Influenza Surveillance Report

Published by the State of Queensland (Queensland Health), March 2017

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Preface

Queensland Health monitors influenza notification data throughout the year.

The influenza season occurs annually in the southern and central areas of the state typically between May and October. In the tropical region the pattern can be more variable and may include clusters outside this period.

Influenza is present throughout the year in the Queensland population but at lower levels between seasons than during the annual season. The beginning of the season in the temperate (and sometimes tropical) areas of the state coincides with a sustained increase over several consecutive weeks of both notification numbers and percentage of laboratory tests that are positive. This usually occurs sometime between late May and the middle of July but varies each year.
Summary

1 January – 31 December 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Influenza Notifications</td>
<td>23,261</td>
</tr>
<tr>
<td>Influenza A</td>
<td>21,415</td>
</tr>
<tr>
<td>A(H1N1)pdm09*</td>
<td>833</td>
</tr>
<tr>
<td>A/H3N2</td>
<td>2,214</td>
</tr>
<tr>
<td>Subtype unavailable</td>
<td>18,368</td>
</tr>
<tr>
<td>Influenza B</td>
<td>1,846</td>
</tr>
<tr>
<td>Type unavailable</td>
<td>0</td>
</tr>
<tr>
<td>Influenza Hospitalisations†</td>
<td>3,197 (ICU: 402)</td>
</tr>
</tbody>
</table>

* World Health Organization (WHO) standard abbreviation for the influenza strain associated with the 2009 pandemic, also known as A/California/7/2009 (H1N1)
† Queensland public hospitals only

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**Australian Influenza Vaccine Committee (AIVC) decision on the influenza vaccine composition for the Australian 2016 season**

* [http://www.influenzacentre.org/surveillance_vaccines.htm](http://www.influenzacentre.org/surveillance_vaccines.htm)

**Trivalent Vaccine**
- an A/California/7/2009 (H1N1) - like virus, 15 µg HA per dose
- an A/Hong Kong/4801/2014 (H3N2) - like virus, 15 µg HA per dose
- a B/Brisbane/60/2008 (Victoria lineage) - like virus, 15 µg HA per dose.

**Quadrivalent Vaccine**
Viruses listed above, plus the additional B virus:
- a B/Phuket/3073/2013 (Yamagata lineage) - like virus, 15 µg HA per dose
1. Influenza notifications

1 January to 31 December 2016 there were 23,261 notifications

- 21,415 (92%) were typed as influenza A and 1,846 (8%) influenza B
  - 3,047 influenza A have been subtyped: 833 (27%) were A(H1N1)pdm09 and 2,214 (73%) were A/H3N2
  - Subtype was unavailable for 18,368 influenza A cases.

Figure 1 Weekly influenza notifications in Queensland by type and percentage of positive tests (public laboratory system only) by week and month of testing, 1 January 2016 to 31 December 2016. Data extracted from NOCS and AUSLAB 6 March 2017.

- Figure 1 shows the statewide notification count by week, month, type, and the percentage of positive influenza tests (public laboratory system only)
- The Queensland season reached its peak in week 35 (week beginning 29 August) with a total of 1,866 notifications and a percentage positive of 29
- YTD 2016 notification counts are summarised by region in Figure 2 and by region and Hospital and Health Service (HHS) in Table 1
- The southern region experienced peaks in weeks 33 and 35 with 975 and 968 notifications, respectively
- The central region’s peak occurred in week 35, with 694 notifications
- The tropical region experienced a sustained rise in notifications from week 33 and reached a plateau between weeks 35 and 38 with a mean weekly notification count of 203 during this period
- Data from the World Health Organization Collaborative Centre for Reference and Research on Influenza (WHO CC) indicate that the circulating strains were covered by the 2016 quadrivalent vaccine
- Figure 3 shows the YTD age and gender distribution of notifications.
YTD notification count in males was 10% lower than in females
Median age was 40 years, with a range of younger than one year to 104 years

Figure 2 Queensland regional influenza notifications by week and month of onset, 1 January to 31 December 2016. *Data extracted from NOCS 6 March 2017.*

Figure 3 YTD 2016 influenza notifications in Queensland by age group and gender, and annual age specific rates, 1 January to 31 December 2016. *Data extracted from NOCS 6 March 2017.*
Figure 4 shows the percentage of positive tests for influenza as well as non-notifiable respiratory viruses, which are important causes of influenza like illness.
Table 1: Influenza notifications by week of onset, Region* and Hospital and Health Service (HHS), 1 January 2016 to 31 December 2016. Data extracted from NOCS 6 March 2017.

<table>
<thead>
<tr>
<th>Region</th>
<th>Hospital &amp; Health Service</th>
<th>Week of onset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tropical</td>
<td></td>
<td>26 649</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cairns and Hinterland</td>
<td></td>
<td>1,022</td>
</tr>
<tr>
<td>North West</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Townsville</td>
<td></td>
<td>1,527</td>
</tr>
<tr>
<td>Mackay</td>
<td></td>
<td>547</td>
</tr>
<tr>
<td>Central</td>
<td></td>
<td>985</td>
</tr>
<tr>
<td>Central Queensland</td>
<td></td>
<td>1,227</td>
</tr>
<tr>
<td>North West</td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>Sunshine Coast</td>
<td></td>
<td>649</td>
</tr>
<tr>
<td>Metro North</td>
<td></td>
<td>1,839</td>
</tr>
<tr>
<td>Gold Coast</td>
<td></td>
<td>2,349</td>
</tr>
<tr>
<td>Queensland (Total)</td>
<td></td>
<td>23,261</td>
</tr>
</tbody>
</table>

*Regions defined here are aggregates of HHS used for surveillance purposes only and are not official geographical areas.
2. Influenza hospitalisations (public hospitals)

Public hospital admissions with confirmed influenza:

- 1 January to 31 December 2016 there were 3,197 admissions, including 402 to intensive care (Figure 5)
- Public hospital admissions reached a peak in week 35 (week beginning 29 August) with 268 patients admitted with laboratory confirmed influenza
- Admissions by influenza type and subtype are summarised in Figure 6
- 3,133 (98%) of the 3182 admissions of Queensland residents were due to influenza A
- The weekly number of beds occupied by patients with influenza in public hospitals is summarised in Figure 7. The season peak occurred in week 35 (week beginning 29 August), with 337 beds occupied

Figure 5  Laboratory confirmed influenza admissions to Queensland public hospitals (n=3,197) by week, month, and type of admission, and weekly proportion of admitted patients (per 1,000 notifications), 1 January to 31 December 2016. Data extracted from EpiLog 6 March 2017.
Figure 6  Laboratory confirmed influenza admissions of Queensland residents to Queensland public hospitals (n=3,182) by week, month, and influenza type/subtype, 1 January to 31 December 2016. Data extracted from EpiLog and NOCS 6 March 2017.

Figure 7  Beds occupied by patients with laboratory confirmed influenza in Queensland public hospitals by admission type, week and month, 1 January 2016 to 31 December 2016. Data extracted from EpiLog 6 March 2017.
Figure 8 Laboratory confirmed influenza admissions to Queensland public hospitals, by age group and gender and annual age specific admission rates, 1 January 2016 to 31 December 2016. *Data extracted from EpiLog and NOCS 6 March 2017.*

- Figure 8 shows the YTD age and gender distribution of hospitalisations
  - Admissions counts were similar in males and females
  - The age distribution is skewed toward the older age groups with an overall median age of 63 years and a range of younger than one year to 100 years.

Table 2 YTD 2016 laboratory confirmed influenza notifications and admissions to Queensland public hospitals, by Region and Hospital and Health Service (HHS), 1 January 2016 to 31 December 2016. *Data extracted from EpiLog and NOCS 6 March 2017.*

<table>
<thead>
<tr>
<th>Region</th>
<th>Hospital &amp; Health Service</th>
<th>YTD Notifications</th>
<th>YTD Hospital Admissions</th>
<th>Admission Proportion (per 1,000 notifications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropical</td>
<td>Torres and Cape</td>
<td>181</td>
<td>38</td>
<td>209.9</td>
</tr>
<tr>
<td></td>
<td>Cairns and Hinterland</td>
<td>1,022</td>
<td>165</td>
<td>161.4</td>
</tr>
<tr>
<td></td>
<td>North West</td>
<td>62</td>
<td>9</td>
<td>145.2</td>
</tr>
<tr>
<td></td>
<td>Townsville</td>
<td>1,527</td>
<td>233</td>
<td>152.6</td>
</tr>
<tr>
<td></td>
<td>Mackay</td>
<td>547</td>
<td>107</td>
<td>195.6</td>
</tr>
<tr>
<td>Central</td>
<td>Central Queensland</td>
<td>985</td>
<td>79</td>
<td>80.2</td>
</tr>
<tr>
<td></td>
<td>Central West</td>
<td>47</td>
<td>15</td>
<td>319.1</td>
</tr>
<tr>
<td></td>
<td>Wide Bay</td>
<td>649</td>
<td>118</td>
<td>181.8</td>
</tr>
<tr>
<td></td>
<td>Sunshine Coast</td>
<td>1,839</td>
<td>107</td>
<td>58.2</td>
</tr>
<tr>
<td></td>
<td>Metro North</td>
<td>4,914</td>
<td>766</td>
<td>155.9</td>
</tr>
<tr>
<td>Southern</td>
<td>Metro South</td>
<td>5,772</td>
<td>769</td>
<td>133.2</td>
</tr>
<tr>
<td></td>
<td>Darling Downs</td>
<td>1,879</td>
<td>120</td>
<td>63.9</td>
</tr>
<tr>
<td></td>
<td>West Moreton</td>
<td>1,362</td>
<td>281</td>
<td>206.3</td>
</tr>
<tr>
<td></td>
<td>South West</td>
<td>126</td>
<td>18</td>
<td>142.9</td>
</tr>
<tr>
<td></td>
<td>Gold Coast</td>
<td>2,349</td>
<td>372</td>
<td>158.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>23,261</strong></td>
<td><strong>3,197</strong></td>
<td><strong>137.4</strong></td>
</tr>
</tbody>
</table>
3. FluTracking

FluTracking is an online surveillance initiative run jointly by Hunter New England (NSW Health), The University of Newcastle, The Hunter Medical Research Institute and Business Continuity Institute (Australasia). Currently there are around 20,000 participants across Australia.

The system gathers data on the emerging influenza season by collating and reporting responses to online weekly surveys. Participation is quick and easy, open to any individual who is resident in Australia and can include family and friends.

Figures 9 and 10 summarise data contributed by Queensland based participants. It represents the final data available for 2016.

Figure 9  Weekly percentage of Queensland FluTracking participants reporting fever and cough up to the week ending 16 October 2016. Figure presented with permission from FluTracking.

Figure 10  Weekly percentage of Queensland FluTracking participants, by region, reporting fever and cough up to the week ending 16 October 2016. Figure presented with permission from FluTracking.

If you would like to find out more about FluTracking, or register to participate, please go to http://www.flutracking.net/info
Appendix 1: Laboratory confirmed influenza notifications, by week of onset, 1 January 2011 to 31 December 2016. Data extracted from NOCS 6 March 2017
Appendix 2: Hospital and Health Services by Region