1. Influenza Notifications in Queensland

**Influenza Notifications**

Year to date (YTD) there have been 2049 notifications of influenza in Queensland. Subtype is recorded for 838 of the 1835 notifications of influenza A, comprising 520 pandemic (H1N1)2009 and 318 H3N2. There have been 211 notifications of influenza B. Typing data were unavailable for three notifications.

Figure 1 shows notifications for influenza A and influenza 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 6.3 times the five year mean for the same period. The profile is difficult to interpret given the sustained, unseasonably high activity since the beginning of 2011. However, there does appear to be an increasing trend in notifications from around week 20, which
may suggest the beginning of the influenza season. 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 in Queensland (2011) to 12\textsuperscript{th} June

Data Sources: Queensland Health Notifiable Conditions Register 14/06/2011

Figure 2 shows 2011 influenza notifications by age group and gender. The 20-39 year age group accounted for 30\% of notifications and <1 year age group accounted for 3\%. The median age of notification was 31 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 12\textsuperscript{th} June 2011

Data Sources: Queensland Health Notifiable Conditions Register 14/06/2011

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
13 June 2011
Figure 3 shows YTD 2011 influenza notifications, which ranged from 538 (26%) in the Townsville PHU area to 62 (3%) in Wide Bay PHU area. Cairns, Townsville, Rockhampton and Wide Bay, together, accounted for 808 (39%) of notifications.

Figure 4 shows YTD 2011 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 12th June 2011.

Data Sources: Queensland Health Notifiable Conditions Register 14/06/2011
*The Estimated Resident Population – (ERP), 2009 was used

Figure 4 shows YTD 2011 influenza notification rates by HSD, which ranged from 196.4 per 100,000 in Townsville to 19.6 per 100,000 in the Gold Coast. The notification rates in Townsville are approximately 10.0 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 becoming apparent with the highest YTD value of 20.7 in week 23. Recent week (24) data may be incomplete and underestimate the rate.
2. Influenza Activity in Australia (reporting period 14th May to 27th May, 2011)\(^1\)

- Levels of influenza-like illness (ILI) in the community continue to remain low through the majority of ILI surveillance systems this reporting period.
- Over the summer months all jurisdictions reported higher than usual numbers of laboratory confirmed influenza notifications. In recent weeks, notifications across most jurisdictions have been stable; however South Australia has reported a large increase in notifications for this fortnight with 85% of notifications being influenza B.
- During this reporting period there were 324 laboratory confirmed notifications of influenza, with Queensland reporting the highest number of notifications. The majority of virus detections have been pandemic (H1N1) 2009, with co-circulation of influenza A/H3N2 and influenza B.
- As at 27 May 2011, there have been 3,836 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 877 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](https://example.com/figure.png)

Figure 5: Influenza burden of illness pyramid reproduced with permission from Dr Craig Dalton flutracking@hnehealth.nsw.gov.au.

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3. International Influenza Activity (reporting period 14th May to 27th May, 2011)\textsuperscript{1}

The WHO has reported that the influenza season is largely finished in the Northern Hemisphere, with a few tropical countries experiencing low grade transmission. The influenza season has not yet started in the Southern Hemisphere. Reports from National Influenza Centres from 82 countries report that between 3 May and 17 May 2011, 35% of specimens reported as influenza positive were influenza type A and 65% were influenza type B. Of the sub-typed influenza A viruses, 54% were pandemic (H1N1) 2009 and 46% were influenza A(H3N2).

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}

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

From 1\textsuperscript{st} January to 29\textsuperscript{th} May 2011, there were 443 Australian influenza isolates processed by the WHO CC, with 85% (378/443) type A and 15% (65/443) type B. Subtyping of influenza A isolates indicated that 57% (214/378) were pandemic (H1N1) 2009 and 43% (164/378) were A/H3N2 (Table 1).

Table 1: Typing of influenza isolates from the WHO Collaborating Centre, from 1 January 2011 to 29 May 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>127</td>
<td>0</td>
<td>12</td>
<td>17</td>
<td>22</td>
<td>214</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>0</td>
<td>1</td>
<td>48</td>
<td>102</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>164</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>3</td>
<td>32</td>
<td>21</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>65</td>
</tr>
</tbody>
</table>

Total 0 12 108 250 0 14 25 34 443

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 29 May 2011, one isolate (out of 748 tested) has shown resistance to oseltamivir or zanamivir by enzyme inhibition assay (EIA). One isolate out of a total of 7 pandemic H1N1 (2009) tested, has shown the H275Y mutation known to confer resistance to oseltamivir.
Reference


2. FluTracking website http://www.flutracking.net/index.html