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

**SUMMARY**

- Across most jurisdictions, seasonal influenza activity appears to have peaked in recent weeks with the exception of South Australia where activity continues to rise. The timing and magnitude of the peak is similar to 2014.

- Influenza notification rates have been highest among those aged between 5 and 9 and over 85 years with a secondary peak in those aged 40-44 years.

- Influenza B continues to be the dominant influenza virus type nationally, comprising over two thirds of all notifications. In the Australian Capital Territory and Western Australia, influenza A continues to replace influenza B.

- All systems that monitor influenza-like illness (ILI) activity are reporting decreasing activity following a season peak in the week ending 23 August. Influenza is the primary cause of ILI in the community this fortnight however other respiratory viruses continue to circulate at elevated levels.

- Data for hospitalisations with confirmed influenza show high influenza activity which is typical for mid-season. Influenza B continues to account for more than half of admissions.

- The seasonal influenza vaccines appear to be a good match for circulating strains with 83% of samples matching the trivalent seasonal vaccine (TIV).

Figure 1. Notifications of laboratory confirmed influenza, Australia, 1 January 2011 to 28 August 2015, by week.
Influenza activity and severity in the community are monitored using the following indicators and surveillance systems:

<table>
<thead>
<tr>
<th>Is the situation changing?</th>
<th>Indicated by trends in: laboratory confirmed cases reported to the National Notifiable Diseases Surveillance System (NNDSS); influenza associated hospitalisations; emergency department (ED) presentations for influenza-like illness (ILI); general practitioner (GP) consultations for ILI; ILI-related call centre calls and community level surveys of ILI; and sentinel laboratory test results.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How severe is the disease, and is severity changing?</td>
<td>Indicated by trends in: hospitalisations, intensive care unit (ICU) admissions and deaths; and clinical severity in hospitalised cases and ICU admissions.</td>
</tr>
<tr>
<td>Is the virus changing?</td>
<td>Indicated by trends in: drug resistance; and antigenic drift or shift of the circulating viruses.</td>
</tr>
</tbody>
</table>

1. Geographic Spread of Influenza Activity in Australia

In the fortnight ending 28 August 2015, influenza activity was reported as stable or increasing across most regions except metropolitan Perth and New South Wales (NSW), where activity has started to decline (Figure 2). NSW noted that their season appears to have peaked with the majority of surveillance systems showing small declines in activity. Qld noted that while overall activity is stable, the proportion of laboratory tests undertaken in the public hospital system has continued to increase. ILI activity detected through syndromic surveillance systems is variable nationally with NSW and Victoria (Vic) reporting decreasing activity compared with the previous reporting period while activity was unchanged in Western Australia (WA) and continuing to increase in all other regions. Indicators of influenza activity remained stable or declined this week, further indicating we have reached the peak of the influenza season.

Figure 2. Map of influenza activity by state and territory, Australia, 15 August to 28 August 2015.
2. Influenza-like Illness Activity

Community Level Surveillance

**FluTracking**

FluTracking, a national online system for collecting data on ILI in the community, indicated that the seasonal rise in rates of ILI among participants commenced in early August and peaked in the week ending 23 August. ILI rates in the most recent fortnight have decreased and continue to track lower than 2014 (Figure 3). In the week ending 30 August 2015, rates of fever and cough decreased to 3.8% of all participants (3.2% of vaccinated participants and 4.7% of unvaccinated participants), down from 4.1% of all participants at the end of the previous fortnight. Fever, cough and absence from normal duties were reported by 2.6% of all participants (2.1% of vaccinated participants and 3.3% of unvaccinated participants). In the week ending 30 August 2015, 62.4% of participants reported having received the 2015 influenza vaccine. Of the 3,776 participants who identified as working face-to-face with patients, 3,075 (81.4%) have received the vaccine.

**Figure 3. Proportion of fever and cough among FluTracking participants, Australia, between May and October, 2011 to 2015, by week.**

![Graph showing the proportion of fever and cough among FluTracking participants from May 2011 to October 2015.](source: FluTracking)

**Sentinel General Practice Surveillance**

Systems that measure ILI presentations to general practitioners indicated that the seasonal peak occurred in the week ending 23 August. During the reporting fortnight, the peak ILI rate was similar to 2012 and 2014 (Figure 4). In the fortnight ending 30 August 2015, the ILI consultation rate decreased from the season peak of 18.2 to 15.9 notifications of ILI per 1,000 consultations.

**Figure 4. Rate of ILI reported from sentinel GP surveillance systems, Australia, 1 January 2011 to 30 August 2015, by week.**

![Graph showing the rate of ILI reported from sentinel GP surveillance systems from January 2011 to August 2015.](source: ASPREN and VIDRL GP surveillance systems)
In the fortnight ending 30 August 2015, specimens were collected from around 36% of ILI patients seen by Australian Sentinel Practices Research Network (ASPREN) general practitioners. Of these patients, 51% were positive for influenza, which was unchanged from the previous fortnight. Influenza B viruses were the predominant influenza subtype identified (Figure 5 and Table 1). The proportion of ILI patients positive for other respiratory viruses was stable at approximately 21%. Rhinovirus continued to be the most common non-influenza virus detected.

Table 1. ASPREN laboratory respiratory viral test results of ILI consultations, 1 January to 30 August July 2015.

<table>
<thead>
<tr>
<th></th>
<th>Fortnight (17 August– 30 August 2015)</th>
<th>YTD (1 January – 30 August 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total specimens tested</td>
<td>192</td>
<td>2145</td>
</tr>
<tr>
<td>Total Influenza Positive (%)</td>
<td>51.0</td>
<td>28.4</td>
</tr>
<tr>
<td>Influenza A (%)</td>
<td>17.2</td>
<td>9.4</td>
</tr>
<tr>
<td>A (H1N1) pdm09 (%)</td>
<td>0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>A (H3N2) (%)</td>
<td>3.6</td>
<td>3.8</td>
</tr>
<tr>
<td>A (unsubtyped) (%)</td>
<td>13.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Influenza B (%)</td>
<td>33.9</td>
<td>19.0</td>
</tr>
<tr>
<td>Other Resp. Viruses (%)*</td>
<td>21.4</td>
<td>29.9</td>
</tr>
</tbody>
</table>

* Other respiratory viruses include human metapneumovirus, RSV, parainfluenza, adenovirus and rhinovirus.

Figure 5. Proportion of respiratory viral tests positive for influenza in ASPREN ILI patients and ASPREN ILI consultation rate, Australia, 1 January to 30 August 2015, by week.

Sentinel Emergency Department Surveillance

Western Australia Emergency Departments²

Viral respiratory presentations to WA emergency departments increased to 62 per 1,000 ED presentations. This rebound increase is close to the season peak of 66 respiratory presentations per 1,000 ED presentations which occurred in the week ending 28 July. The current rates of presentations are within the range of recent seasons and less than the peak observed in 2012, a moderately severe season (Figure 6).
New South Wales Emergency Departments

In the week ending 30 August 2015, the proportion of ILI presentations to NSW EDs decreased although it remained high at 4.7 per 1000 presentations. Presentations were particularly elevated in the 5-16 year age-group, in the Western Sydney and South Eastern Sydney Local Health Districts (LHDs), and at isolated individual hospitals. ILI presentations decreased during the second reporting week but remained above the usual range of activity seen in recent years, although similar to 2014 (Figure 7). ILI and pneumonia admissions to critical care decreased and were within the usual range for this time of year.

The NSW emergency department surveillance system uses a statistic called the ‘index of increase’ to indicate when ILI presentations are increasing at a statistically significant rate. An index value greater than 15 suggests that influenza is circulating widely in the NSW community. The index of increase for ILI presentations was 48.1 on 30 August, lower than the previous week (59.2). The index crossed the threshold level of 15 on 26 June and peaked at 64.2 on 19 August (higher than the peak of 50.7 seen in 2014).
Northern Territory Emergency Departments
The rate of ILI presentations to NT emergency departments increased this reporting fortnight and remains within the usual range for this time of year (Figure 8).

Figure 8. Rate of influenza-like illness presentations to Northern Territory emergency departments, 1 January 2011 to 22 August 2015, by week.

3. Laboratory Confirmed Influenza Activity
Notifications of Influenza to Health Departments
For the year to 28 August, there were 58,160 laboratory confirmed notifications of influenza: 18,416 in Qld; 16,797 in NSW; 9,717 in South Australia (SA); 7,459 in Victoria (Vic); 3,861 in WA; 895 in the Australian Capital Territory (ACT); 779 in Tasmania (Tas) and 236 in NT (Figure 9). Notification data for Vic are incomplete for the reporting period.

In the fortnight ending 28 August 2015, there were 17,001 notifications reported to the NNDSS (Figure 9). The three jurisdictions with the highest number of influenza notifications, Qld (6,580), NSW (6,527) and SA (2,473) together contributed 92% of notifications this fortnight, followed by WA (577), Tas (327), ACT (209), and NT (73). Victoria continues to experience high numbers of notifications, resulting in an administrative backlog; therefore notifications the most recent fortnight are likely to increase in future reports.

In recent weeks, influenza activity has been high and generally stable (Figure 10). These data suggest that the season may be close to peaking in most areas.
Figure 9. Notifications of laboratory confirmed influenza, Australia, 1 January to 28 August 2015, by state or territory and week*.

* No data for Victoria for weeks ending 21 and 28 August.

Source: NNDSS

Figure 10. Notifications of laboratory confirmed influenza, 1 January to 28 August 2015, by state or territory and week*.

* No data for Victoria for weeks ending 21 and 28 August.

Source: NNDSS
So far in 2015, notification rates have been highest among those aged 5-9 years and over 85 years with a secondary peak in those aged 35-44 years (Figure 11). This age distribution is driven by influenza B infections being prevalent in school aged children and both influenza A(H3N2) and B affecting older age groups.

**Figure 11. Rate of notifications of laboratory confirmed influenza, 1 January to 28 August 2015, by subtype and age group.**

Of the influenza notifications reported to the NNDSS this reporting period, 70% were influenza B, 29% were influenza A (21% A(unsubtyped), 6% A(H3N2) and 2% A(H1N1)pdm09) and less than 1% were influenza A&B co-infections, influenza C or were untyped (Figure 12).

Influenza B was the dominant circulating strain in all jurisdictions this fortnight, except Tas where influenza A is dominant. Influenza B, as a proportion of all notifications, appears to be stabilising or decreasing in most jurisdictions, with influenza A increasingly reported particularly in the ACT and WA.

For the calendar year to 28 August 2015, 61% of cases were reported as influenza B and 38% influenza A (29% A(unsubtyped), 7% A(H3N2) and 2% A(H1N1)pdm09). Less than 1% were reported as either influenza A&B co-infections, influenza C or were untyped (Figure 12).

**Figure 12. Notifications of laboratory confirmed influenza, Australia, 1 January to 28 August 2015, by subtype and week.**
Institutional influenza outbreaks

For the year to 28 August, there have been 177 laboratory-confirmed influenza outbreaks in institutions reported (Table 2), with all but 10 occurring in residential care facilities primarily housing aged persons. The outbreaks were caused by influenza A(H3N2) (20%), influenza A(H1N1)pdm09 (1%), influenza A(unsubtyped) (45%), influenza B (24%) or a combination of types (11%). The high prevalence of institutional outbreaks caused by influenza A(H3N2) – noting that most of the “A(unsubtyped)” outbreaks are also likely to be A(H3N2) - reflects the higher incidence in the elderly of influenza A(H3N2) infection, relative to influenza B and A(H1N1)pdm09, as shown in Figure 11.

Table 2. Laboratory confirmed influenza outbreaks in institutions reported to the Commonwealth, 1 January 2014 to 28 August 2015, by state or territory*.

<table>
<thead>
<tr>
<th>Year</th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 (Year to date)</td>
<td>3</td>
<td>55</td>
<td>0</td>
<td>5</td>
<td>36</td>
<td>5</td>
<td>67</td>
<td>6</td>
</tr>
<tr>
<td>2014 (Total)</td>
<td>6</td>
<td>120</td>
<td>0</td>
<td>10</td>
<td>27</td>
<td>0</td>
<td>51</td>
<td>6</td>
</tr>
</tbody>
</table>

* Notes on interpreting outbreak data:
Notification and reporting practices for institutional outbreaks vary by jurisdiction and impact outbreak ascertainment. The number of influenza associated outbreaks subsequently reported to the Commonwealth is therefore an under-estimate of the true incidence. The degree of under-representation is unknown and is most likely variable by jurisdiction. Outbreak data will be reported monthly during the influenza season.

Sentinel Laboratory Surveillance

Results from sentinel laboratory surveillance systems show that, influenza viruses continued to be the major cause of influenza-like illness across all sites. Overall, 26% of the respiratory viral tests conducted over this period were positive for influenza, which is an increase of 3% from the previous fortnight (Table 3). Influenza B was the most common influenza type reported this fortnight for NSW and WA while influenza A was predominant in Vic and Tas. For the influenza A viruses for which subtyping data was available, the proportion of A(H3N2) continues to greatly exceed that of A(H1N1)pdm09 (Figure 13), which is consistent with laboratory confirmed notification data (Figure 12).

Table 3. Sentinel laboratory respiratory virus testing results, 15 August to 28 August 2015.

<table>
<thead>
<tr>
<th></th>
<th>NSW NIC</th>
<th>WA NIC</th>
<th>VIC NIC</th>
<th>TAS (PCR testing data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total specimens tested</td>
<td>1047</td>
<td>1638</td>
<td>215</td>
<td>431</td>
</tr>
<tr>
<td>Total influenza positive</td>
<td>215</td>
<td>398</td>
<td>75</td>
<td>104</td>
</tr>
<tr>
<td>Positive influenza A</td>
<td>77</td>
<td>163</td>
<td>45</td>
<td>80</td>
</tr>
<tr>
<td>A(H1N1)pdm09</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>0</td>
<td>137</td>
<td>45</td>
<td>40</td>
</tr>
<tr>
<td>A(unsubtyped)</td>
<td>77</td>
<td>6</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>Positive influenza B</td>
<td>138</td>
<td>235</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Positive influenza A&amp;B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Proportion Influenza Positive (%)</td>
<td>20.5%</td>
<td>24.3%</td>
<td>34.9%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

Source: National Influenza Centres (WA, NSW and Vic) and Tasmanian public hospital laboratory PCR testing
Figure 13. Proportion of sentinel laboratory tests positive for influenza 1 August to 28 August 2015, by subtype and fortnight.

Source: National Influenza Centres (WA, Vic, NSW) and Tasmanian laboratories (PCR testing)

Hospitalisations

Influenza Complications Alert Network (FluCAN)

In the last fortnight, the Influenza Complications Alert Network (FluCAN) sentinel hospital surveillance system reported 294 admissions with confirmed influenza. Since 1 April 2015, 5.8% of influenza patients have been admitted directly to ICU. The majority of influenza admissions this year to date have been due to influenza B infection (55%)(Figure 14). Around 45% of the cases are 65 years of age or older and 69% of all cases had significant risk factors present on admission.

Figure 14. Number of influenza hospitalisations at sentinel hospitals, 1 April to 28 August 2015, by week and influenza subtype.

Source: FluCAN Sentinel Hospitals
Queensland Public Hospital Admissions (EpiLog)

Admissions to public hospitals in Queensland with confirmed influenza are detected through the EpiLog system. Up to 30 August 2015, there were 976 admissions, including 88 to intensive care units (Figure 15). In the year to date, there is a broad age distribution of influenza-associated hospitalisations with high numbers in the 0-9 and over 50 year age group. The median age of hospitalised cases is 49 years with a range of less than one to 99 years.

Figure 15. Number of influenza admissions to Queensland public hospitals, with onset from 1 January to 30 August 2015, by week and type of admission.

For the year to 5 July, the majority (63%) of laboratory confirmed influenza admissions in Queensland residents were associated with influenza B infections (Figure 16). However since then, hospitalisations due to influenza A have predominated (73% of influenza hospitalisations since 6 July). Overall for the year to 30 August, 64% of admissions in Queensland residents were due to influenza A. Of those influenza A infections that have been subtyped, the majority have been influenza A(H3N2) ³.

Figure 16. Laboratory confirmed influenza admissions in Queensland residents (n=924), to Queensland public hospitals, by influenza type, subtype and week of admission, 1 January 2015 to 30 August 2015.
Paediatric Severe Complications of Influenza

The Australian Paediatric Surveillance Unit 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 2015 and 16 August 2015, there have been 35 hospitalisations associated with severe complications of influenza reported. The median age of these cases was 3.3 years. Of the cases where the influenza type is known, 20 were associated with influenza B infection. Overall the average duration of hospitalisation was 3.9 days with seven cases requiring admission to ICU (ICU admission status is currently unknown for one case). Slightly less than 50% of cases report presence of one or more underlying chronic condition (14 of 35). So far, no influenza-associated deaths have been detected by this surveillance system.

Deaths Associated with Influenza and Pneumonia

Nationally Notified Influenza Associated Deaths

So far in 2015, 72 influenza associated deaths have been notified to the NNDSS, an increase of 12 from the previous fortnight. The median age of deaths notified was 85 years (range 40 to 102 years). Influenza A(H3N2) continues to be associated with deaths in older age groups. 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 for the week ending 7 August 2015 show that there were 1.43 pneumonia or influenza associated deaths per 100,000 population in NSW, which is below the epidemic threshold of 1.61 per 100,000 NSW population (Figure 16). Up to 7 August 2015, out of 30,232 deaths in NSW, 19 death certificates noted influenza and 2,797 noted pneumonia.

Figure 17. Rate of deaths classified as influenza and pneumonia from the NSW Registered Death Certificates, 1 January 2010 to 7 August 2015*.
(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 several weeks behind reports from emergency departments and laboratories. In addition, previous weekly rates may also change due to longer delays in reporting some deaths.

4. Virological Surveillance

Typing and Antigenic Characterisation

WHO Collaborating Centre for Reference & Research on Influenza (WHO CC), Melbourne

From 1 January to 31 August 2015 there were 832 Australian influenza viruses subtyped by the WHO CC, with 33% influenza A(H3N2), 14% A(H1N1)pdm09 and 53% influenza B. The majority of influenza B viruses were from the B/Yamagata lineage (Table 4).

Table 4. Australian influenza viruses typed by HI from the WHO Collaborating Centre, 1 January to 31 August 2015.

<table>
<thead>
<tr>
<th>Type/Subtype</th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>QLD</th>
<th>SA</th>
<th>TAS</th>
<th>VIC</th>
<th>WA</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(H1N1) pdm09</td>
<td>23</td>
<td>19</td>
<td>11</td>
<td>35</td>
<td>4</td>
<td>9</td>
<td>9</td>
<td>5</td>
<td>115</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>20</td>
<td>46</td>
<td>3</td>
<td>77</td>
<td>48</td>
<td>15</td>
<td>55</td>
<td>8</td>
<td>272</td>
</tr>
<tr>
<td>B/Victoria lineage</td>
<td>4</td>
<td>15</td>
<td>8</td>
<td>54</td>
<td>11</td>
<td>3</td>
<td>21</td>
<td>3</td>
<td>119</td>
</tr>
<tr>
<td>B/Yamagata lineage</td>
<td>11</td>
<td>39</td>
<td>0</td>
<td>133</td>
<td>55</td>
<td>4</td>
<td>65</td>
<td>19</td>
<td>326</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>119</td>
<td>22</td>
<td>299</td>
<td>118</td>
<td>31</td>
<td>150</td>
<td>35</td>
<td>832</td>
</tr>
</tbody>
</table>

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 location the sample originated from, not the submitting laboratory

There may be up to a month delay on reporting of samples.

Of the isolates that have been further characterised for similarity with the vaccine components, influenza A viruses appear to be well matched (8 of 299 characterised as low reactors). Approximately 73% of the influenza B viruses characterised are a match to the trivalent vaccine strain; the remaining influenza B viruses match the additional strain in the quadrivalent vaccine (1 of 387 low reactor against B/Yamagata component).

Antiviral Resistance

The WHO CC has reported that from 1 January to 31 August 2015, all influenza viruses (out of 684 tested) have shown sensitivity to the neuraminidase inhibitor oseltamivir and zanamivir by enzyme inhibition assay.

5. International Influenza Surveillance

The WHO has reported that as at 10 August 2015, influenza activity continued in the Southern hemisphere, with an increase in Oceania peaking in temperate South America and decreased activity in South Africa.

In the Northern hemisphere countries, respiratory virus activity remained low in general, and influenza activity continued at low, inter-seasonal levels. Influenza type A predominated in sporadic detections. A number of countries have also ceased or reduced surveillance activity during the inter-seasonal period.

In Eastern Africa, influenza activity remained at low levels. In countries with reported influenza activity, type A predominated. In Western Africa, influenza activity decreased overall, with influenza B predominating in Ghana, and influenza A in Cote d’Ivoire. In tropical countries of the Americas, Central America and the Caribbean, influenza activity remained at low levels, with the exception of Cuba, where high levels of influenza-like illness (ILI) and severe acute respiratory infections (SARI) were reported, associated with influenza A(H1N1)pdm09 and RSV detections.

In tropical Asia, countries in Southern Asia and South East Asia reported an overall decrease in influenza activity. Influenza activity was still high but decreasing in southern China with influenza A(H3N2) predominating.

In temperate South America, ILI and SARI activity was peaking or had peaked mainly due to RSV activity. Overall, influenza activity this season was mild with respect to previous seasons. Influenza type A predominated, with type A(H1N1)pdm09 and type A(H3N2) co-circulating.

In South Africa, influenza activity decreased, with influenza type B predominating in recent weeks.

In New Zealand, through sentinel surveillance, the national ILI consultation rate decreased considerably to 88.75 per 100,000 patient population for the week ending 30 August. Virological surveillance through both
sentinel and non-sentinel laboratories shows that for the year to 30 August, 55% of positive specimens have been influenza A viruses. Of the influenza A viruses, 58% were A(H3N2), 1% were A(H1N1)pdm09 and the remainder were A(unsubtyped). Of the influenza B viruses, 9% were identified as B/Yamagata lineage, 3.8% were B/Victoria lineage, and the remainder were not antigenically typed.

National Influenza Centres and other national influenza laboratories from 69 countries, areas or territories reported that for the period 13 to 26 July 2015, a total of 2,699 specimens were positive for influenza viruses with 83% being influenza A. Of the subtyped influenza A viruses, 97% were influenza A(H3N2) and 3% were influenza A(H1N1)pdm09. Of the characterised B viruses, 91% belong to the B/Yamagata lineage and the remainder from the B/Victoria lineage.

6. State and Territory Surveillance Reports
For further information regarding current influenza activity at the jurisdictional level, please refer to the following State and Territory departments of health surveillance reports:


7. Data Considerations
The information in this report is reliant on the surveillance sources available to the Department of Health. As access to sources increase as the season progresses, this report will include additional information.

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 (flu@health.gov.au).

Geographic Spread of Influenza Activity

<table>
<thead>
<tr>
<th>Activity level</th>
<th>Laboratory notifications</th>
<th>Influenza outbreaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sporadic</td>
<td>Small numbers of lab confirmed influenza detections, not above expected background level.</td>
<td>AND No outbreaks.</td>
</tr>
<tr>
<td>Localised</td>
<td>Lab confirmed influenza detections above background level in less than 50% of the influenza surveillance region.</td>
<td>OR Single outbreak only.</td>
</tr>
<tr>
<td>Regional</td>
<td>Significant numbers of lab confirmed influenza detections above background level in less than 50% of the influenza surveillance region.</td>
<td>OR &gt;1 outbreaks occurring in less than 50% of the influenza surveillance region.</td>
</tr>
<tr>
<td>Widespread</td>
<td>Significant numbers of lab confirmed influenza detections above background level in equal to or greater than 50% of the influenza surveillance region.</td>
<td>OR &gt;1 outbreaks occurring in equal to or greater than 50% of the influenza surveillance region.</td>
</tr>
</tbody>
</table>

+ Expected background level - defined by jurisdictional epidemiologists; represents the expected low level influenza activity that occurs outside of jurisdictional seasonal activity and is the baseline against which comparisons of change can be based.
++ Above background level - above the expected background level threshold as defined by jurisdictional epidemiologists.
Influenza surveillance region within the jurisdiction/area as defined by jurisdictional epidemiologists.

Significant numbers - a second threshold to be determined by the jurisdictional epidemiologists to indicate the level is significantly above the expected background level.

Areas to be subdivisions of the NT (2 regions), WA (3 regions) and QLD (3 regions) that reflect significant climatic differences within those jurisdictions that result in differences in the timing of seasonal flu activity on a regular basis.

### Change in activity level

The change in influenza activity level is based on a comparison of the activity level identified in the current reporting period with the previous period.

### Syndromic Surveillance Activity

<table>
<thead>
<tr>
<th>Syndromic surveillance systems*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of increase in ILI via syndromic surveillance systems</td>
</tr>
<tr>
<td>Evidence of unchanged activity in ILI via syndromic surveillance systems</td>
</tr>
<tr>
<td>Evidence of a decrease in ILI via syndromic surveillance systems</td>
</tr>
</tbody>
</table>

* Syndromic surveillance systems include GP ILI sentinel surveillance, ED ILI surveillance and Flu tracking. The activity indicated by ILI based syndromic surveillance systems may be due to a variety of respiratory viruses. Therefore the report should indicate if other evidence suggests that the increase is suspected to be influenza activity or due to another respiratory pathogen. Syndromic surveillance is reported on a jurisdiction wide basis only.

### FluTracking

FluTracking is a project of the University of Newcastle, the Hunter New England Area Health Service and the Hunter Medical Research Institute. FluTracking is an online health surveillance system to detect epidemics of influenza. It involves participants from around Australia completing a simple online weekly survey, which collects data on the rate of ILI-related symptoms and health seeking behaviour in communities. For further information refer to the FluTracking website (www.flutracking.net).

### National Health Call Centre Network

The National Health Call Centre Network (NHCCN) provides a nationally consistent approach for telephone based health advice to the community through registered nurses and is supported by electronic decision support algorithms. Data collected through the NHCCN is provided to the Department to enable monitoring of the number and proportion of calls relating to predefined patient guidelines. These guidelines have been grouped to create an influenza-like illness syndrome to enable monitoring of community disease activity. These data currently do not include Queensland or Victoria. For further information refer to the Health Direct website (http://www.healthdirect.org.au).

Due to technical issues, NHCCN data is not available for this reporting period.

### Sentinel General Practice Surveillance

The sentinel general practice ILI surveillance data between 2010 and 2015 consists of two main general practitioner schemes, the Australian Sentinel Practices Research Network (ASPREN) (incorporating the Sentinel Practitioners Network of Western Australia) and a Victorian Infectious Disease Reference Laboratory (VIDRL) coordinated sentinel GP ILI surveillance program. Additionally, between 2008 and 2009 a Northern Territory surveillance scheme also operated, however this scheme has since been incorporated in to the ASPREN scheme. The national case definition for ILI is presentation with fever, cough and fatigue.

The ASPREN currently has sentinel GPs who report ILI presentation rates in ACT, NSW, NT, QLD, SA, TAS and WA. The VIDRL scheme operates in metropolitan and rural general practice sentinel sites throughout Victoria and also incorporates ILI presentation data from the Melbourne Medical Deputising Service. As jurisdictions joined ASPREN at different times and the number of GPs reporting has changed over time, the representativeness of sentinel general practice ILI surveillance data in 2015 may be different from that of previous years.

ASPREN ILI surveillance data are provided to the Department on a weekly basis throughout the year, whereas data from the VIDRL coordinated sentinel GP ILI surveillance program is provided between May and October each year.

Approximately 20% of all ILI patients presenting to ASPREN sentinel GPs are swabbed for laboratory testing. Samples are tested for a range of respiratory viruses including influenza A, influenza B, rhinovirus, respiratory syncytial virus, parainfluenza, adenovirus, human metapneumovirus, *Mycoplasma pneumonia* and *Bordetella pertussis*. Please note the results of ASPREN ILI laboratory respiratory viral tests now include Western Australia.

Further information on ASPREN is available at the ASPREN website (www.dmac.adelaide.edu.au/aspren) and information regarding the VIDRL coordinated sentinel GP ILI surveillance program is available at the VIDRL website (www.victorianflusurveillance.com.au).
Sentinel Emergency Department Data

(i) Western Australia – Emergency Department ILI cases are determined from presentations coded as upper respiratory tract infection [J06.9] or viraemia [B34.9]), and are extracted from the Western Australian Emergency Department Information System (EDIS). These EDIS diagnostic codes were chosen as they best correlated with notification and laboratory detection data for influenza virus. The EDIS system incorporates ICD-10 clinical-coded presentation and admission data from the most significant public or public/private hospitals with emergency department services in the greater Perth metropolitan area (Royal Perth Hospital, Sir Charles Gairdner Hospital, Fiona Stanley Hospital, Princess Margaret Hospital, King Edward Memorial Hospital, Armadale-Kelmscott Memorial Hospital, Joondalup Health Campus, Swan District Hospital and Rockingham General Hospital), plus Bunbury Regional Hospital from the Southwest city of Bunbury. For further information, please refer to the Western Australian Department of Health Virus WAtch website (www.public.health.wa.gov.au/3/4873/virus_watch.pm).

(ii) New South Wales – Emergency Department ILI surveillance data are extracted from the ‘NSW Health Influenza Surveillance Report’. NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change. For further information, please refer to the NSW Health Influenza Surveillance website (www.health.nsw.gov.au/Infectious/Influenza/Pages/reports.aspx).

(iii) Northern Territory – This syndromic surveillance system collects data from all the public hospitals in the Northern Territory: Royal Darwin, Gove District, Katherine District, Tennant Creek and Alice Springs. The definition of ILI is presentation to ED in the NT with one of the following presentations: febrile illness, cough, respiratory infection, or viral illness. The denominator for rate calculations is not the total ED consultations for that day but a proportion of those which are uploaded into the data warehouse for surveillance purposes. This may change in the future.

National Notifiable Diseases Surveillance System (NNDSS)
Laboratory confirmed influenza (all types) is notifiable under public health legislation in all jurisdictions in Australia. Confirmed cases of influenza are notified through the NNDSS by all jurisdictions. The national case definition is available from the Department of Health’s website (www.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-nndss-casedefs-cd_flu.htm). Analyses of Australian notifications are based on the diagnosis date, which is the earliest of the onset date, specimen date or notification date.

Sentinel Laboratory Surveillance data
Laboratory testing data are provided weekly directly from PathWest (WA), VIDRL (VIC), ICPMR (NSW), and Tasmanian public hospital laboratory PCR testing results. For Tasmania, the PCR results represent testing at a major Tasmanian public hospital laboratory, which also accepts referred specimens from all departments of emergency medicine and hospital inpatients from across the state.

Influenza Complications Alert Network (FluCAN)
The Influenza Complications Alert Network (FluCAN) sentinel hospital system monitors influenza hospitalisations at the following sites:
- Australian Capital Territory – the Canberra Hospital and Calvary Hospital;
- New South Wales – John Hunter Hospital, Westmead Hospital and Children’s Hospital at Westmead*;
- Northern Territory – Alice Springs Hospital;
- Queensland – the Mater Hospital, Princess Alexandra Hospital and Cairns Base Hospital;
- South Australia – Royal Adelaide Hospital;
- Tasmania – Royal Hobart Hospital;
- Victoria – Geelong University Hospital, Royal Melbourne Hospital, Monash Medical Centre and Alfred Hospital;
- Western Australia – Royal Perth Hospital and Princess Margaret Hospital*.

*=Paediatric hospital site
Influenza counts are based on active surveillance at each site for admissions with PCR-confirmed influenza in adults. Some adjustments may be made in previous periods as test results become available. ICU status is as determined at the time of admission and does not include patients subsequently transferred to ICU. Dates listed as date of admission except for patients where date of test is more than 7 days after admission. Admissions listed as influenza A includes untyped and seasonal strains and may include H1N1/09 strains if not typed.

Queensland Public Hospital Admissions (EpiLog)
EpiLog is a web based application developed by Queensland Health. This surveillance system generates admission records for confirmed influenza cases through interfaces with the inpatient information and public laboratory databases. Records are also able to be generated manually. Admissions data reported are based on date of reported onset. For further information refer to Qld Health’s Influenza Surveillance website (www.health.qld.gov.au/ph/cdb/sru_influenza.asp).
Deaths associated with influenza

Nationally reported influenza associated deaths are notified by jurisdictions to the NNDSS, which is maintained by the Department of Health. Notifications of influenza associated deaths are likely to underestimate the true number of influenza associated deaths occurring in the community.

WHO Collaborating Centre for Reference & Research on Influenza

Data on Australian influenza viruses are provided weekly to the Department from the WHO Collaborating Centre for Reference & Research on Influenza based in Melbourne, Australia.

8. References


