Influenza activity and severity in the community is 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>general practitioner (GP) consultations for influenza-like illness (ILI);</td>
</tr>
<tr>
<td></td>
<td>emergency department (ED) presentations 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>

Summary

- Across all surveillance systems, influenza activity has continued to increase this fortnight.
- Almost all jurisdictions have reported widespread activity above baseline levels. South Australia, Victoria, New South Wales, the Australian Capital Territory and Western Australia have reported significant recent increases in activity.
- Influenza-like illness (ILI) activity has continued to increase. The seasonal increase in activity has occurred slightly earlier than in previous years (excluding 2009), and currently ILI activity levels are above the seasonal peaks reported in 2010 and 2011.
- During this fortnight there were 4,174 laboratory confirmed notifications of influenza, almost double the number of notifications from the previous fortnight. Recent sharp increases in notifications have been reported across most jurisdictions. Over the past fortnight notifications have either stabilised or decreased in South Australia, the Northern Territory and New South Wales.
- Nationally, influenza A(H3N2) is the predominant circulating virus with some co-circulation of influenza B, however this varies by jurisdiction. So far in 2012 there have been very few notifications of pandemic (H1N1) 2009.
- As at 6 July 2012, there have been 10,400 confirmed cases of influenza reported. Excluding 2009, notifications of influenza in 2012 have started their seasonal increase slightly earlier compared with previous years.
- Influenza associated hospitalisations have continued to increase this fortnight. Almost 30% of hospitalisations have been associated with influenza B infections, mostly reported from the Northern Territory and Queensland; amongst other jurisdictional sites, influenza A is more common. Known medical co-morbidities have been reported in almost 70% of hospitalised cases. There is a bimodal age distribution trend in hospitalisations, with peaks among those aged 0-9 years and over 70 years.
- The WHO has reported that the influenza season has started in the temperate countries of the southern hemisphere. Influenza A(H3N2) viruses have been the most commonly detected in recent weeks in the southern hemisphere temperate region; however, significant numbers of influenza B were also reported in South Africa. Although there have been very few reports of pandemic (H1N1) 2009 in the southern hemisphere temperate region, pandemic (H1N1) 2009 is currently the most commonly detected virus in Central and tropical South America.
1. Geographic Spread of Influenza Activity in Australia

In the fortnight ending 6 July 2012, the geographic spread of influenza activity reported by state and territory Health Departments was ‘localised’ in northern Queensland; ‘regional’ in southern and central Queensland; and ‘widespread’ in the ACT, New South Wales, South Australia, Tasmania, Victoria and Western Australia (figure 1). No report was available from the Northern Territory, however current influenza activity is noted as being relatively stable. During this period, New South Wales, Queensland, Tasmania, Victoria and Western Australia had evidence of an increase in ILI via syndromic surveillance systems. Definitions of these activity levels are provided in the Data Considerations section of this report.

Figure 1. Map of influenza activity by state and territory during the fortnight ending 6 July 2012

2. Influenza-like illness activity

Community Level Surveillance

FluTracking

FluTracking, a national online system for collecting data on ILI in the community, noted that in the week ending 8 July 2012 fever and cough was reported by 3.6% of vaccinated participants and 4.7% of unvaccinated participants (figure 2).¹ Fever, cough and absence from normal duties was reported by 2.2% of vaccinated participants and 2.8% of unvaccinated participants. Current rates of ILI among FluTracking participants are trending slightly higher compared with previous years, excluding 2009, however overall levels of activity are not considered unusual (figure 3).

Up to 8 July 2012, 53.3% of participants reported having received the seasonal vaccine so far. Of the 2,590 participants who identified as working face-to-face with patients, 72.0% have received the vaccine.

Figure 2. Proportion of cough and fever among Flutracking participants by week and vaccination status, from week ending 6 May 2012 to 8 July 2012

Source: FluTracking¹
National Health Call Centre Network
The number of ILI related calls to the National Health Call Centre Network (NHCCN) continued to increase this fortnight. In the week ending 8 July 2012, the proportion of total calls which were ILI related increased to 11.8%, which is slightly higher than the peak proportions of calls experienced in 2010 and 2011 (figure 4).

Figure 4. Number of calls to the NHCCN related to ILI and percentage of total calls, Australia, 1 January 2010 to 8 July 2012

Sentinel General Practice Surveillance
In the week ending 8 July 2012, sentinel general practitioner ILI consultation rates increased to 20.4 cases per 1,000 consultations, up from 14.2 in the previous fortnight (figure 5). Compared with previous years (excluding 2009), there has been an earlier increase in seasonal ILI consultation rates and rates are currently higher than the seasonal peaks reported in 2010 and 2011.
In the fortnight ending 1 July 2012, specimens were collected from almost half of ASPREN ILI patients. Of these patients, 43% were positive for influenza, up from 31% in the previous fortnight. Thirty percent were positive for influenza type A, with the majority likely to be attributed to A (H3N2); and the remaining 13% were influenza type B (figure 6 and table 1). Around 15% percent of specimens collected were positive for other respiratory viruses this fortnight, with the majority of these being either rhinovirus or RSV.

Table 1. ASPREN laboratory respiratory viral test results of ILI consultations, 1 January 2012 to 1 July 2012.

<table>
<thead>
<tr>
<th></th>
<th>Fortnight (18 June – 1 July 2012)</th>
<th>YTD (1 January – 1 July 2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total specimens tested</td>
<td>297</td>
<td>1140</td>
</tr>
<tr>
<td>Total Influenza Positive (%)</td>
<td>43.1</td>
<td>27.9</td>
</tr>
<tr>
<td>Influenza A (%)</td>
<td>30.6</td>
<td>19.9</td>
</tr>
<tr>
<td>Pandemic (H1N1) 2009 (%)</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Influenza A (unsubtyped) (%)</td>
<td>30.6</td>
<td>19.6</td>
</tr>
<tr>
<td>Influenza B (%)</td>
<td>12.5</td>
<td>8.0</td>
</tr>
<tr>
<td>Other Resp. Viruses (%)*</td>
<td>15.5</td>
<td>24.9</td>
</tr>
</tbody>
</table>

*The majority of type A(unsubtyped) notifications are likely to be attributed to A(H3N2)
*Other respiratory viruses include RSV, parainfluenza, adenovirus and rhinovirus.
Sentinel Emergency Department Surveillance

**Western Australia Emergency Departments**
In the fortnight ending 8 July 2012, respiratory viral presentations to WA emergency departments continued to increase and are higher than in recent years (figure 7). Over this period there were 1,881 presentations, including 117 admissions. The proportion of presentations requiring admission to hospital over this period remained stable at 6.2%.

**Figure 7.** Number of respiratory viral presentations to Western Australia emergency departments from 1 January 2008 to 8 July 2012, by week

Source: WA ‘Virus Watch’ Report

**New South Wales Emergency Departments**
In the week ending 6 July 2012 the number of patients presenting to NSW emergency departments increased, and is above the usual range for this time of year, but remains below the peak activity levels seen in 2008 and 2009 (figure 8). Total admissions from emergency departments to critical care units for ILI and pneumonia decreased this week, but remain well above peak levels in recent years, especially in the over 65 years age group.

**Figure 8.** Rate of influenza-like illness presentations to New South Wales emergency departments, between May and October, 2008 to 2012, by week

Source: NSW Influenza Weekly Epidemiology Report
Northern Territory Emergency Departments
Note: Northern Territory emergency department ILI presentation data have not been updated for this fortnight’s report.

In the fortnight ending 16 June 2012, the number of patients presenting with ILI to emergency departments across the Northern Territory was 507, which is slightly above the number of presentations observed in previous years over the same period (excluding 2009) (figure 9).

Figure 9. Number of ILI presentations to Northern Territory emergency departments, 1 January 2008 to 16 June 2012, by week

3. Laboratory confirmed influenza activity

Notifications of Influenza to Health Departments

During the reporting period there were 4,174 laboratory confirmed influenza notifications reported to the NNDSS, almost double the number of notifications from the previous fortnight. Notifications continue to be highest in New South Wales (1,085), Queensland (985) and South Australia (857); followed by Victoria (533), WA (471), the ACT (133), Tasmania (68) and the NT (42) (figure 10). A weekly breakdown of trends by state and territory highlights that there have been recent sharp increases across most jurisdictions, with notifications in New South Wales, South Australia and the Northern Territory either remaining stable over the past fortnight or decreasing (figure 11).

Figure 10. Laboratory confirmed cases of influenza in Australia, 1 January to 6 July 2012, by state, by week.
Up to 6 July, there have been 10,400 laboratory confirmed notifications of influenza diagnosed during 2012 (figure 12). Of these notifications, there have been 2,964 in New South Wales, 2,606 in Queensland, 1,856 in South Australia, 1,269 in Victoria, 1,191 in Western Australia, 214 in the ACT, 190 in the Northern Territory and 110 in Tasmania.

Nationally, influenza A(H3N2) continues to be the predominant circulating strain with some co-circulation of influenza B. Influenza A(H3N2) is predominant across most states and territories, however influenza B represents 64% and 41% of notifications in the Northern Territory and Western Australia, respectively. So far in 2012 there have been very few notifications of pandemic (H1N1) 2009 reported.
So far in 2012, 8,510 (82%) cases were reported as influenza A (61% influenza A (unsubtyped), 20% A(H3N2) and 1% pandemic (H1N1) 2009) and 1,794 (17%) were influenza B. A further 28 (<1%) were influenza type A&B and 68 (<1%) were untyped (figure 13).

Figure 13. Laboratory confirmed cases of influenza in Australia, 1 January to 6 July 2012, by sub-type and week

Source: NNDSS

Sentinel Laboratory Surveillance

Results from sentinel laboratory surveillance systems for this reporting period, excluding the New South Wales National Influenza Centre, show that 35.7% of the respiratory viral tests conducted over this period were positive for influenza, an increase from 18.2% in the previous fortnight (table 2). Influenza A(H3N2) was the predominant influenza virus reported. A breakdown of subtypes within this positive proportion by fortnight is highlighted in figure 14.

Table 2. Sentinel laboratory respiratory virus testing results, 23 June to 8 July 2012

<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>-</td>
<td>879</td>
<td>277</td>
<td>190</td>
</tr>
<tr>
<td>Total Influenza Positive</td>
<td>-</td>
<td>333</td>
<td>84</td>
<td>64</td>
</tr>
<tr>
<td>Positive Influenza A</td>
<td>-</td>
<td>213</td>
<td>78</td>
<td>64</td>
</tr>
<tr>
<td>Pandemic (H1N1) 2009</td>
<td>-</td>
<td>5</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>-</td>
<td>208</td>
<td>66</td>
<td>29</td>
</tr>
<tr>
<td>Influenza A unsubtyped</td>
<td>-</td>
<td>0</td>
<td>4</td>
<td>35</td>
</tr>
<tr>
<td>Positive Influenza B</td>
<td>-</td>
<td>120</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Proportion Influenza Positive (%)</td>
<td>-</td>
<td>37.9%</td>
<td>30.3%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Most common respiratory virus detected</td>
<td>-</td>
<td>Influenza</td>
<td>Influenza A</td>
<td>Influenza A(H3N2)</td>
</tr>
</tbody>
</table>

* No data were available from the NSW NIC for the fortnight ending 8 July 2012

Figure 14. Proportion of sentinel laboratory tests positive for influenza, by subtype and fortnight, 26 May to 8 July 2012

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

**Influenza Complications Alert Network (FluCAN)**
The Influenza Complications Alert Network (FluCAN) sentinel hospital surveillance system has reported that there has been a continued increase in the number of cases in the last fortnight, particularly in Victoria, South Australia, New South Wales and the ACT. Since 7 April 2012, nine percent of influenza patients have been admitted directly to ICU. Overall, 27% of cases have been due to influenza B (figure 15), however most of these presentations are from the Northern Territory and Queensland, with influenza A more common in other states. Around 40% of the cases are aged 65 years and over (median age 55 years) and almost 70% of all cases have known medical co-morbidities.

**Figure 15. Number of influenza hospitalisations at sentinel hospitals, by week and influenza subtype, 7 April to 6 July 2012**

![Graph showing influenza hospitalisations by week and subtype, 7 April to 6 July 2012](Source: FluCAN Sentinel Hospitals)

**Queensland Public Hospital Admissions (EpiLog)**
Admissions to public hospitals in Queensland of confirmed influenza are detected through the EpiLog system. In the fortnight ending 8 July 2012, the number of admissions of confirmed influenza continued to increase and accounted for a third of the total admissions so far in 2012 (81/243) (figure 16). The median age of hospitalisations was 39 years (range <1 to 102 years), with a bimodal distribution peaking mostly in the 0-9 year age group and also in those aged over 70 years.

**Figure 16. Number of influenza admissions to Queensland public hospitals, by week and type of admission, with onset from 1 January to 8 July 2012**

![Graph showing influenza admissions, by week and type of admission, 1 January to 8 July 2012](Source: Queensland Health EpiLog data)
Deaths associated with influenza and pneumonia

Nationally Notified Influenza Associated Deaths
So far in 2012, 8 influenza associated deaths have been notified to the NNDSS, with a median age of 76 years (range 51 to 90 years). All cases were reported as having influenza A(unsubtyped) and are likely to be attributable to A(H3N2) infections.

New South Wales Influenza and Pneumonia Death Registrations
Death registration data for the week ending 15 June 2012 show that there were 1.63 pneumonia or influenza associated deaths per 100,000 population in NSW, which is just below the epidemic threshold of 1.65 per 100,000 NSW population for this period (Figure 17).

Figure 17. Rate of deaths classified as influenza and pneumonia from the NSW Registered Death Certificates, 1 January 2007 to 15 June 2012

Source: NSW ‘Influenza Weekly Epidemiology Report’

4. Virological Surveillance

Typing and antigenic characterisation

WHO Collaborating Centre for Reference & Research on Influenza (WHO CC), Melbourne
From 1 January to 9 July 2012, there were 441 Australian influenza viruses subtyped by the WHO CC with just over half being influenza A(H3N2) and 40% influenza B. So far this year, very few viruses have been pandemic (H1N1) 2009 (table 3).

Table 3. Australian Influenza viruses typed by HI or PCR from the WHO Collaborating Centre, from 1 January 2012 to 9 July 2012

<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>Pandemic (H1N1) 2009</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>9</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>5</td>
<td>37</td>
<td>0</td>
<td>57</td>
<td>31</td>
<td>10</td>
<td>83</td>
<td>12</td>
<td>235</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>8</td>
<td>43</td>
<td>49</td>
<td>20</td>
<td>2</td>
<td>28</td>
<td>36</td>
<td>188</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>45</td>
<td>44</td>
<td>108</td>
<td>52</td>
<td>12</td>
<td>120</td>
<td>53</td>
<td>441</td>
</tr>
</tbody>
</table>

Please note: There may be up to a month delay on reporting of samples. Viruses tested by the WHO CC are not necessarily a random sample of all those in the community.

The WHOCC has analysed some of the currently circulating influenza viruses. Whilst almost all of the influenza A(H3N2) viruses are of a more recent strain that differs from the A(H3N2) strain in the 2012 Southern Hemisphere seasonal influenza vaccine, it is expected that the vaccine will still offer significant protection. Additionally there is some co-circulation of the two influenza B lineages. The majority of influenza B viruses are of the B/Victoria lineage and are similar to the strain in the current vaccine. Some cross-protection against influenza B viruses of the other (B/Yamagata) lineage is expected in adults, though less so for children. The next northern hemisphere vaccine (2012-13) will include a B/Yamagata lineage virus instead of the current B/Victoria lineage virus.
**Antiviral Resistance**

The WHO CC has reported that from 1 January to 9 July 2012, one influenza virus (out of 313 tested) has shown resistance to the neuraminidase inhibitor oseltamivir. This virus was a pandemic (H1N1) 2009 virus with H275Y mutation in the neuraminidase gene, which is known to confer resistance to oseltamivir.

**2012/13 Northern Hemisphere Vaccine**

In February 2012 the WHO recommended that vaccines for the 2012-2013 influenza season (northern hemisphere winter) contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A/Victoria/361/2011 (H3N2)-like virus;
- a B/Wisconsin/1/2010-like virus.

In comparison to the current 2012 southern hemisphere vaccine, the recommended A(H3N2) and B viruses have been changed. The WHO notes in their recommendations that:

- the majority of recent A(H3N2) viruses were antigenically and genetically distinguishable from the current southern hemisphere vaccine virus (A/Perth/16/2009) and were more closely related to A/Victoria/361/2011-like reference viruses.
- the proportion of B/Yamagata/16/88 lineage viruses increased in many parts of the world but B/Victoria/2/87 lineage viruses predominated in some countries. The majority of recent B/Yamagata/16/88 lineage viruses were antigenically and genetically closely related to the current southern hemisphere vaccine virus (B/Brisbane/60/2008). Most recently isolated B/Yamagata/16/88 lineage viruses were antigenically distinguishable from the previous vaccine virus B/Florida/4/2006 and were closely related to B/Wisconsin/1/2010-like viruses.

**5. International Influenza Surveillance**

The WHO has reported that as at 6 July 2012 the influenza season is largely finished in the temperate countries of the northern hemisphere. A detailed review of the recent northern hemisphere season is available at: [http://www.who.int/wer/2012/wer8724/en/](http://www.who.int/wer/2012/wer8724/en/). The influenza season has commenced in most temperate countries of the southern hemisphere, although influenza remains nearly undetectable in Argentina.

In New Zealand, for the week ending 8 July 2012, the national rate of ILI consultations are above baseline levels and are following the same trend as in 2011. Six of the twenty district health boards were above the national average weekly consultation rate of 51.9 per 100,000. Virological surveillance through both sentinel and non-sentinel laboratories shows that so far this year 62% have been influenza A(H3N2) viruses, 15% influenza B viruses and 16% were pandemic (H1N1) 2009 virus detections, with the remainder being influenza A (unsubtyped). The majority of circulating influenza strains are noted as being covered by the 2012 southern hemisphere vaccine.

Influenza A(H3N2) viruses have been the most commonly reported subtype in Chile, South Africa and Australia; however, significant numbers of influenza B were also reported in South Africa and to a lesser extent, Australia. Although there have been very few reports of pandemic (H1N1) 2009 in the southern hemisphere temperate region, pandemic (H1N1) 2009 is currently the most commonly detected virus in Central and tropical South America. National Influenza Centres and laboratories in 70 countries, areas or territories, have reported that for the period 10 to 23 June 2012, a total of 1,559 specimens were reported as positive for influenza viruses, with 82% being influenza A and 18% influenza B. Of the sub-typed influenza A viruses, 85% were influenza A(H3N2) and 15% were pandemic (H1N1) 2009. Of the characterised influenza B viruses, 93% belong to the B/Yamagata lineage and 2% to the B/Victoria lineage.

**6. Data considerations**

The information in this report is reliant on the surveillance sources available to the Department of Health and Ageing. As access to sources increase as the season progresses, this report will be updated with the 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 through flu@health.gov.au.

**Geographic Spread of Influenza Activity**

<table>
<thead>
<tr>
<th>Influenza Activity Levels</th>
<th>Laboratory notifications</th>
<th>Influenza outbreaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sporadic</td>
<td>Small no of lab confirmed influenza detections (not above expected background level)</td>
<td>AND No outbreaks</td>
</tr>
<tr>
<td>Localised</td>
<td>Recent increase in lab confirmed influenza detections above background level in less than 50% of the influenza surveillance regions within the state or area</td>
<td>OR Single outbreak only</td>
</tr>
<tr>
<td>Regional</td>
<td>Significant recent increase in lab confirmed influenza detections above baseline in less than 50% of the influenza surveillance regions within the state or area</td>
<td>OR &gt; 1 outbreaks occurring in less than 50% of the influenza surveillance regions within the state or area+++</td>
</tr>
<tr>
<td>Widespread</td>
<td>Significant recent increase in lab confirmed influenza detections above baseline in equal to or greater than 50% of the influenza surveillance regions within the state or area</td>
<td>OR &gt; 1 outbreaks occurring in equal to or greater than 50% of the influenza surveillance regions within the state or area+++</td>
</tr>
</tbody>
</table>

* Small no of lab detections = not above expected background level as defined by state epidemiologists.  
** Increase in lab confirmed influenza detections = above expected threshold as defined by state epidemiologists.  
*** Influenza surveillance region within the state/area as defined by state epidemiologists.  
++ Significant increase in a second threshold to be determined by the state epidemiologists to indicate level is significantly above the expected baseline.  
+++ Areas to be subdivision of NT (2 regions), WA (3 regions) and QLD (3 regions) that reflect significant climatic differences within those states resulting in differences in the timing of seasonal influenza activity on a regular basis.  
Recent = within the current reporting period.

**Syndromic Surveillance Activity**

<table>
<thead>
<tr>
<th>Syndromic surveillance systems*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No evidence of increase in ILI via syndromic surveillance systems</td>
</tr>
<tr>
<td>Evidence of increase in ILI via syndromic surveillance systems</td>
</tr>
</tbody>
</table>

* Syndromic surveillance systems = GP sentinel surveillance, ED ILI surveillance, Flu tracking (this may be due to a variety of respiratory viruses so the report could add a note to 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 state 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 symptoms in communities.

Further information on FluTracking is available at www.flutracking.net/index.html.

**Sentinel General Practice Surveillance**

The sentinel general practice ILI surveillance data between 2008 and 2012 consists of two main general practitioner schemes, the Australian Sentinel Practices Research Network (ASPREN) 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 NSW, NT, SA, ACT, VIC, QLD, 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 2012 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 30% of all ILI patients presenting to ASPREN sentinel GPs are swabbed for laboratory testing. Please note the results of ASPREN ILI laboratory respiratory viral tests now include Western Australia.

Further information on ASPREN is available at www.dmac.adelaide.edu.au/aspren and information regarding the VIDRL coordinated sentinel GP ILI surveillance program is available at: https://www.victorianinflusurveillance.com.au/.

**Sentinel Emergency Department Data**

*Western Australia – Emergency Department ILI surveillance data are extracted from the ‘Virus Watch’ Report. This report is produced weekly. The Western Australia Influenza Surveillance Program collects data from eight Perth emergency departments.*
New South Wales – Emergency Department ILI surveillance data are extracted from the ‘Weekly Influenza Report, NSW’. The New South Wales Influenza Surveillance Program collects data from 56 emergency departments across New South Wales.

Northern Territory – this sentinel program collects data from the following hospitals: 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.

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 at: http://www.health.gov.au/internet/main/publishing.nsf/content/cda-survnl-nddss-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 laboratories reporting PCR results. Additionally, approximately 30% of all ILI patients presenting to ASPREN based sentinel GPs are swabbed for laboratory testing.

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 and Westmead Hospital;
- 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 Hospital, Royal Melbourne Hospital, Monash Medical Centre and Alfred Hospital;
- Western Australia – Royal Perth Hospital.

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.

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.

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

NSW influenza and pneumonia deaths data are collected from the NSW Registry of Births, Deaths and Marriages. Figure 16 is extracted from the ‘Weekly Influenza Report, NSW’. NSW Registered Death Certificates are routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death. The predicted seasonal baseline estimates the predicted rate of influenza or pneumonia deaths in the absence of influenza epidemics. If deaths exceed the epidemic threshold, then it may be an indication that influenza is beginning to circulate widely.

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.

7. References


