1. Influenza Notifications in Queensland

Figure 1: Influenza notifications in Queensland by type and week of onset from 1st January 2011 to 17th July 2011 and influenza like illness (ILI) presentation rates per 1000 consultations reported to the ASPREN sentinel network 1st January 2011 to 17th July 2011.

Data Sources: Queensland Health Notifiable Conditions Register 18/07/2011 and ASPREN website 18/07/2011

Influenza Notifications

Year to date (YTD) there have been 3594 notifications of influenza in Queensland. Subtype is recorded for 1511 of the 3125 notifications of influenza A, comprising 1143 pandemic (H1N1)2009 and 368 H3N2. There have been 465 notifications of influenza B. Typing data were unavailable for four 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 1.9 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 practises in recent years which may impact in counts. 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.

Figure 2: Age and gender profile of Influenza notifications and age specific rates in Queensland (2011) to 17th July

Data Sources: Queensland Health Notifiable Conditions Register 18/07/2011
*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 (216.6 per 100,000 population) and the lowest rate occurred at 60-69 age group (46.6 per 100,000 population). The median age of notification was 27 years with an age range of <1 to 96 years. Influenza notifications were slightly higher in females (52%) than males (48%).

Figure 3: Influenza notifications in Queensland by Public Health Unit (PHU) in geographical order from north (left) to south (right) as at 17th July 2011

Data Sources: Queensland Health Notifiable Conditions Register 18/07/2011

Compiled by the Epidemiology, Surveillance and Research Unit
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18 July 2011
Figure 3 shows YTD 2011 influenza notifications, which ranged from 642 (18%) in the Townsville PHU area to 101 (3%) in Wide Bay PHU area. Cairns, Townsville, Rockhampton and Wide Bay, together, accounted for 1013 (28%) of notifications.

![Influenza notification rates per 100,000 population in Queensland by Health Service District (HSD) in geographical order from north (left) to south (right), 1st January to 17th July 2011](image)

Data Sources: Queensland Health Notifiable Conditions Register 18/07/2011
*The Estimated Resident Population – (ERP), 2009 was used

Figure 4 shows YTD 2011 influenza notification rates by HSD, which ranged from 231.6 per 100,000 in Townsville to 27.7 per 100,000 in the Torres Strait-Northern Peninsula. The notification rates in Townsville are approximately 8.4 times higher than the rate in Torres Strait-Northern Peninsula 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 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. The pattern remains erratic although an upward trend is apparent between weeks 20 and 23, with the highest YTD value of 22.8 in week 23. However, this trend has not been sustained and the profile of ILI presentations does not match that of notifications of laboratory confirmed influenza. Caution should be used in interpreting these data, which may be subject to change due to delays in data submission. Recent week (29) data may be incomplete.
2. Influenza Activity in Australia (reporting period 25th June to 8th July, 2011)\(^1\)

- 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 increases most notable in South Australia, Queensland and New South Wales.
- During this reporting period there were 1,555 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 (80%), and also accounted for over half of all influenza B reported nationally over this period. Queensland and New South Wales have reported mostly pandemic (H1N1) 2009 with some co-circulation of influenza B.
- As at 8 July 2011, there have been 7,488 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 1,294 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

![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 25th June to 8th July, 2011)¹

The WHO has reported that as at 1 July 2011 influenza activity in the temperate countries of the northern hemisphere are at baseline inter-seasonal levels. Transmission in tropical arrears is low overall, with focal areas of transmission noted in a few countries of Central America and northern South America, western and eastern regions of sub-Saharan Africa, and tropical Asia. South Africa has continued to report increasing numbers of both mild and severe cases, primarily related to pandemic (H1N1) 2009.

National Influenza Centres in 71 countries have reported that for the period 5 June to 18 June 2011, a total of 837 specimens were reported as positive for influenza viruses, 583 (69.7%) were typed as influenza A and 254 (30.3%) as influenza B. Of the sub-typed influenza A viruses reported, 83.2% were pandemic (H1N1)2009 and 16.7% 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. Virology¹

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

From 1st January to 10th July 2011, there were 673 Australian influenza isolates processed by the WHO CC, with 72% (483/673) type A and 28% (190/673) type B. Subtyping of influenza A isolates indicated that 64% (311/483) were pandemic (H1N1) 2009 and 36% (172/483) were A/H3N2 (Table 1).
Table 1: Typing of influenza isolates from the WHO Collaborating Centre, from 1 January 2011 to 10 July 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>41</td>
<td>28</td>
<td>177</td>
<td>3</td>
<td>16</td>
<td>24</td>
<td>22</td>
<td>311</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>0</td>
<td>3</td>
<td>48</td>
<td>105</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>172</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>12</td>
<td>32</td>
<td>32</td>
<td>91</td>
<td>2</td>
<td>17</td>
<td>4</td>
<td>190</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>56</td>
<td>108</td>
<td>314</td>
<td>95</td>
<td>20</td>
<td>46</td>
<td>34</td>
<td>673</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 10 July 2011, one isolate (out of 925 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**
