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

**SUMMARY**

- Nationally, influenza activity has continued to decline following a seasonal peak in mid-August.
- This fortnight, influenza activity was stable or decreasing across most regions in the country, with the exception of the Top End of the Northern Territory where activity continued to increase.
- This year children aged less than 15 years accounted for one-third of all influenza notifications, this compares with one-quarter of all notifications in 2014. Notification rates have been highest among those aged between 5 and 9 and over 85 years with a secondary peak in those aged 35-44 years.
- Influenza B continues to be the dominant influenza virus type circulating nationally. Notifications due to both influenza A and B declined nationally this fortnight, however increases were seen in influenza A in the Northern Territory.
- All national systems that monitor influenza-like illness (ILI) activity continued to report decreasing activity this fortnight following a seasonal peak in mid-August. Western Australia reported unchanged ILI activity when compared with the previous fortnight. Influenza is the primary cause of ILI in the community this fortnight.
- Hospitalisations with confirmed influenza have continued to decline following a peak in mid-August. The overall rate of influenza cases admitted directly to ICU so far this year was 7%, which is lower than the last three years (10-12%).
- The seasonal influenza vaccines appear to be a good match for circulating strains with 77% of samples matching the trivalent seasonal vaccine (TIV).
- The WHO released its recommendation for the composition of the 2016 southern hemisphere seasonal influenza vaccine, which included changes to the A(H3N2) and B vaccine viruses of the trivalent influenza vaccine.

Figure 1. Notifications of laboratory confirmed influenza, Australia, 1 January 2011 to 25 September 2015, by week.
KEY INDICATORS

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:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>laboratory confirmed cases reported to the National Notifiable Diseases Surveillance System (NNDSS);</td>
</tr>
<tr>
<td></td>
<td>influenza associated hospitalisations;</td>
</tr>
<tr>
<td></td>
<td>emergency department (ED) presentations for influenza-like illness (ILI);</td>
</tr>
<tr>
<td></td>
<td>general practitioner (GP) consultations for ILI;</td>
</tr>
<tr>
<td></td>
<td>ILI-related call centre calls and community level surveys of ILI; and</td>
</tr>
<tr>
<td></td>
<td>sentinel laboratory test results.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How severe is the disease, and is severity changing?</th>
<th>Indicated by trends in:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hospitalisations, intensive care unit (ICU) admissions and deaths; and</td>
</tr>
<tr>
<td></td>
<td>clinical severity in hospitalised cases and ICU admissions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is the virus changing?</th>
<th>Indicated by trends in:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>drug resistance; and</td>
</tr>
<tr>
<td></td>
<td>antigenic drift or shift of the circulating viruses.</td>
</tr>
</tbody>
</table>

1. Geographic Spread of Influenza Activity in Australia

In the fortnight ending 25 September 2015, influenza activity was stable or decreasing across most regions except in the Top End of the Northern Territory (NT) where activity continued to increase (Figure 2). The geographic spread of influenza activity reported by state and territory health departments was ‘localised’ in the Australian Capital Territory (ACT), the Central Australia region of the Northern Territory (NT) and all regions of Queensland (Qld); ‘regional’ in New South Wales (NSW), the Pilbara/Kimberley and southern regional areas of Western Australia (WA) and Victoria (Vic); and ‘widespread’ in the Top End of the NT, South Australia (SA), Tasmania (Tas) and Perth Metro in WA. ILI activity detected through syndromic surveillance systems consistently reported decreasing activity compared with the previous reporting period across all states and territories, with the exception of WA where unchanged activity was reported.

Figure 2. Map of influenza activity by state and territory, Australia, 29 August to 25 September 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 decreased and are similar to this week in 2014 (Figure 3). In the week ending 27 September 2015, rates of fever and cough decreased to 2.5% of all participants (2.2% of vaccinated participants and 2.8% of unvaccinated participants), down from the peak of 4.3% of all participants. Fever, cough and absence from normal duties were reported by 1.5% of all participants (1.3% of vaccinated participants and 1.7% of unvaccinated participants)\(^1\). In the week ending 27 September 2015, 63.1% of participants reported having received the 2015 influenza vaccine. Of the 4,065 participants who identified as working face-to-face with patients, 3,306 (81.3%) have received the vaccine.

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

![Proportion of fever and cough among FluTracking participants, Australia, between May and October, 2011 to 2015, by week.](source: FluTracking\(^1\))

**Sentinel General Practice Surveillance**

Systems that measure ILI presentations to general practitioners indicated that the seasonal peak occurred in the week ending 23 August. The peak ILI rate was similar to 2012 and 2014 (Figure 4). In the fortnight ending 27 September 2015, the ILI consultation rate continued an overall decreasing trend from the season peak of 19.7 to 11.8 notifications of ILI per 1,000 consultations.

**Figure 4. Rate of ILI reported from sentinel GP surveillance systems, Australia, 1 January 2011 to 27 September 2015, by week.**

![Rate of ILI reported from sentinel GP surveillance systems, Australia, 1 January 2011 to 27 September 2015, by week.](source: ASPREN and VIDRL\(^2\) GP surveillance systems)
In the fortnight ending 27 September 2015, specimens were collected from around 27% of ILI patients seen by Australian Sentinel Practices Research Network (ASPREN) general practitioners. Of these patients, 35% were positive for influenza, which was less than the proportion of influenza detections reported in the previous fortnight (43%). Influenza A viruses were the predominant influenza subtype identified (Figure 5 and Table 1). The proportion of ILI patients positive for other respiratory viruses increased to 20%, up from 18% the previous fortnight. 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 13 September 2015.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total specimens tested</td>
<td>89</td>
<td>2,488</td>
</tr>
<tr>
<td>Total Influenza Positive (%)</td>
<td>34.8</td>
<td>30.5</td>
</tr>
<tr>
<td>Influenza A (%)</td>
<td>21.3</td>
<td>10.7</td>
</tr>
<tr>
<td>A (H1N1) pdm09 (%)</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>A (H3N2) (%)</td>
<td>10.1</td>
<td>5.6</td>
</tr>
<tr>
<td>A (unsubtyped) (%)</td>
<td>10.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Influenza B (%)</td>
<td>13.5</td>
<td>19.8</td>
</tr>
<tr>
<td>Other Resp. Viruses (%)*</td>
<td>20.2</td>
<td>28.1</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 27 September 2015, by week.

**Sentinel Emergency Department Surveillance**

**Western Australia Emergency Departments**

Viral respiratory presentations to WA emergency departments declined to 54 per 1,000 ED presentations. The current rates of presentations are towards the upper end of the range for this time of the year and appear to be on the decline for the season (Figure 6).
New South Wales Emergency Departments

In the week ending 27 September 2015, the proportion of ILI presentations to all ED presentations is moderate at 2.5 per 1000 presentations, a decrease from the previous week (3.8 per 1000 presentations, Figure 7). ILI and pneumonia admissions to critical care continued to decrease, but remained above 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 has fallen below the threshold at 10.9 on 27 September, lower than the previous week (20.9). 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 declined this reporting fortnight and is at its lowest level since April 2015 (Figure 8).

Figure 8. Rate of influenza-like illness presentations to Northern Territory emergency departments, 1 January 2011 to 26 September 2015, by week.

![Graph showing rate of ILI presentations to Northern Territory emergency departments](image)

Source: Centre for Disease Control, Department of Health, Northern Territory Government

3. Laboratory Confirmed Influenza Activity

Notifications of Influenza to Health Departments

For the year to 25 September, there were 84,201 laboratory confirmed notifications of influenza: 27,236 in NSW; 25,782 in Qld; 13,999 in SA; 9,284 in Vic*; 5,091 in WA; 1,281 in Tas, 1,119 in the Australian Capital Territory (ACT) and 409 in NT (Figure 9). Notification data for Vic are incomplete for the reporting period.

In the fortnight ending 25 September 2015, there were 8,183 notifications reported to the NNDSS (Figure 9). The three jurisdictions with the highest number of influenza notifications, NSW (3,138), Qld (2,383), and SA (1,681) together contributed 88% of notifications this fortnight, followed by WA (545), Tas (203), NT (93), Vic (76) and the ACT (64). Victoria continues to experience high numbers of notifications, resulting in an administrative backlog; notifications in the most recent fortnight are likely to increase in future reports.

In recent weeks, laboratory confirmed notifications of influenza have greatly declined across all jurisdictions, with the exception of the Northern Territory (Figure 10).

Figure 9. Notifications of laboratory confirmed influenza, Australia, 1 January to 25 September 2015, by state or territory and week*.

![Graph showing notifications of laboratory confirmed influenza](image)

Source: NNDSS

* Incomplete data for Victoria from week ending 21 August
One third of notifications of influenza reported this year have been in children aged less than 15 years. 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.

Of the influenza notifications reported to the NNDSS this reporting period, 60% were influenza B, 40% were influenza A (30% A(unsubtyped), 7% A(H3N2) and 3% A(H1N1)pdm09) and less than 1% were influenza A&B co-infections or were untyped (Figure 12). Influenza B, as a proportion of all notifications, has decreased nationally and across all jurisdictions. While influenza A, as a proportion of all notifications, has increased...
nationally and in some jurisdictions in recent weeks, the overall number of notifications due to influenza A is declining.

For the calendar year to 25 September 2015, 62% 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 25 September 2015, by subtype and week.**

Source: NNDSS

**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, 22% of the respiratory viral tests conducted over this period were positive for influenza, which was a decrease from the previous fortnight (24%, Table 2). Influenza A was the most common influenza type reported this fortnight by the WA and Tas sentinel laboratories, while influenza B was most commonly reported by NSW and Vic laboratories. 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 2. Sentinel laboratory respiratory virus testing results, 29 August to 11 September 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>818</td>
<td>1385</td>
<td>111</td>
<td>527</td>
</tr>
<tr>
<td>Total influenza positive</td>
<td>96</td>
<td>338</td>
<td>19</td>
<td>157</td>
</tr>
<tr>
<td>Positive influenza A</td>
<td>42</td>
<td>182</td>
<td>9</td>
<td>79</td>
</tr>
<tr>
<td>A(H1N1)pdm09</td>
<td>0</td>
<td>14</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>0</td>
<td>161</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td>A(unsubtyped)</td>
<td>42</td>
<td>7</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>Positive influenza B</td>
<td>54</td>
<td>156</td>
<td>10</td>
<td>78</td>
</tr>
<tr>
<td>Positive influenza A&amp;B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Proportion Influenza Positive (%)</strong></td>
<td><strong>11.7%</strong></td>
<td><strong>24.4%</strong></td>
<td><strong>17.1%</strong></td>
<td><strong>29.8%</strong></td>
</tr>
<tr>
<td><strong>Most common respiratory virus detected</strong></td>
<td><strong>Influenza B Virus</strong></td>
<td><strong>Influenza A Virus</strong></td>
<td><strong>Influenza B Virus</strong></td>
<td><strong>Influenza A Virus</strong></td>
</tr>
</tbody>
</table>

Source: National Influenza Centres (WA, NSW and Vic) and Tasmanian public hospital laboratory PCR testing
In the last fortnight, the Influenza Complications Alert Network (FluCAN) sentinel hospital surveillance system reported 142 admissions with confirmed influenza. Since 1 April 2015, 6.9% of influenza patients have been admitted directly to ICU. The majority of influenza admissions this year to date has been due to influenza B infection (53%, Figure 14). Around 45% of the cases are 65 years of age or older and 72% of all cases had significant risk factors present on admission.

**Hospitalisations**

**Influenza Complications Alert Network (FluCAN)**

In the last fortnight, the Influenza Complications Alert Network (FluCAN) sentinel hospital surveillance system reported 142 admissions with confirmed influenza. Since 1 April 2015, 6.9% of influenza patients have been admitted directly to ICU. The majority of influenza admissions this year to date has been due to influenza B infection (53%, Figure 14). Around 45% of the cases are 65 years of age or older and 72% of all cases had significant risk factors present on admission.

**Figure 13. Proportion of sentinel laboratory tests positive for influenza 1 June to 25 September 2015, by subtype and fortnight.**

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

**Figure 14. Number of influenza hospitalisations at sentinel hospitals, 1 April to 25 September 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 27 September 2015, there were 1,275 admissions, including 128 to intensive care units (Figure 15). Weekly admissions have declined in recent week from the peak reported in mid-August.

This year there has been a broad age distribution of influenza-associated hospitalisations, with high numbers in the 0-9 and 50 years and older age groups. The median age of hospitalised cases was 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 27 September 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 (71% of influenza hospitalisations since 6 July). Overall for the year to 13 September, 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=1,310), to Queensland public hospitals, by influenza type, subtype and week of admission, 1 January 2015 to 27 September 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 27 September 2015, there have been 53 hospitalisations associated with severe complications of influenza reported. The median age of these cases was 3.3 years. Of the 46 cases where the influenza type is known, 36 were associated with influenza B infection. Overall the average duration of hospitalisation was 4.1 days with 16 cases requiring admission to ICU (ICU admission status is currently unknown for two cases). Slightly less than 50% of cases report presence of one or more underlying chronic condition (23 of 53). Two influenza-associated deaths have been detected by this surveillance system this year.

Deaths Associated with Influenza and Pneumonia

Nationally Notified Influenza Associated Deaths

So far in 2015, 86 influenza associated deaths have been notified to the NNDSS. The median age of deaths notified was 85 years (range 4 to 102 years). Influenza A(H3N2) and B are the predominant cause of influenza-associated 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 4 September 2015 show that there were 1.7 pneumonia or influenza associated deaths per 100,000 population in NSW, which is below the epidemic threshold of 1.6 per 100,000 NSW population (Figure 17). Up to 4 September 2015, out of 33,153 deaths in NSW, 50 death certificates noted influenza and 3,363 noted pneumonia.

Figure 17. Rate of deaths classified as influenza and pneumonia from the NSW Registered Death Certificates, 1 January 2010 to 4 September 2015.

Source: NSW Registry of Births, Deaths and Marriages

* Notes on interpreting death data:
(1) The number of deaths mentioning “Pneumonia or influenza” is reported as a rate per 100,000 NSW populations. Using the NSW population provides a more stable and reliable denominator than deaths from all causes. This is because pneumonia and influenza are known to contribute to increases in deaths from non-
respiratory illnesses, such as deaths due to ischaemic heart disease. As the number of these deaths will increase with rises in influenza activity, the actual effect of influenza on mortality rates will be obscured if all-cause mortality is used as the denominator. This limitation is avoided by using the NSW population, which is relatively constant throughout the year, as the denominator.

(2) Deaths referred to a coroner during the reporting period may not be available for analysis. Deaths in younger people may be more likely to require a coronial inquest. Therefore influenza-related deaths in younger people may be under-represented in these data.

(3) The interval between death and death data availability is usually at least 7 days, and so these data are 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 28 September 2015 there were 1,100 Australian influenza viruses subtyped by the WHO CC, with 27% influenza A(H3N2), 11% A(H1N1)pdm09 and 61% influenza B. The majority of influenza B viruses were from the B/Yamagata lineage (Table 3).

Table 3. Australian influenza viruses typed by HI from the WHO Collaborating Centre, 1 January to 28 September 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>17</td>
<td>26</td>
<td>6</td>
<td>38</td>
<td>4</td>
<td>9</td>
<td>10</td>
<td>13</td>
<td>123</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>11</td>
<td>34</td>
<td>1</td>
<td>75</td>
<td>71</td>
<td>9</td>
<td>78</td>
<td>21</td>
<td>300</td>
</tr>
<tr>
<td>B/Victoria lineage</td>
<td>4</td>
<td>37</td>
<td>10</td>
<td>96</td>
<td>18</td>
<td>11</td>
<td>42</td>
<td>37</td>
<td>255</td>
</tr>
<tr>
<td>B/Yamagata lineage</td>
<td>11</td>
<td>62</td>
<td>0</td>
<td>131</td>
<td>53</td>
<td>6</td>
<td>71</td>
<td>88</td>
<td>422</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>159</td>
<td>17</td>
<td>340</td>
<td>146</td>
<td>35</td>
<td>201</td>
<td>159</td>
<td>1100</td>
</tr>
</tbody>
</table>

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.

Of the isolates that have been further characterised for similarity with the vaccine components, influenza A viruses appear to be well matched (11 of 423 isolates characterised as low reactors). Likewise influenza B viruses of the Victoria lineage (quadrivalent vaccine strain) and Yamagata lineage (TIV strain) appear to be well matched with vaccine components (1 of 255 isolates and 1 of 422 isolates characterised as low reactors, respectively).

Approximately 62% of all influenza B viruses characterised are the strain targeted by the TIV (B/Yamagata); the remaining influenza B viruses are the additional strain targeted by the quadrivalent vaccine (B/Victoria). Overall, 77% of all viruses further characterised by the WHO CC are the strains targeted by the TIV.

Antiviral Resistance

The WHO CC has reported that from 1 January to 28 September 2015, all influenza viruses (out of 948 tested) have shown sensitivity to the neuraminidase inhibitor oseltamivir and zanamivir by enzyme inhibition assay.

2016 Southern Hemisphere Vaccine

On 24 September 2015, the WHO expert committee released its recommendations for influenza vaccine compositions for the 2016 southern hemisphere season. The WHO recommended changes for 2 of the 3 strains in the trivalent versions of the influenza vaccines. The recommended formulation is:

- A(H1N1): an A/California/7/2009 (H1N1)pdm09-like virus;
- A(H3N2): an A/Hong Kong/4801/2014 (H3N2)-like virus;
- B: a B/Brisbane/60/2008-like virus.

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

The Australian Influenza Vaccine Committee will meet on Thursday 8 October to provide advice to the Therapeutic Goods Administration (TGA) on the composition of the 2016 seasonal influenza vaccine to be used in Australia.
5. International Influenza Surveillance

The WHO\(^6\) has reported that as at 21 September 2015, influenza activity continued in the Southern hemisphere, with an overall slight decrease in temperate South America and low 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 ceased or reduced surveillance activity during the inter-seasonal period.

Few influenza detections were reported from Africa. In Eastern Africa, in countries with reported influenza activity, influenza type A predominated. In Western Africa, influenza activity decreased overall.

In tropical countries of the Americas, Central America and the Caribbean, influenza activity remained at low levels, with the exception of Cuba, where still high although decreasing levels of influenza-like illness (ILI) and severe acute respiratory infections (SARI) were reported, associated with influenza A(H1N1)pdm09 and respiratory syncytial virus (RSV) detections.

In tropical Asia, countries in Southern Asia and South East Asia reported overall low influenza activity although India reported a minor increase in activity predominantly with A(H1N1)pdm09. Influenza activity showed a decline but was still at mid-levels in southern China with influenza A(H3N2) predominating.

In temperate South America, influenza activity remained low in general. However, ILI activity sharply increased in Chile with increasing influenza detections. Influenza A remained the most detected influenza virus while RSV detections decreased in the region.

In South Africa, influenza activity remained at low levels with influenza type B viruses predominating in recent weeks.

In New Zealand, influenza activity may have peaked in the second week of August with influenza A(H3N2) and B viruses predominating during the season. ILI activity was still above the seasonal threshold but below the alert threshold.

National Influenza Centres (NICs) and other national influenza laboratories from 69 countries, areas or territories reported data to FluNet for the time period from 24 August 2015 to 06 September 2015 (data as of 2015-09-17 12:08:20 UTC). The WHO GISRS laboratories tested more than 24,771 specimens during that time period. 2,514 were positive for influenza viruses, of which 1872 (74.5%) were typed as influenza A and 642 (25.5%) as influenza B. Of the sub-typed influenza A viruses, 354 (25.8%) were influenza A(H1N1)pdm09 and 1016 (74.2%) were influenza A(H3N2). Of the characterized B viruses, 60 (85.7%) belonged to the B-Yamagata lineage and 10 (14.3%) to 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:


**New South Wales:** [Influenza Surveillance Report](www.health.nsw.gov.au/Infectious/Influenza/Pages/reports.aspx)


**South Australia:** [Weekly Epidemiological Summary (Influenza section)](www.sahealth.sa.gov.au/SurveillanceNotifiableConditions)

**Tasmania:** [fluTAS](www.dhhs.tas.gov.au/peh/communicable_diseases_prevention_unit)

**Victoria:** [VIDRL Influenza Surveillance Reports](www.vidrl.org.au/surveillance/influenza-surveillance)

**Western Australia:** [Virus Watch](www.public.health.wa.gov.au/3/487/3/virus_watch.pm)

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. AND No outbreaks.</td>
<td></td>
</tr>
<tr>
<td>Localised</td>
<td>Lab confirmed influenza detections above background level” in less than 50% of the influenza surveillance region. OR Single outbreak only.</td>
<td></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. OR &gt;1 outbreaks occurring in less than 50% of the influenza surveillance region **.</td>
<td></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. OR &gt;1 outbreaks occurring in equal to or greater than 50% of the influenza surveillance region **.</td>
<td></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

- **Syndromic surveillance systems***

  - Evidence of increase in ILI via syndromic surveillance systems
  - Evidence of unchanged activity in ILI via syndromic surveillance systems
  - Evidence of a decrease in ILI via syndromic surveillance systems

* 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 from the VIDRL website (www.victorianflu surveillanc e.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 vireaemia [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/3/487/3/virus_watch.pm](http://www.public.health.wa.gov.au/3/487/3/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](http://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 Healths website (www.health.gov.au/internet/main/publishing.nsf/content/ca-d-surv-nndss-casedef-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


