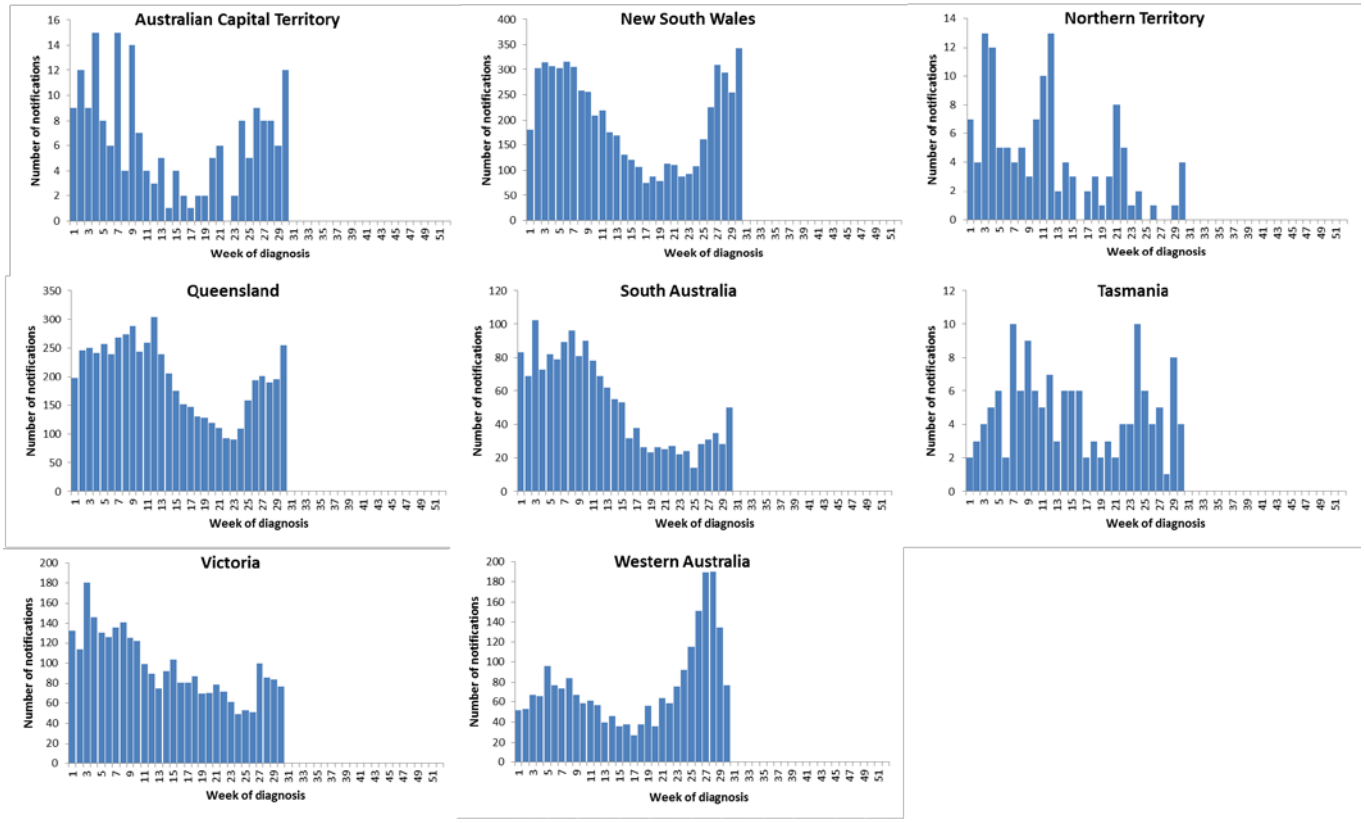


Figure 8. Notifications of laboratory confirmed influenza, 1 January to 29 July 2018, by state or territory and week.



2. Severity

Severity is a measure of adverse outcomes or complications as a result of influenza or influenza-like illness (ILI) such as hospital referrals, admissions, need for intensive care and deaths. Measuring and understanding the severity of circulating influenza is difficult to establish at the beginning of the influenza season. The proportion of confirmed influenza cases with serious outcomes might be skewed initially because there are only a small number of people notified with influenza at the beginning of the season. This means that the measure of severity will vary substantially fortnight to fortnight until after the peak of the season when there is enough data for measurements to stabilise. An assessment of severity be provided once the signals become clearer.

Intensive care admissions

- **FluCAN**: This fortnight, three of the 29 people admitted to sentinel hospitals with confirmed influenza were admitted to ICU. Since seasonal sentinel hospital surveillance began on 3 April 2018, 13 (9%) of the 149 people admitted to sentinel hospitals with confirmed influenza were admitted to ICU.

Deaths in confirmed influenza cases

- **NNDSS**: So far in 2018, 29 influenza associated deaths have been notified to the NNDSS. The majority of deaths were due to influenza A (72%, n=21). The median age of deaths notified was 79 years (range 2 to 100 years). The number of influenza-associated deaths reported to the NNDSS does not represent the true mortality associated with this disease. The number of deaths is reliant on the follow up of cases to determine the outcome of their infection. The follow up of cases is not a requirement of notification, and are only inclusive of laboratory-confirmed cases of influenza. Due to retrospective revision, the variation across jurisdictions in methodology, representativeness and timeliness of death data, and reporting of an outcome of infection not being a requirement of notification, year on year comparisons of deaths in notified cases of influenza may not be reliable.

3. Impact

Impact measures how the influenza epidemic affects society, including stress on health-care resources and societal and economic consequences.

Absenteeism

- **Flutracking**: 1.1% of Flutracking survey respondents reported having ILI and taking time off regular duties while unwell in the weeks 29 and 30. This is a low level of impact when compared to trends in recent years.

Use of hospital beds

- **FluCAN:** Since seasonal sentinel hospital surveillance began on 3 April 2018, 2% of hospital beds available in FluCAN hospitals were occupied by patients with confirmed influenza. This is a low level of impact when compared to temporal trends.

4. Virology

National notification data

- **NNDSS:** In the reporting fortnight, 86% of notifications of laboratory confirmed influenza to the NNDSS were influenza A (74% influenza A(unsubtyped), 10% influenza A(H1N1)pdm09 and 1% influenza A(H3N2)), 13% were influenza B and less than 1% were influenza A&B co-infections (Figure 9).
- **NNDSS:** For the year to 29 July 2018, 64% of notifications of laboratory confirmed influenza to the NNDSS were influenza A (55% influenza A(unsubtyped), 6% influenza A(H1N1)pdm09 and 4% influenza A(H3N2)), 35% were influenza B and less than 1% were influenza A&B co-infections or untyped. The proportion of all notifications year to date reported as influenza A has ranged across jurisdictions from 51% in the NT to 73% in WA (Figure 10).

Reference Laboratory data

- **World Health Organization Collaborating Centre for Reference and Research on Influenza (WHOCC):** From 1 January to 30 July 2018, the WHOCC characterised 328 influenza viruses. Of these, 39% were influenza A(H1N1)pdm09, 34% were influenza A(H3N2), 26% were influenza B Yamagata lineage and 1% were influenza B Victoria lineage.

Sentinel laboratory surveillance

- In the reporting fortnight, 90% of influenza positive samples detected in sentinel laboratories were influenza A (48% were influenza A(unsubtyped), 39% influenza A(H1N1)pdm09, and 3% were influenza A(H3N2)) and 10% were influenza B (Figure 11).

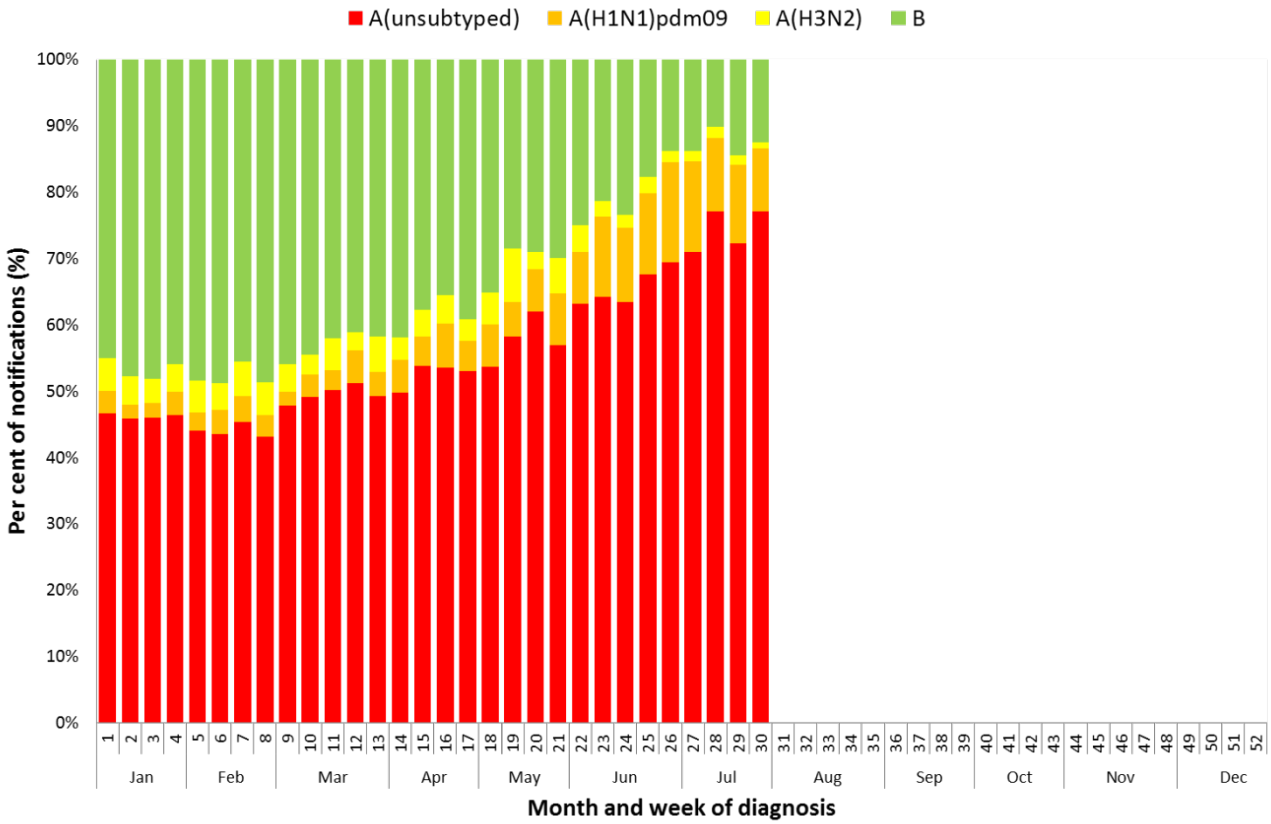
Sentinel GP surveillance

- **ASPREN**: Of the 8 influenza positive samples detected this fortnight through swab testing patients presenting with ILI to ASPREN sentinel GPs, 7 were influenza A (unsubtyped) and 1 was influenza B (Figure 12).

Sentinel hospital surveillance

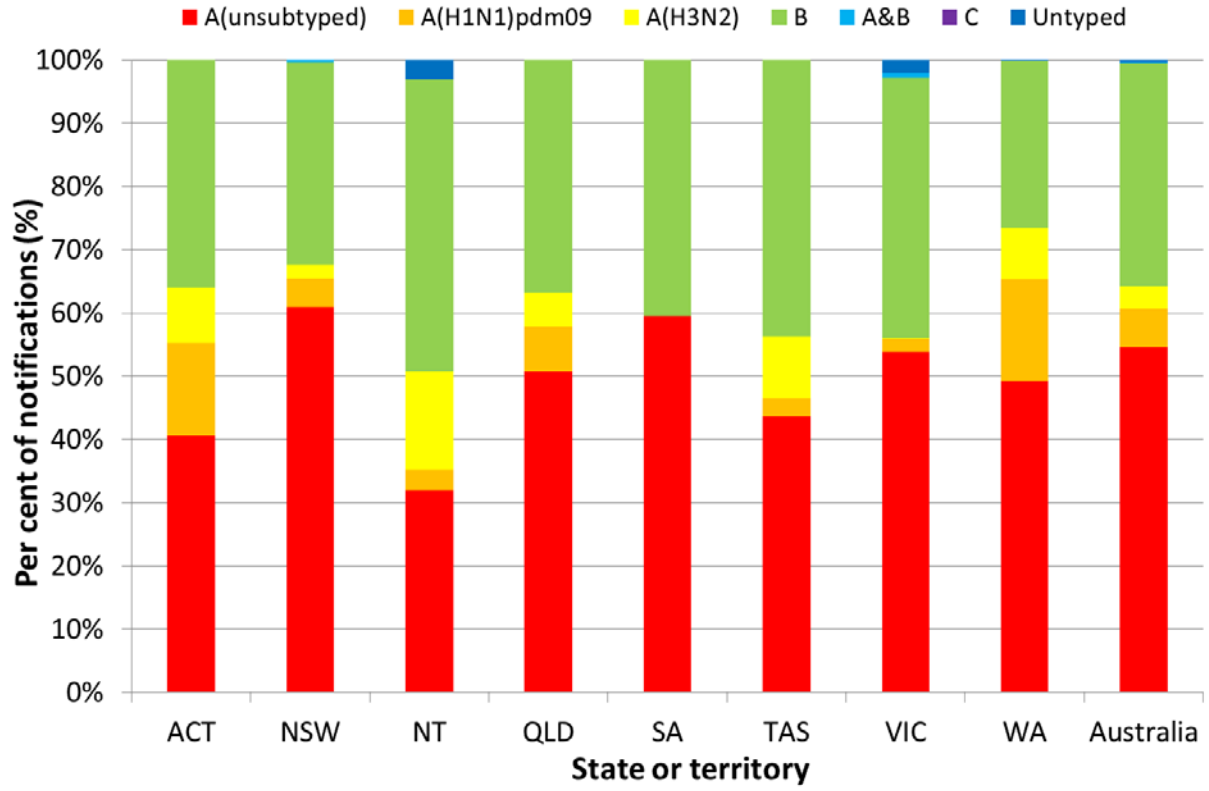
- **FluCAN**: Since seasonal sentinel hospital surveillance began on 3 April 2018, 72% of confirmed influenza to sentinel hospitals were influenza A (48% A(unsubtyped), 23% influenza A(H1N1)pdm09 and 1% influenza A (H3N2)) and 28% were influenza B. (Figure 13).

Figure 9. Per cent of laboratory confirmed influenza, Australia, 1 January to 29 July 2018, by subtype and week.



Source: NNDSS

Figure 10. Per cent of notifications of laboratory confirmed influenza, Australia, 1 January to 29 July 2018, by subtype and state or territory.



Source: NNDSS

Figure 11. Proportion of sentinel laboratory tests positive for influenza and total number of specimens tested, 1 January to 29 July 2018, by subtype and month and week.

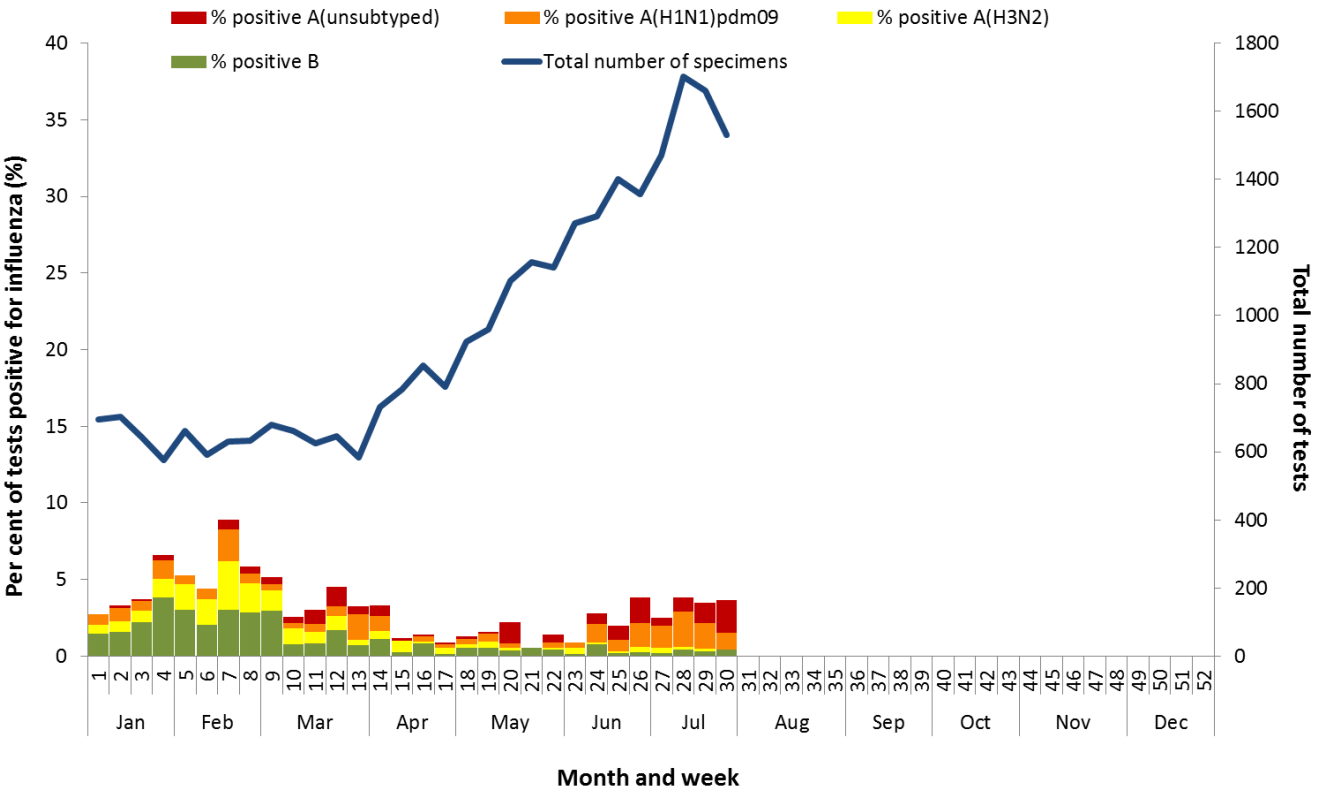
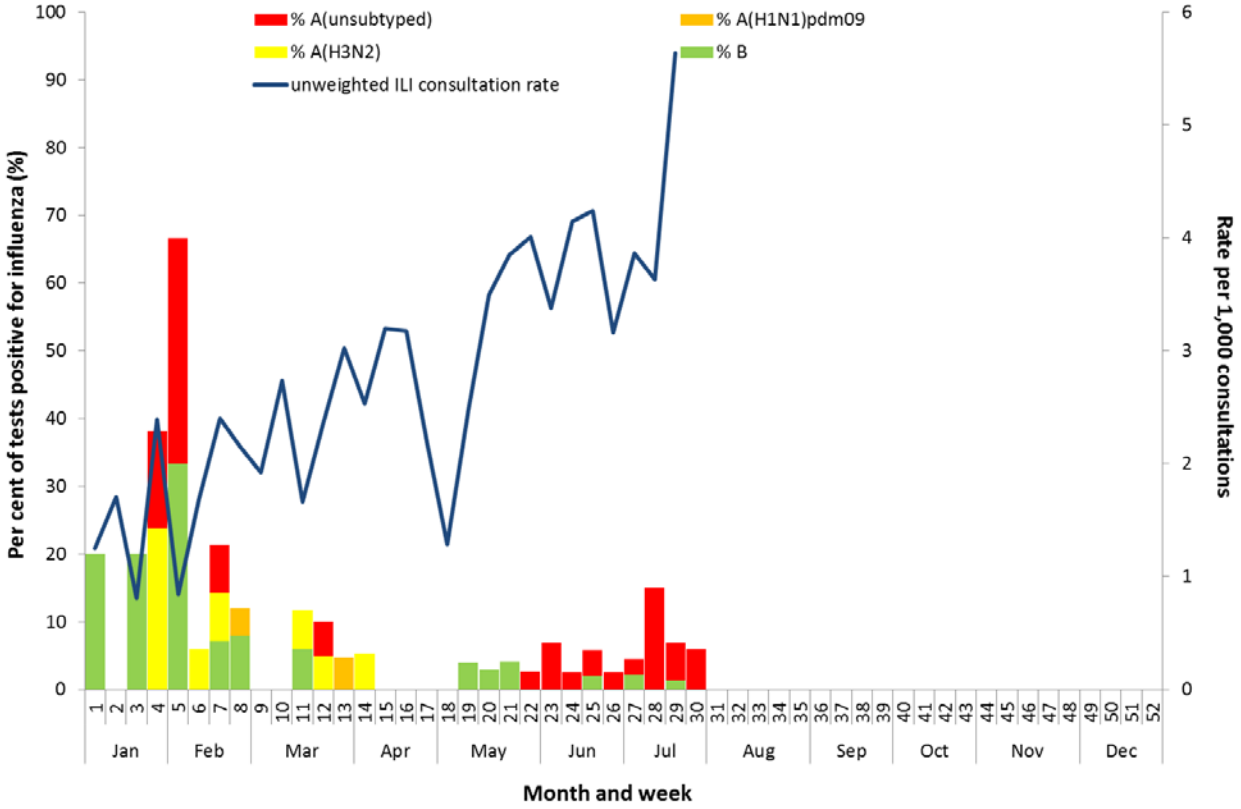


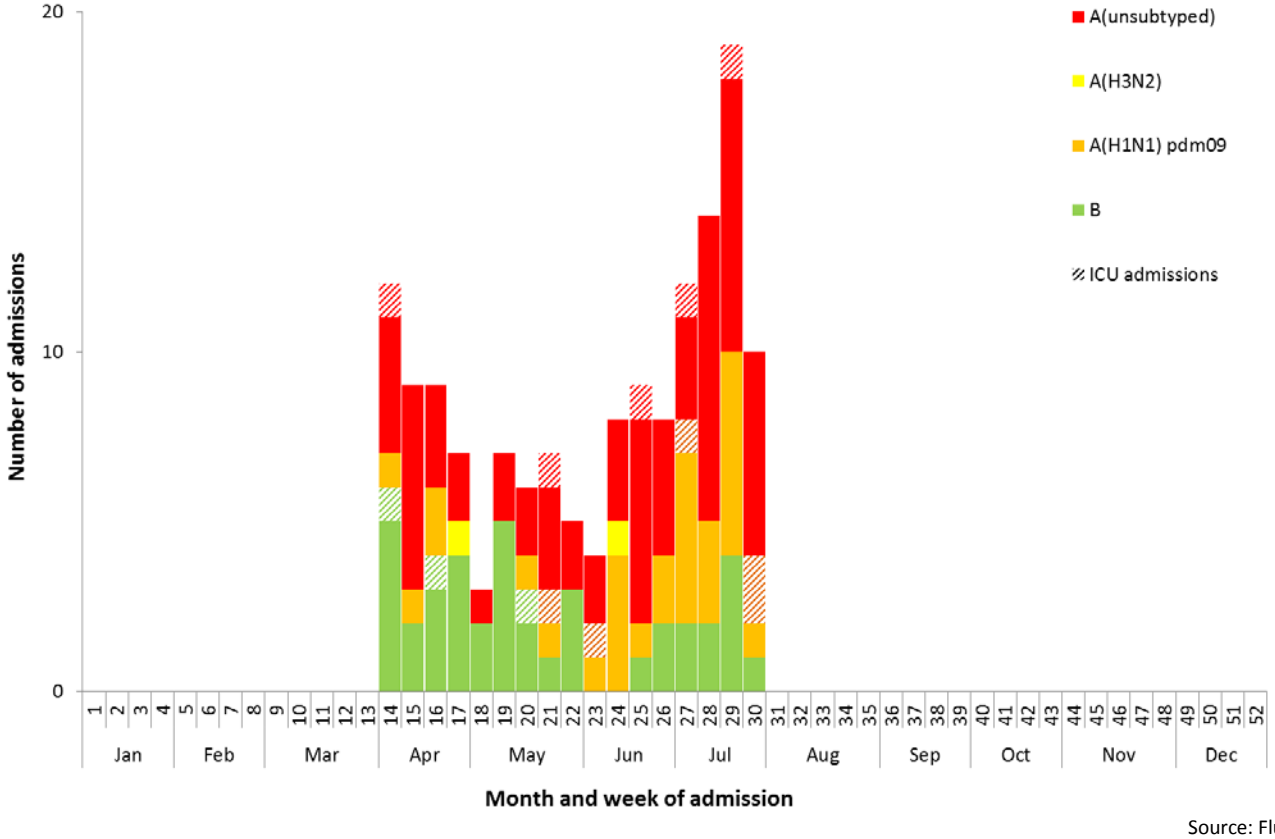
Figure 12. Proportion of respiratory viral tests positive for influenza in ASPREN ILI patients and ASPREN ILI consultation rate*, Australia, 1 January to 29 July 2018, by month and week.



Source: ASPREN

*unweighted ILI consultation rate is not available for week 30 due to data transmission issues.

Figure 13. Number of influenza hospitalisations at sentinel hospitals by subtype and ICU admission, 3 April to 29 July 2018, by month and week.



Source: FluCAN

5. At-risk Populations

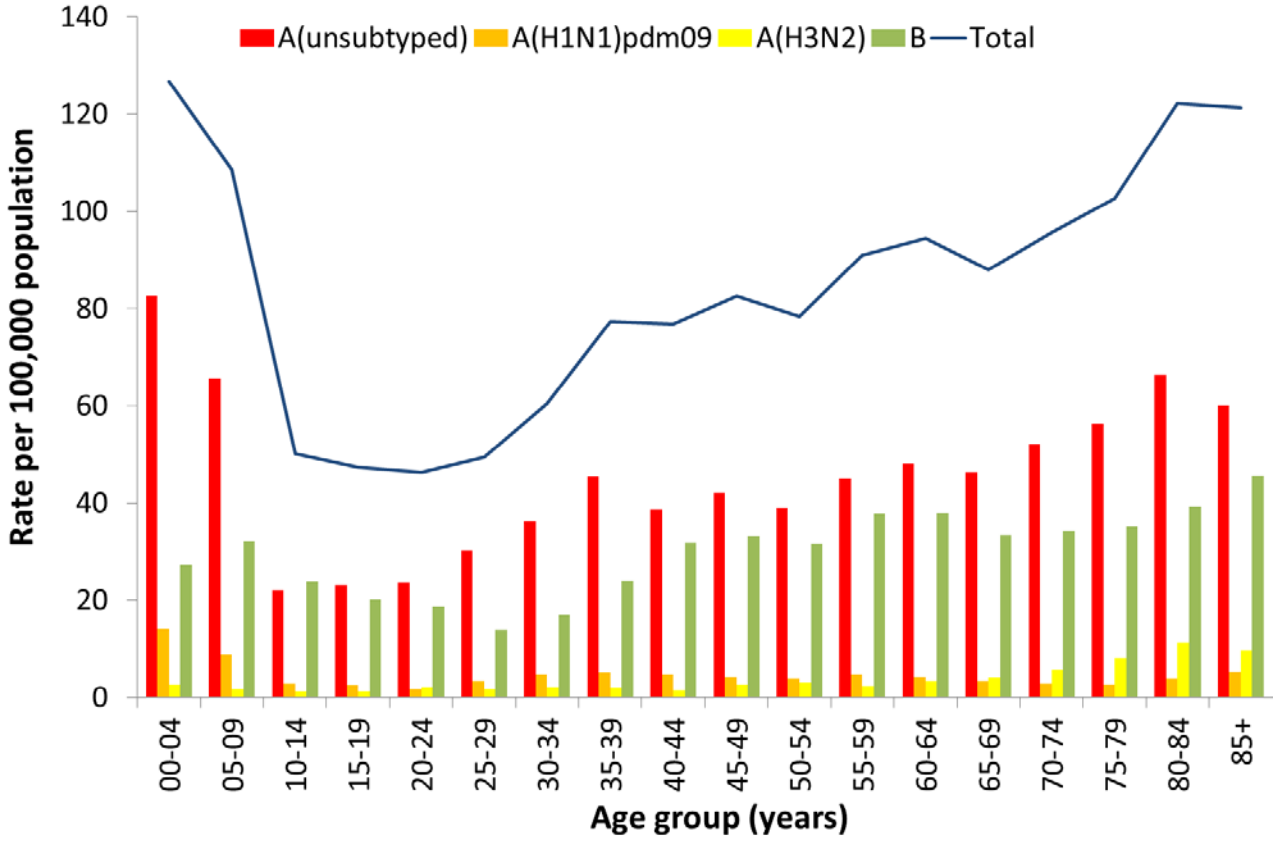
National notification data

- **NNDSS:** So far in 2018, notification rates have been highest in children under 4 (126.7 notifications per 100,000), with a secondary peak in adults aged 80 years or older (121.8 notifications per 100,000) (Figure 14). Where subtyping information is available, notifications of influenza A(H1N1)pdm09 were highest in children aged less than 4 years (14 per 100,000) and notifications of influenza A(H3N2) were highest in adults aged 75 years and older (9.5 per 100,000).

Sentinel hospital surveillance

- **FluCAN:** Since seasonal sentinel hospital surveillance began on 3 April 2018, 42% of people admitted with confirmed influenza were children aged 15 years and younger, 34% were adults aged between 16 and 64 years and 24% were adults aged 65 years and older.

Figure 14. Rate of notifications of laboratory confirmed influenza, Australia, 1 January to 29 July 2018, by age group and subtype.



Source: NNDSS

Vaccine effectiveness

Australian Influenza Vaccines Composition 2018

The influenza virus strains included in the 2018 seasonal influenza vaccines in Australia are:

- A/Michigan/45/2015, (H1N1)pdm09-like virus;
- A/Singapore/INFIMH-16-0019/2016, (H3N2)-like virus; and
- B/Phuket/3073/2013-like virus, Yamagata lineage.
- B/Brisbane/60/2008-like virus, Victoria lineage.

The best way to determine how well the vaccine protects against circulating viruses during the season is by determining the vaccine effectiveness. These estimates provide an indication of how effective the vaccine was in providing protection against influenza infection, but can only be determined towards the end of the influenza season.

WHOCC

From 1 January to 30 July 2018, 213 isolates were characterised for similarity to the corresponding vaccine components by haemagglutination inhibition (HI) assay (Table 1). Influenza A(H1N1)pdm09 viruses and viruses from both influenza B lineages appeared to be antigenically similar to the corresponding vaccine components. One Influenza A(H1N1)pdm09, two influenza B(Yamagata) and no influenza B(Victoria) isolates were characterised as low reactors. The influenza A(H3N2) isolates that were able to be assessed by HI assay appeared to be reasonably matched, although there are ongoing technical issues that significantly limit the WHOCC's capacity to fully assess the similarity of circulating viruses to the vaccine strain. Two influenza A(H3N2) isolates were characterised as low reactors, and an additional 23 isolates were unable to be characterised in the HI assay due to insufficient haemagglutination titre.

Table 1. Australian influenza viruses typed by HI from the WHOCC, 1 January to 30 July 2018.

Type/Subtype	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	TOTAL
A(H1N1) pdm09	**2**	**18**	**0**	**34**	**2**	**0**	**0**	**11**	67
A(H3N2)	**3**	**25**	**3**	**33**	**4**	**0**	**0**	**0**	68
B/Victoria lineage	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	3
B/Yamagata lineage	**3**	**32**	**10**	**22**	**4**	**0**	**0**	**4**	75
Total	8	76	14	90	10	0	0	15	213

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.

6. Antiviral Resistance

The WHOCC reported that from 1 January to 30 July 2018, none of the 176 influenza viruses tested for neuraminidase inhibitor resistance, demonstrated reduced inhibition to the antiviral drugs Zanamivir or Oseltamivir.

7. Data considerations

No one single system, including notification data, provides the full picture on influenza, because influenza is a common disease and its presenting symptoms are non-specific. The epidemiology of influenza is informed by a number of different systems based in the community, laboratories, primary care and hospitals, as well as official deaths and notifiable diseases data. The information in this report is reliant on the surveillance sources available to the Department of Health at the time of production.

Data in this summary is reported by International Organization for Standardization (ISO) 8601 weeks, with the week ending on Sunday. Throughout the summary, where the year to date is presented, this includes data from 1 January to 29 July 2018. NNDSS data were extracted on 1 August 2018. Due to the dynamic nature of the NNDSS and other surveillance systems, data in this report are subject to retrospective revision and may vary from data reported in other national reports and reports by states and territories. Detailed notes on interpreting the data presented in this report are available at the Department of Health's Australian Influenza Surveillance Report website (www.health.gov.au/flureport).

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 (flu@health.gov.au).