1. Influenza Notifications in Queensland

Figure 1: Influenza notifications in Queensland by type and week of onset from 1st January 2011 to 26th June 2011 and influenza like illness (ILI) presentation rates per 1000 consultations reported to the ASPREN sentinel network 1st January 2011 to 26th June 2011.

Data Sources: Queensland Health Notifiable Conditions Register 27/06/2011 and ASPREN website 27/06/2011

Influenza Notifications
Year to date (YTD) there have been 2474 notifications of influenza in Queensland. Subtype is recorded for 973 of the 2182 notifications of influenza A, comprising 651 pandemic (H1N1)2009 and 322 H3N2. There have been 289 notifications of influenza B. Typing data were unavailable for three 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 6.1 times the five year mean for the same period. The profile shows significant inter-seasonal activity at the beginning of 2011. 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.

Figure 2: Age and gender profile of Influenza notifications and age specific rates in Queensland (2011) to 26th June
Data Sources: Queensland Health Notifiable Conditions Register 27/06/2011
*The Estimated Resident Population – (ERP), 2009 was used

Figure 2 shows 2011 influenza notifications and rates by age group and gender. The highest influenza notification rate occurred in the <1 age group (129.0 per 100,000 population) and the lowest rates occurred at 60-69 age group (36.6 per 100,000 population). The median age of notification was 29 years with an age range of <1 to 91 years. Influenza notifications were slightly higher in females (53%) than males (47%).

Figure 3: Influenza notifications in Queensland by Public Health Unit (PHU) in geographical order from north (left) to south (right) as at 26th June 2011
Data Sources: Queensland Health Notifiable Conditions Register 27/06/2011

Compiled by the Epidemiology, Surveillance and Research Unit
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27 June 2011
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Figure 3 shows YTD 2011 influenza notifications, which ranged from 577 (23%) in the Townsville PHU area to 83 (3%) in Wide Bay PHU area. Cairns, Townsville, Rockhampton and Wide Bay, together, accounted for 881 (36%) of notifications.

Figure 4 shows YTD 2011 influenza notification rates by HSD, which ranged from 208.1 per 100,000 in Townsville to 27.0 per 100,000 in the Gold Coast. The notification rates in Townsville are approximately 7.7 times higher than the rate in Gold Coast and approximately the same as Cape York. Comparison of crude rates can be misleading due to differences in underlying population structures in the areas being compared. Please interpret data cautiously.

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 20 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. The pattern is erratic at the moment but an upward trend is apparent between weeks 20 and 23, with the highest YTD value of 20.7 in week 23. Caution should be used in interpreting these data. Recent week (26) data may be incomplete and underestimate the rate.
2. Influenza Activity in Australia (reporting period 28th May to 10th June, 2011)\(^1\)

Last updated 20 June

- Levels of influenza-like illness (ILI) in the community continue to remain low through sentinel general practitioner surveillance systems, however ILI presentations to emergency departments have increased.
- In recent weeks, notifications have increased most notably in South Australia and Queensland, with some increases also observed in most of the other jurisdictions.
- During this reporting period there were 574 laboratory confirmed notifications of influenza, with Queensland and South Australia reporting the highest number of notifications. The majority of virus detections have been pandemic (H1N1) 2009, with co-circulation of influenza B. The majority of the South Australian notifications this fortnight have been influenza B (85%). There were no detections of influenza A(H3N2) reported this fortnight.
- As at 27 May 2011, there have been 4,492 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 967 for the same period in 2010.

**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 website\(^2\) for further information about this program or to enrol as a ‘Flu Tracker’.

**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 1,563 FluTracking participants nationally, for the five weeks beginning week ending 6/5/11 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 as influenza incidence increases. Note that all data is self-report. (see screenshot of questions over page).

![Influenza burden of illness pyramid](image_url)

Figure 5: Influenza burden of illness pyramid reproduced with permission from Dr Craig Dalton flutracking@hnehealth.nsw.gov.au.
3. International Influenza Activity (reporting period 28th May to 10th June, 2011)\textsuperscript{1}

The WHO has reported that the influenza season has finished in the temperate countries of the northern hemisphere, with only sporadic influenza virus detections occurring. Transmission in tropical countries of the Americas and sub-Saharan Africa has continued to decline. South Africa has reported an increase in influenza virus detections, primarily influenza A(H1N1)2009, consistent with the start of their winter influenza season. Seasonal transmission does not appear to have started in other temperate countries of the southern hemisphere.

National Influenza Centres in 74 countries have reported that for the period 8 May to 21 May 2011, a total of 721 specimens were reported as positive for influenza viruses, 261 (36.2\%) were typed as influenza A and 460 (63.8\%) as influenza B. Of the sub-typed influenza A viruses reported, 66\% were pandemic (H1N1)2009 and 34\% 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\textsuperscript{1}

\textit{Typing and antigenic characterisation - WHO Collaborating Centre for Reference \& Research on Influenza (WHO CC) in Melbourne}

From 1\textsuperscript{st} January to 5\textsuperscript{th} June 2011, there were 474 Australian influenza isolates processed by the WHO CC, with 85\% (405/474) type A and 15\% (69/474) type B. Subtyping of influenza A isolates indicated that 59\% (238/405) were pandemic (H1N1) 2009 and 41\% (167/405) were A/H3N2 (Table 1).
Table 1: Typing of influenza isolates from the WHO Collaborating Centre, from 1 January 2011 to 5 June 2011

<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>8</td>
<td>28</td>
<td>151</td>
<td>0</td>
<td>12</td>
<td>17</td>
<td>22</td>
<td>238</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>0</td>
<td>1</td>
<td>48</td>
<td>105</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>167</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>3</td>
<td>32</td>
<td>22</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>4</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>12</td>
<td>108</td>
<td>278</td>
<td>0</td>
<td>14</td>
<td>28</td>
<td>34</td>
<td>474</td>
</tr>
</tbody>
</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 5 June 2011, one isolate (out of 764 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
