1. Influenza Notifications in Queensland

Figure 1: Influenza notifications in Queensland by type and week of onset from 1st January 2011 to 7th August 2011 and influenza like illness (ILI) presentation rates per 1000 consultations reported to the ASPREN sentinel network 1st January 2011 to 7th August 2011.

Data Sources: Queensland Health Notifiable Conditions Register 10/08/2011 and ASPREN website 10/08/2011

*Influenza Notifications*

Year to date (YTD) there have been 6430 notifications of influenza in Queensland. Subtype is recorded for 2580 of the 5374 notifications of influenza A, comprising 2131 pandemic (H1N1)2009 and 449 H3N2. There have been 1050 notifications of influenza B. Typing data were unavailable for six notifications.

Figure 1 shows notifications for influenza A and B by week of onset and Influenza Like Illness (ILI) presentation rates, per 1000 consultations, by week. Please see section below for an explanation of the Australian Sentinel Practices Research Network (ASPREN). Untyped influenza notifications have been excluded from this graph.

The YTD notification count is 1.6 times the five year mean for the same period. However, it is important to note that the profile of influenza notifications is not the same each year, especially with regard to the start of the season. Comparison of YTD data, or counts during a particular week, across years may be misleading. In addition, there have been changes to diagnostic methods and test requesting practices in recent years, which may impact in counts.

Compiled by the Epidemiology, Surveillance and Research Unit
Communicable Diseases Branch
Health Protection Directorate
Division of the Chief Health Officer
EPI@health.qld.gov.au
8 August 2011
The 2011 profile shows significant inter-seasonal activity at the beginning of the year. There is a sustained increasing trend in notifications from around week 21, which is consistent with the 2011 influenza season having commenced. Please note that recent week notifications will usually be under-estimated in data presented by date of disease onset.

*A data quality issue has been identified which has resulted in the inclusion of some invalid influenza notifications in the weekly counts for the previous few weeks. We are currently reviewing the situation and have corrected most of the errors, with the remainder expected to be resolved within the next week. Retrospective counts will be adjusted in future reports. In the meantime, influenza notification counts represented in this report may be a slight overestimate and should be interpreted with caution. There is no evidence that the seasonal trend has been misrepresented.

Figure 2: Age and gender profile of Influenza notifications and age specific rates in Queensland (2011) to 7th August

Data Sources: Queensland Health Notifiable Conditions Register 10/08/2011
*The Estimated Resident Population – (ERP), 2009 was used

Figure 2 shows 2011 YTD influenza notifications and rates by age group and gender. The highest influenza notification rate occurred in the <1 age group (406.3 per 100,000 population) and the lowest rate occurred at 60-69 age group (69.5 per 100,000 population). The median age of notification was 24 years with an age range of <1 to 96 years. Influenza notifications were slightly higher in females (53%) than males (47%).

Table 1 provides a profile of influenza notifications by Health Service District and week of disease onset.
Table 1: Influenza notifications by week of onset and Health Service District from north (top) to south (bottom), Queensland, 2011 (as on 7 August)

<table>
<thead>
<tr>
<th>Week of onset</th>
<th>1</th>
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</tbody>
</table>

Compiled by the Epidemiology, Surveillance and Research Unit
Communicable Diseases Branch
Health Protection Directorate
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8 August 2011
ASPREN
ASPREN is a national syndromic surveillance program co-ordinated by the Discipline of General Practice at the University of Adelaide and The Royal Australian College of General Practitioners. One of the conditions under surveillance is influenza like illness (ILI).

General practitioners (GP) participating in the ASPREN program contribute data on the proportion of consultations which are ILI related. Currently there are 19 Queensland GPs participating in the program, although not all may participate each week.

Figure 1 shows ILI rates, as presentations per 1000 consultations, for Queensland GPs participating in the ASPREN program. An increasing trend is apparent from week 27 and is consistent with the profile of laboratory confirmed influenza notifications. Caution should be used in interpreting these data, which may be subject to change due to delays in data submission. Recent week (32) data may be incomplete.

2. Influenza Activity in Australia (reporting period 9th July to 22nd July, 2011)¹

Last updated 1 August 2011

- Levels of influenza-like illness (ILI) in the community continued to increase through both sentinel general practitioner surveillance systems and ILI presentations to emergency departments.
- Notifications have continued to rise nationally, with notifications highest in Queensland, New South Wales and South Australia. In recent weeks, influenza notifications have started to increase in Victoria, Western Australia and the Australian Capital Territory.
- During this reporting period there were 2,333 laboratory confirmed notifications of influenza, with Queensland reporting the highest number of notifications, followed by New South Wales and South Australia. The majority of virus detections have been pandemic (H1N1) 2009, with co-circulation of influenza B.
- Influenza B in South Australia has continued to represent the majority of their notifications (72%), and also accounted for over a third of all influenza B reported nationally over this period. Queensland and New South Wales have reported mostly pandemic (H1N1) 2009, with co-circulation of influenza B.
- As at 22 July 2011, there have been 10,060 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 1,571 for the same period in 2010. It should be noted that over the 2011 summer months, all jurisdictions reported higher than usual numbers of notifications and this season commenced very early.

FluTracking
FluTracking is a pilot online health surveillance system which aims to detect epidemics of influenza. It is a joint initiative of The University of Newcastle, Hunter New England Area Health Service (NSW Health) and Hunter Medical Research Institute. Participation is voluntary and involves the completion of a weekly online survey during the influenza season. Data are collected on basic demographics, symptoms of ILI and absenteeism. See the FluTracking website² for further information about this program or to enrol as a ‘Flu Tracker’.

Compiled by the Epidemiology, Surveillance and Research Unit
Communicable Diseases Branch
Health Protection Directorate
Division of the Chief Health Officer
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8 August 2011
### Burden of Illness Pyramid

A method for estimating the relationship between influenza-like illness at the community level with national influenza laboratory reports. Figure and table below describe surveillance levels from cough and fever through to positive laboratory test for influenza (self-reported) among 1,553 FluTracking participants nationally, for the five weeks beginning week ending 9/5/11 to 5/6/11.

This analysis will be repeated throughout the year to monitor changes in the proportion of ILI cases that progress through each step of the surveillance pyramid. An influenza epidemic increases. Note that all data is self-reported (review overviews of steps above page).

<table>
<thead>
<tr>
<th>Surveillance Level</th>
<th>Number</th>
<th>Percentage of total with cough and fever</th>
<th>Percentage of prior surveillance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants who took a positive laboratory test result</td>
<td>6</td>
<td>0.3%</td>
<td>38.2%</td>
</tr>
<tr>
<td>Participants who had a laboratory test for influenza</td>
<td>14</td>
<td>0.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Participants who caught medical attention (influenza-like illness)</td>
<td>409</td>
<td>27.2%</td>
<td>87.8%</td>
</tr>
<tr>
<td>Fever and cough reported by participants</td>
<td>1,553</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Figure 3: Influenza burden of illness pyramid reproduced with permission from Dr Craig Dalton flutracking@hnehealth.nsw.gov.au.

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**Figure 4:** Queensland FluTracking weekly fever and cough rate, stratified by vaccination status, weeks 20-33 in 2011. Figure provided by flutracking@hnehealth.nsw.gov.au.

Figure 4 provides a summary of Queensland FluTracking data from May to early August. There is an increasing and divergent trend in the percentage of unvaccinated participants reporting fever and cough from week 30, compared with those who reported vaccination. Although these data are unlikely to be representative of the Queensland population, the trend is consistent with high levels influenza circulation in the community.
3. International Influenza Activity (reporting period 25th June to 8th July, 2011)\(^1\)

The WHO has reported that as at 15 July 2011 influenza activity in the temperate countries of the northern hemisphere remains at baseline inter-seasonal levels. Countries in the tropical zone mostly report low influenza activity, but with some transmission reported in countries of the Americas, western Africa and southern Asia. The influenza season in South Africa appears to have peaked and is in early decline, although it is still quite active. Transmission within South Africa has been primarily associated with pandemic A(H1N1) 2009, however influenza type B has made up a larger proportion of cases hospitalised with severe infections. In New Zealand, for this reporting period, influenza type B was the predominant strain followed by influenza A(H3N2).

National Influenza Centres in 62 countries have reported that for the period 19 June to 2 July 2011, a total of 792 specimens were reported as positive for influenza viruses, 602 (76%) were typed as influenza A and 190 (24%) as influenza B. Of the sub-typed influenza A viruses reported, 61% were pandemic (H1N1)2009 and 39% were influenza A(H3N2).

WHO have released a summary review of the northern hemisphere winter influenza season. The summary review notes that the most commonly detected virus was different in North America, where influenza A(H3N2) and influenza type B co-circulated with pandemic (H1N1)2009, and Europe, where influenza A(H1N1)2009 was by far the most commonly detected virus. Although it was no longer the predominant influenza virus circulating in many parts of the world, pandemic (H1N1) 2009 otherwise behaved much the same way as it had during the pandemic in terms of the age groups most affected and the clinical pattern of illness. More than 90% of viruses detected around the world during the northern hemisphere influenza season were similar antigenically to those found in the seasonal trivalent influenza vaccine. Antiviral resistance in pandemic (H1N1)2009 remained at a very low level.

The WHO has released their recommendation for the antigen composition of 2011-2012 northern hemisphere influenza season trivalent flu vaccine. It is recommended that vaccines contain the following:
- an A/California/7/2009 (H1N1)-like virus;
- an A/Perth/16/2009 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus.

This recommended composition is the same as the 2010-2011 Northern Hemisphere and the 2011 Southern Hemisphere vaccine compositions.

4. Virology\(^1\)

**Typing and antigenic characterisation - WHO Collaborating Centre for Reference & Research on Influenza (WHO CC) in Melbourne**

From 1\(^{st}\) January to 24\(^{th}\) July 2011, there were 852 Australian influenza isolates processed by the WHO CC, with 69% (586/852) type A and 31% (266/852) type B. Subtyping of influenza A isolates indicated that 69% (398/586) were pandemic (H1N1) 2009 and 32% (188/586) were A/H3N2 (Table 2).
Table 2: Typing of influenza isolates from the WHO Collaborating Centre, from 1 January 2011 to 24 July 2011

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<tr>
<th>Type/Subtype</th>
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<th>NT</th>
<th>QLD</th>
<th>SA</th>
<th>TAS</th>
<th>VIC</th>
<th>WA</th>
<th>TOTAL</th>
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<td>28</td>
<td>195</td>
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<td>17</td>
<td>31</td>
<td>26</td>
<td>398</td>
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<tr>
<td>A(H3N2)</td>
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<td>105</td>
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<td>188</td>
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<td>B</td>
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<td>156</td>
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<td>74</td>
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</table>

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

Antigenic characterisation has shown influenza isolates to be a close match with the composition of the 2011 southern hemisphere influenza vaccine with some viruses showing reduced reactivity, however there has been insufficient testing to date to determine any general trends.

**Antiviral Resistance**

The WHO Collaborating Centre in Melbourne has reported that from 1 January 2011 to 24 July 2011, one isolate (out of 964 tested) has shown resistance to oseltamivir by enzyme inhibition assay (EIA). A further isolate, out of a total of 7 pandemic H1N1 (2009) tested by pyrosequencing, has shown the H275Y mutation known to confer resistance to oseltamivir.

**Reference**
