Australian Government
Department of Health and Ageing

# AUSTRALIAN INFLUENZA SURVEILLANCE REPORT

**No. 9, 2011, REPORTING PERIOD: 9 July to 22 July 2011**

The Department of Health and Ageing acknowledges the providers of the many sources of data used in this report and greatly appreciates their contribution.

## Key Indicators

Influenza activity and severity in the community is monitored using the following indicators and surveillance systems:

| | |
|---|---|
| **Is the situation changing?** | Indicated by trends in:<br>• laboratory confirmed cases reported to the National Notifiable Diseases Surveillance System;<br>• GP Sentinel influenza-like illness (ILI) Surveillance;<br>• emergency department (ED) presentations for ILI;<br>• ILI-related absenteeism and call centre calls: and<br>• sentinel laboratory test results. |
| **How severe is the disease, and is severity changing?** | Indicated by trends in:<br>• hospitalisations, ICU admissions and deaths from sentinel systems; and<br>• clinical severity in hospitalised cases and ICU admissions. |
| **Is the virus changing?** | Indicated by trends in:<br>• drug resistance; and<br>• genetic drift or shift from laboratory surveillance. |

## Summary


- 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.
- The WHO has reported that influenza activity in the temperate countries of the northern hemisphere remains at baseline inter-seasonal level. Countries in the tropical zone mostly report low influenza activity. The influenza season in South Africa appears to have recently peaked and in New Zealand, rates of national ILI consultations have not crossed baseline levels.

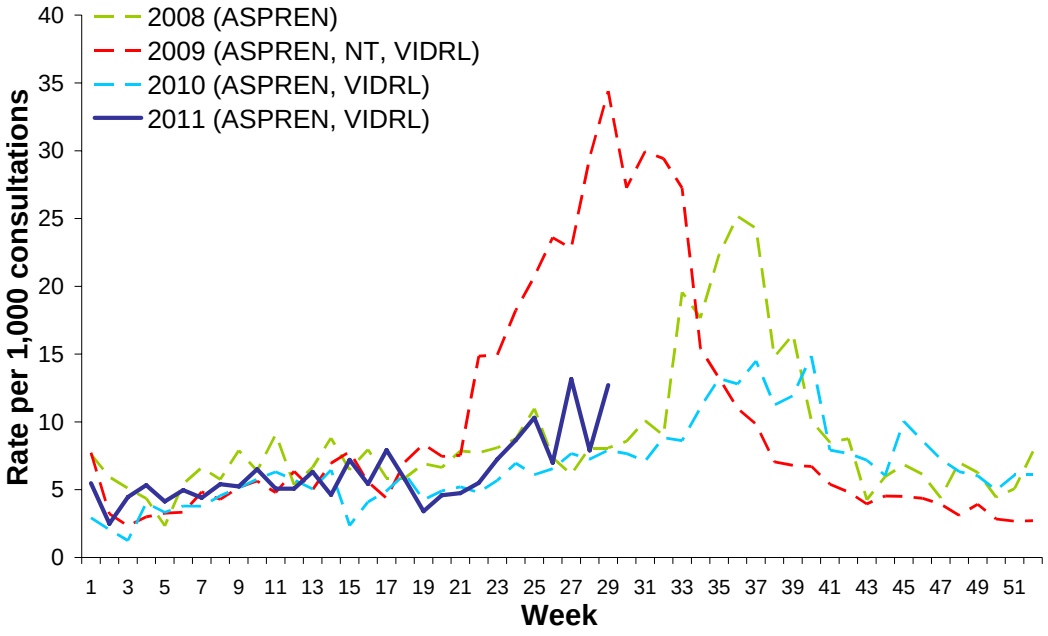
# 1. Influenza activity in Australia

## Influenza-Like Illness

### Sentinel General Practice Surveillance

In recent weeks, sentinel general practitioner ILI consultation rates have continued to increase. In the week ending 17 July 2011, the national ILI consultation rate to sentinel GPs was 13 cases per 1,000 consultations, similar to the consultation rate from last fortnight (Figure 1).

**Figure 1. Weekly rate of ILI reported from GP ILI surveillance systems from 1 January 2008 to 17 July 2011***




* Delays in the reporting of data may cause data to change retrospectively. As data from the VIDRL surveillance system is combined with ASPREN data for 2010 and 2011, rates may not be directly comparable across 2008 and 2009.

SOURCE: ASPREN and VIDRL GP surveillance system[1].

In the fortnight ending 17 July 2011, specimens were collected from almost 50% of ASPREN ILI patients. Of these patients, 37 specimens (33%) were positive for influenza, which is consistent with the proportion that was positive in the previous fortnight. Thirty-one specimens were typed as influenza type A, mostly pandemic (H1N1) 2009; and the remainder (6) were influenza type B. Thirty specimens were positive for other respiratory viruses, with the majority of these being rhinovirus (11) and respiratory syncytial virus (8) (Table 1).

**Table 1. ASPREN ILI consultations laboratory respiratory viral tests that were positive for influenza or other respiratory virus, 1 January 2011 to 17 July 2011.**

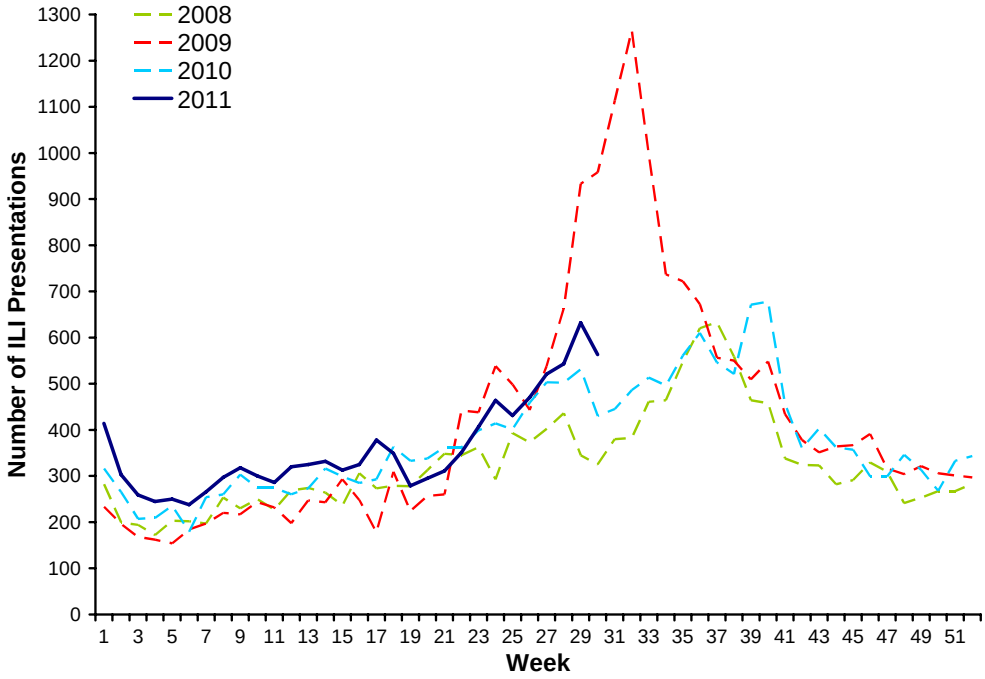
| | ASPREN Fortnight (4 – 17 July 2011) | ASPREN YTD (1 Jan – 17 July 2011) |
|---|---|---|
| **Total specimens tested** | **109** | **625** |
| **Total Influenza Positive** | **37** | **123** |
| **Influenza A** | **31** | **93** |
| *Pandemic (H1N1) 2009* | *25* | *71* |
| *Seasonal A/H3N2* | *2* | *4* |
| *Influenza A untyped* | *4* | *18* |
| **Influenza B** | **6** | **30** |
| **Total Positive other Resp. Viruses*** | **30** | **185** |

* Other respiratory viruses include RSV, para-influenza, adenovirus and rhinovirus.

## Western Australia Emergency Departments

In the fortnight ending 24 July 2011 there was a decrease in the number of respiratory viral presentations to WA EDs, however presentations continued to remain above baseline levels. Over this period there were 1,195 presentations, including 87 admissions (Figure 2). The proportion of presentations admitted to hospital over this period increased and represented 7% of presentations.

**Figure 2. Number of respiratory viral presentations to WA EDs from 1 January 2008 to 10 July 2011, by week**

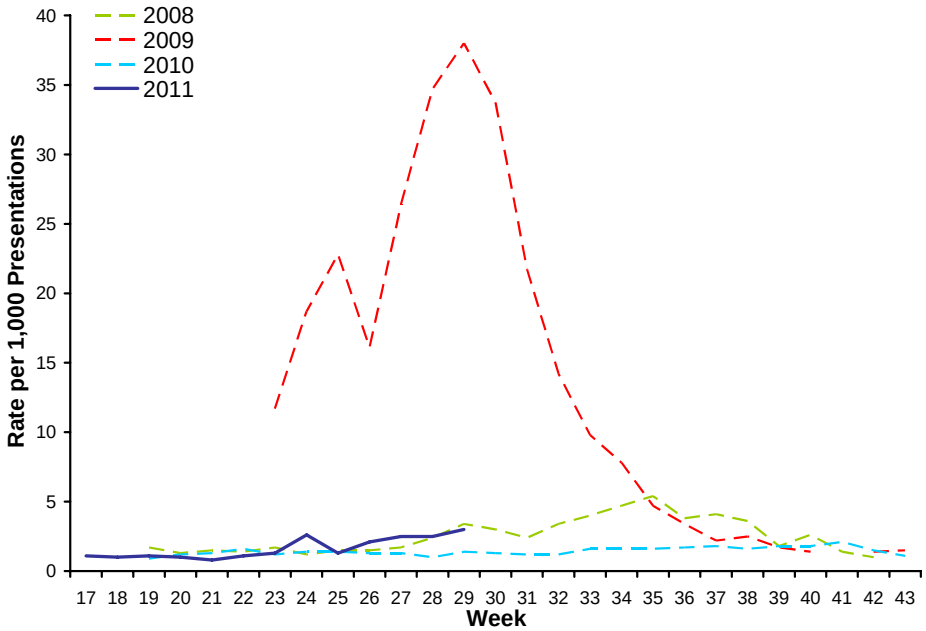



Source: WA 'Virus Watch' Report[2]

## New South Wales Emergency Departments

In the week ending 22 July 2011 the rate of ILI presentations to NSW EDs was 3.0 cases per 1,000 presentations (Figure 3). This is slightly higher than the previous week's rate (2.5 per 1,000 presentations). A higher proportion of presentations were reported among people aged 15 to 44 years (59%). Total admissions to critical care units were within the usual range for this time of year.[3]

**Figure 3. Rate of influenza-like illness presentations to NSW Emergency Departments between May and October, 2008 to 2011, by week**



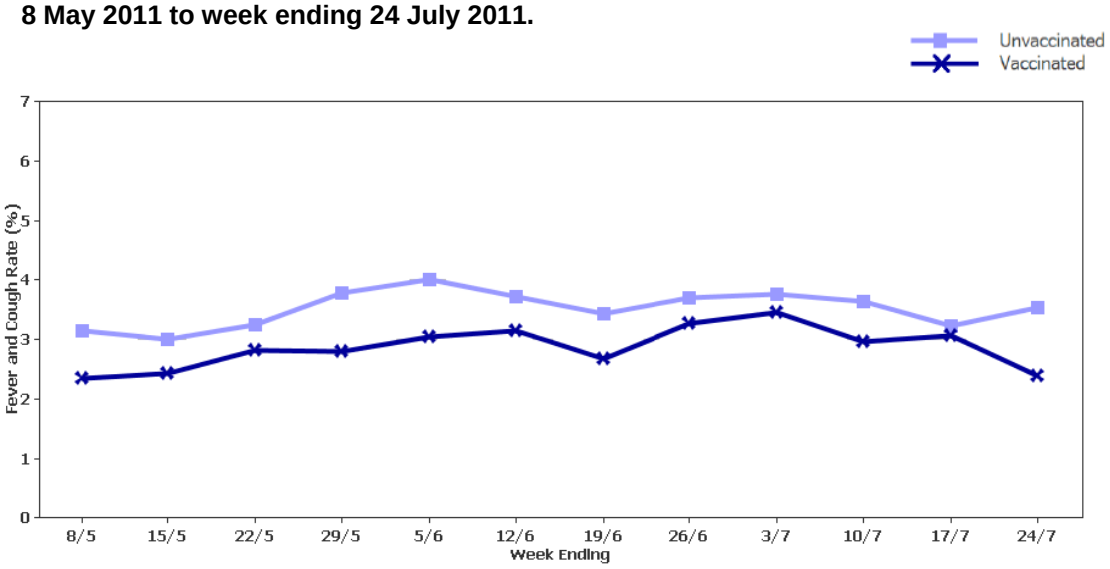

Source: NSW Influenza Weekly Epidemiology Report[3]

## FluTracking

FluTracking, a national online system for collecting data on ILI in the community, reported that in the week ending 24 July 2011 fever and cough was reported by 2.4% of vaccinated participants and 3.5% of unvaccinated participants (Figure 4) [4]. Fever, cough and absence from normal duties was reported by 1.3% of vaccinated participants and 1.7% of unvaccinated participants.

Up to 24 July 2011, 7,013 out of 10,667 (65.7%) participants reported having received the seasonal vaccine so far. Of the 2,461 participants who identified as working face-to-face with patients, 1,970 (80.0%) have received the vaccine.

**Figure 4. Rate of ILI symptoms among Flutracking participants by week, from week ending 8 May 2011 to week ending 24 July 2011.**

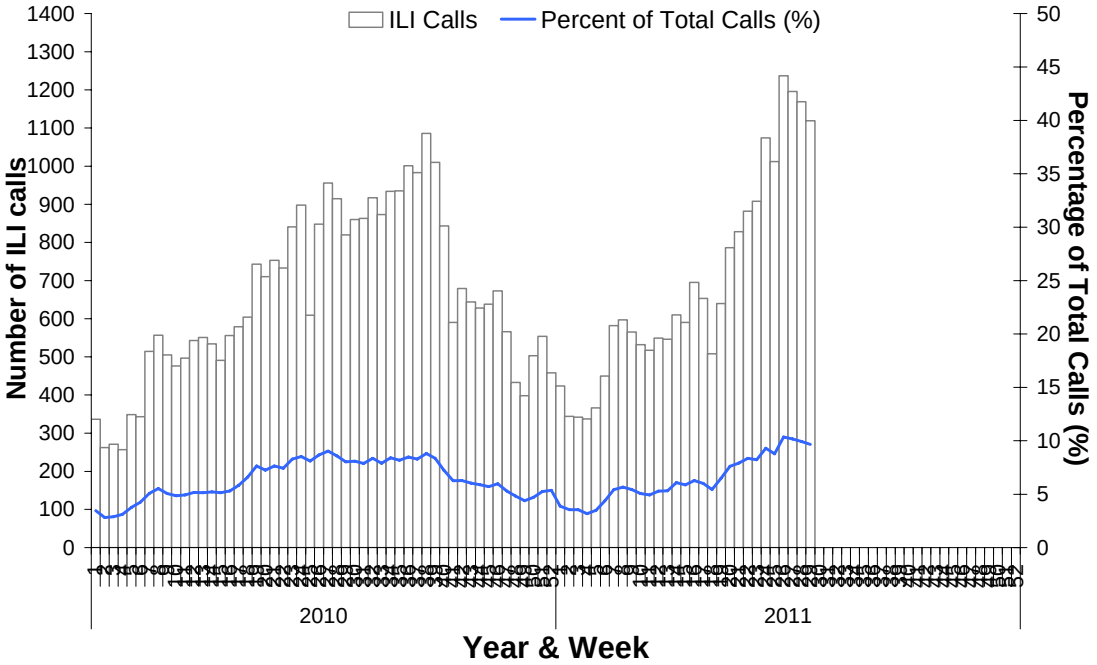



Source: FluTracking

## National Health Call Centre Network

The number of ILI-related calls to the National Health Call Centre Network (NHCCN) continued to decline slightly during this fortnight compared to recent weeks. The percentage of total calls also declined slightly. In the week ending 24 July 2011, 10% of calls to the NHCCN were ILI related, which is above the same period in 2010 (Figure 5).

**Figure 5. Number of calls to the NHCCN related to ILI and percentage of total calls, Australia, 1 January 2010 to 24 July 2011**



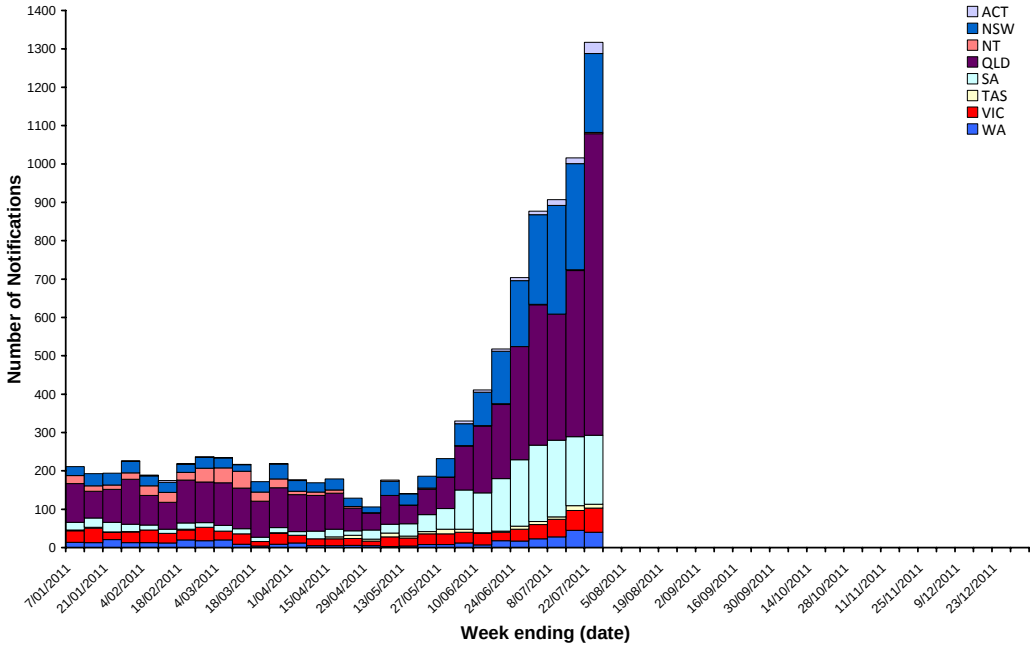

Note: National data do not include QLD and VIC
Source: NHCCN data

## Laboratory Confirmed Influenza

### Laboratory Confirmed Cases Notified to Health Departments

During this reporting period there were 2,333 laboratory confirmed influenza notifications reported to the NNDSS. Of these notifications, there were 1,219 in Qld, 483 in NSW, 360 in SA, 115 in Vic, 85 in WA, 44 in the ACT, 22 in TAS, and 5 in the NT (Figure 6). A weekly breakdown of trends by state and territory highlights that notifications have continued to be highest in Queensland, New South Wales and South Australia, with increases starting to be observed also in Victoria, Western Australia and the Australian Capital Territory (Figure 8).

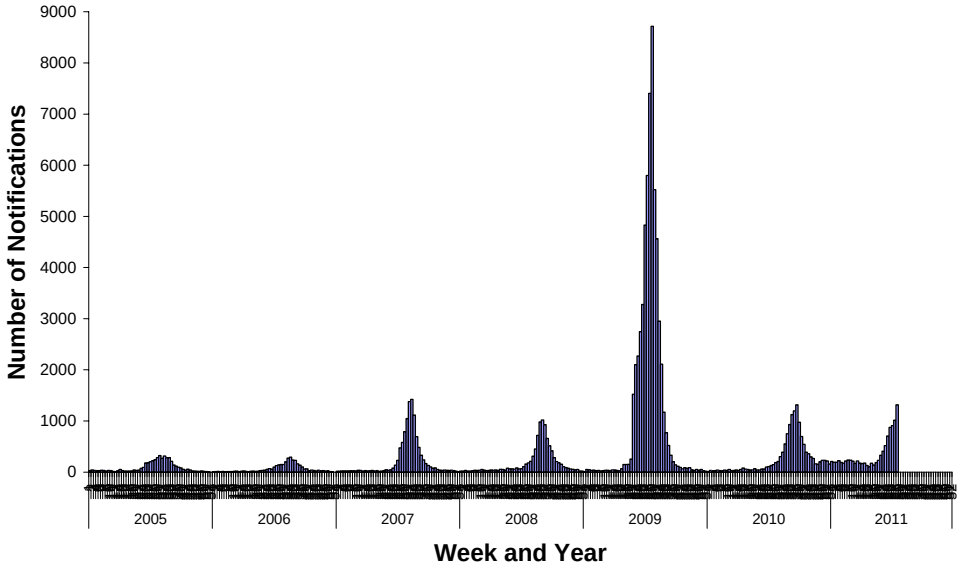
**Figure 6. Laboratory confirmed cases of influenza in Australia, 1 January to 22 July 2011, by state, by week.**




Source: NNDSS 2011

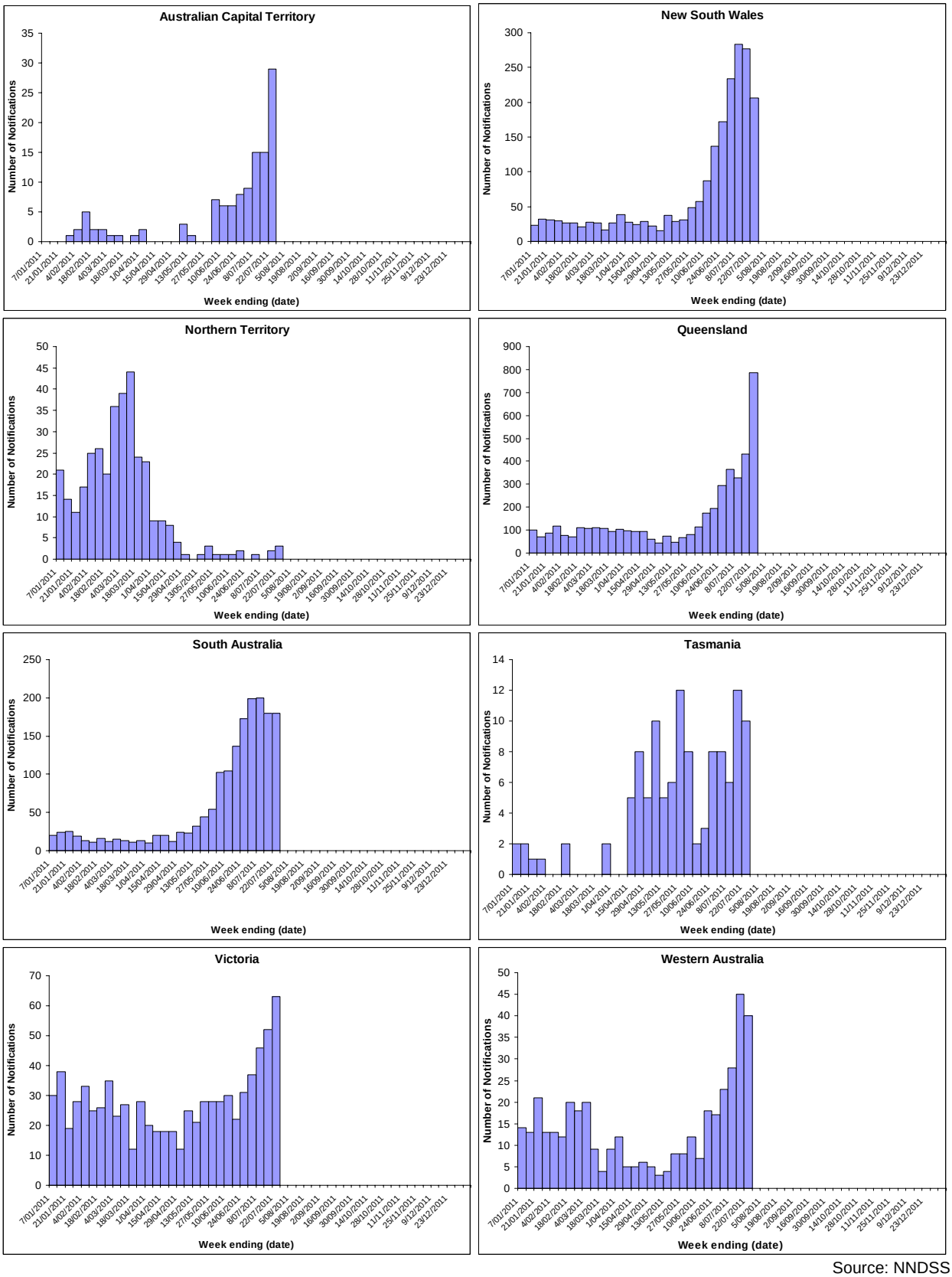
Up to 22 July, there have been 10,060 laboratory confirmed notifications of influenza diagnosed during 2011 (Figure 7). Of these notifications, there have been 4,501 notified in Qld, 2,040 in NSW, 1,706 in SA, 821 in Vic, 412 in WA, 346 in the NT, 118 in Tas and 116 in the ACT. All jurisdictions reported higher than usual numbers of notifications over the summer months, especially in the Northern Territory and Queensland. The reason for this unusually high activity earlier in the year is not clear, but it does not appear to be due solely to increased testing.

**Figure 7. Laboratory confirmed cases of influenza in Australia, 1 January 2005 to 22 July 2011**




Source: NNDSS

**Figure 8. State breakdowns of laboratory confirmed cases of influenza, 1 January to 22 July 2011, by week**




Source: NNDSS

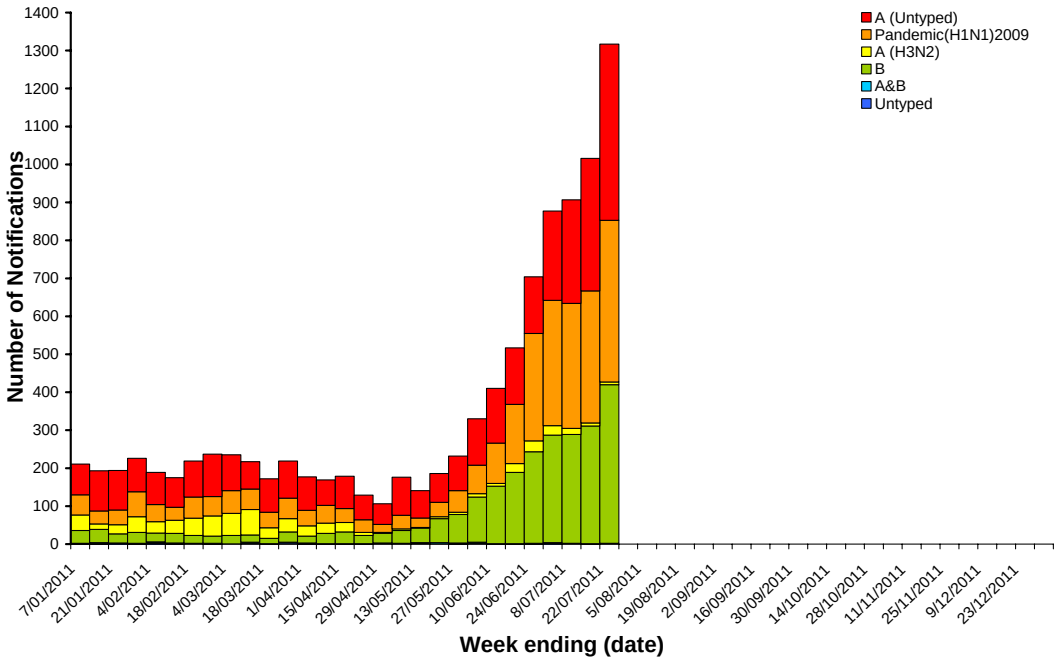
Of the 2,333 influenza notifications reported to the NNDSS this reporting period, 813 were influenza A (untyped), 774 were pandemic (H1N1) 2009, 728 were influenza B, 15 were A/H3N2 and three notifications were reported as untyped (Figure 9). Compared to the beginning of the year, there appears to be very little A/H3N2 circulating.

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. *Note: South Australian and Queensland testing data are not reflected in the sentinel laboratory data.*

So far in 2011, 3,684 (37%) cases have been sub-typed as influenza A (untyped), 2,975 (29%) as pandemic (H1N1) 2009, 702 (7%) as type A/H3N2, and 37 (<1%) were type A&B. A further 2,624 (26%) have been characterised as influenza type B and 38 (<1%) were untyped (Figure 9).

*Note: Northern Territory sub-typing results reported to the NNDSS as "Influenza A/Not Pandemic" have been counted as influenza A/H3N2 notifications.*

**Figure 9. Laboratory confirmed cases of influenza in Australia, 1 January 2011 to 22 July 2011, by sub-type and week**




Source: NNDSS

## Sentinel Laboratory Surveillance

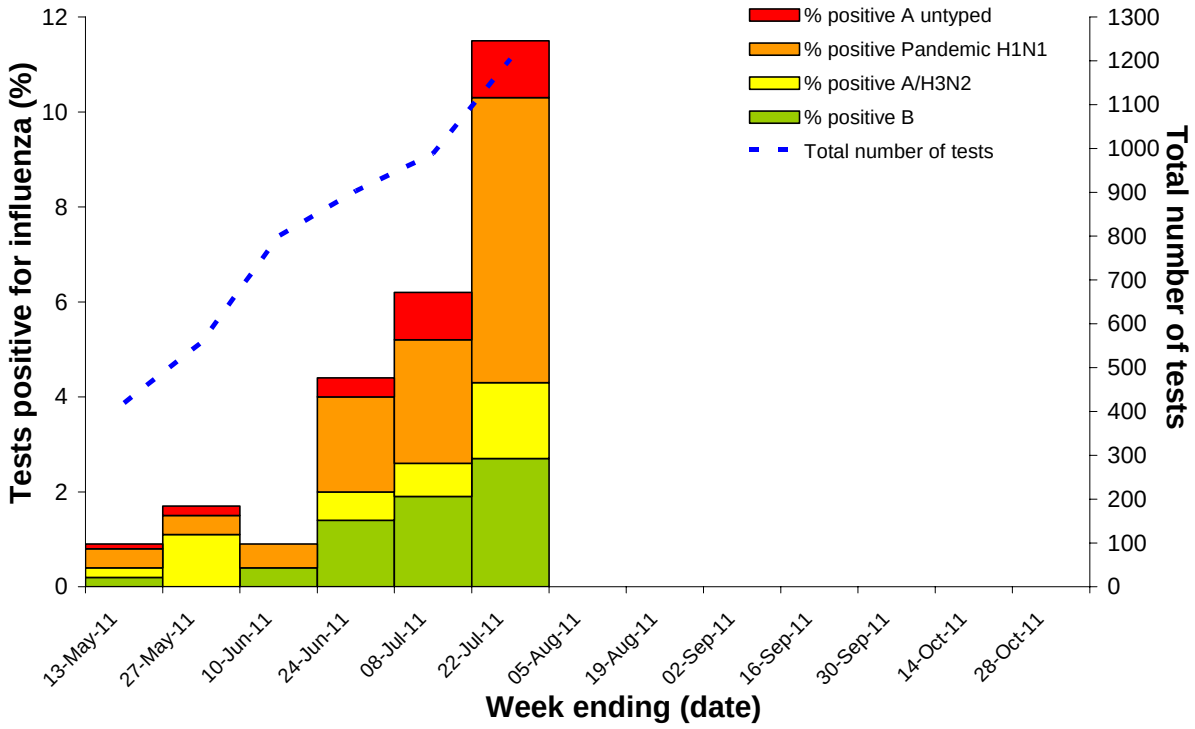
Results from sentinel laboratory surveillance systems for this reporting period show that 11.5% (139/1,204) of the respiratory tests conducted over this period were positive for influenza (Table 2). Positive influenza specimens were reported from all sentinel laboratories, except the Northern Territory.

**Table 2. Sentinel laboratory respiratory testing results, 9 July to 22 July 2011**

| | NSW NIC | WA NIC | NT (Reported by WA NIC) | VIC NIC | TAS Laboratories |
|---|---|---|---|---|---|
| **Total specimens tested** | **432** | **473** | **5** | **172** | **122** |
| **Total Influenza Positive** | **56** | **51** | **0** | **10** | **22** |
| **Positive Influenza A** | **40** | **48** | **0** | **6** | **12** |
| *Pandemic (H1N1) 2009* | *29* | *34* | *0* | *3* | *6* |
| *A/H3N2* | *2* | *14* | *0* | *2* | *1* |
| *Influenza A untyped* | *9* | *0* | *0* | *1* | *5* |
| **Positive Influenza B** | **16** | **3** | **0** | **4** | **10** |
| **The most common respiratory virus detected** | **RSV & Influenza A** | **RSV & Influenza A** | **-** | **Picornavirus** | **-** |

In 2011 a total of 5.9% of specimens have been positive for influenza. A breakdown of subtypes within this positive proportion by fortnight is highlighted in Figure 10.

**Figure 10. Proportion of sentinel laboratory* tests positive for influenza, by subtype and fortnight, 30 April to 22 July 2011.**



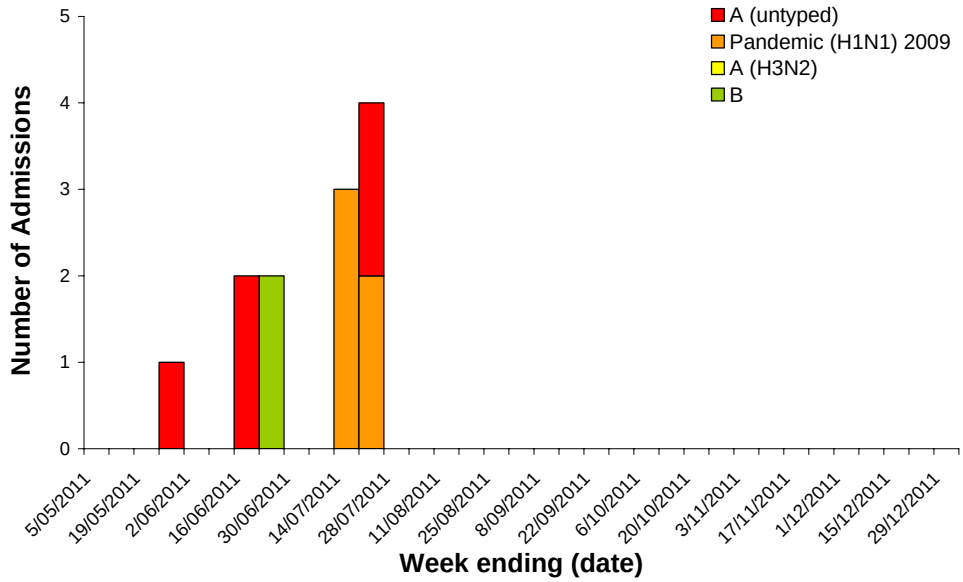

* Tasmanian sentinel data included from 9 July 2011

## Influenza Hospitalisations

### Influenza Complications Alert Network (FluCAN) – Victoria and the Australian Capital Territory

The Influenza Complications Alert Network (FluCAN) sentinel hospital system in Victoria and the ACT has reported 12 hospitalisations, including one death, associated with influenza since 1 May 2011. Five of the patients were admitted with influenza A (untyped) infection, five with pandemic (H1N1) 2009 and two were admitted with influenza type B infection.

**Figure 11. Number of influenza hospitalisations at sentinel hospitals, Victoria and the ACT, by week and influenza subtype, 1 May to 21 July 2011**




Source: FluCAN Sentinel Hospitals
Victoria: Geelong, Royal Melbourne, Monash and Alfred (since 1 May 2011)
ACT: The Canberra Hospital (since 8 July 2011)

### Australian Paediatric Surveillance

The Australian Paediatric Surveillance Unit (APSU) conducts seasonal surveillance of children aged 15 years and under who are hospitalised with severe complications of influenza. Between 1 July and 28 July 2011, there have been 13 hospitalisations associated with severe influenza complications in children, including 7 ICU admissions. The majority of these hospitalisations were associated with pandemic (H1N1) 2009 infection, and of the 8 hospitalisations with completed questionnaires, 4 were noted as having underlying chronic conditions.

## Deaths associated with influenza and pneumonia

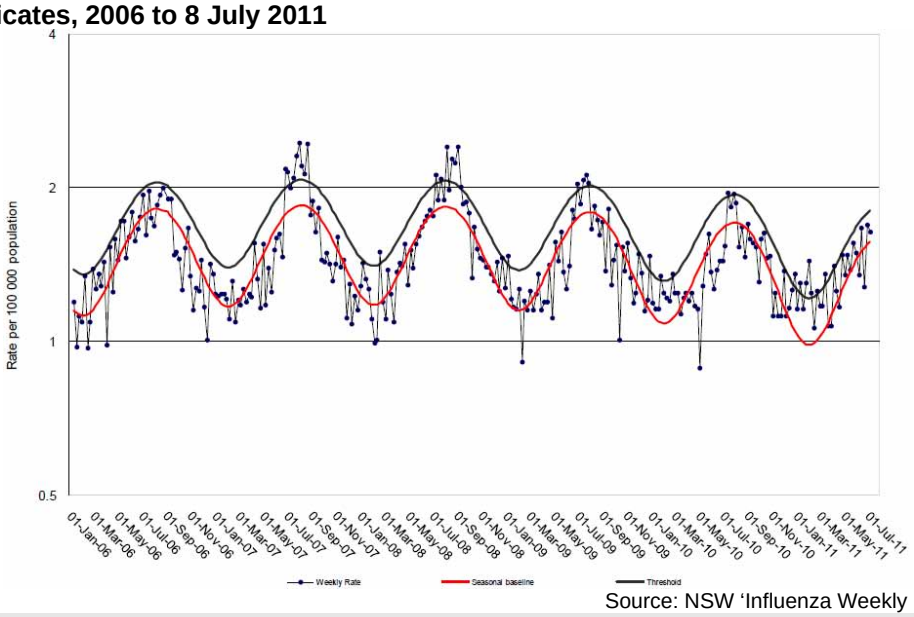
### Nationally Notified Influenza Associated Deaths

In 2011, seven influenza associated deaths have been notified to the NNDSS, with six of these cases having pandemic (H1N1) 2009 and the other case reported as having influenza type A (untyped).

### New South Wales Influenza and Pneumonia Death Registrations

Death registration data up to 8 July 2011 showed that there were 1.6 pneumonia or influenza associated deaths per 100,000 population in NSW, which is below the seasonal threshold of 1.8 per 100,000 NSW population for this period (Figure 12).[3]

**Figure 12. Rate of deaths classified as influenza and pneumonia from the NSW Registered Death Certificates, 2006 to 8 July 2011**




Source: NSW 'Influenza Weekly Epidemiology Report'[3]

# 2. Virology

## Typing and antigenic characterisation

### WHO Collaborating Centre for Reference & Research on Influenza (WHO CC) in Melbourne

From 1 January to 24 July 2011, there were 852 Australian influenza isolates subtyped by the WHO CC with the majority of these isolates subtyped as pandemic (H1N1) 2009 (47%) (Table 3).

**Table 3. Typing of influenza isolates from the WHO Collaborating Centre, from 1 January 2011 to 24 July 2011**

| Type/Subtype | ACT | NSW | NT | QLD | SA | TAS | VIC | WA | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| Pandemic (H1N1) 2009 | 0 | 94 | 28 | 195 | 7 | 17 | 31 | 26 | **398** |
| A(H3N2) | 0 | 5 | 48 | 105 | 7 | 3 | 10 | 10 | **188** |
| B | 0 | 14 | 32 | 38 | 142 | 2 | 33 | 5 | **266** |
| **Total** | **0** | **113** | **108** | **338** | **156** | **22** | **74** | **41** | **852** |

SOURCE: WHO CC

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.

## 3. International Influenza Surveillance

The WHO[5] 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)[6].

WHO have released a summary review of the northern hemisphere winter influenza season[7]. 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[8]. 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. Data considerations

***The information in this report is reliant on the surveillance sources available to the Department of Health and Ageing. As access to sources increase as the season progresses, this report will be updated with the additional information.***

This report aims to increase awareness of pandemic (H1N1) 2009 and seasonal influenza in Australia by providing an analysis of the various surveillance data sources throughout Australia. While every care has been taken in preparing this report, the Commonwealth does not accept liability for any injury or loss or damage arising from the use of, or reliance upon, the content of the report. Delays in the

reporting of data may cause data to change retrospectively. For further details about information contained in this report please contact the Influenza Surveillance Team through *flu@health.gov.au*.

### Sentinel General Practice Surveillance

The Australian Sentinel Practices Research Network (ASPREN) has Sentinel GPs who report ILI presentation rates in NSW, NT, SA, ACT, VIC, QLD, TAS and WA. As jurisdictions joined ASPREN at different times and the number of GPs reporting has changed over time, the representativeness of ASPREN data in 2011 may be different from that of previous years. ASPREN data and VIDRL influenza surveillance data are sent to the Department on a weekly basis. Approximately 30% of all ILI patients presenting to ASPREN sentinel GPs are swabbed for laboratory testing. Please note the results of ASPREN ILI laboratory respiratory viral tests now include Western Australia.
Further information on Sentinel GPs' Influenza Surveillance and ASPREN activities are available at www.dmac.adelaide.edu.au/aspren.

### Sentinel Emergency Department Data

WA - ED surveillance data are extracted from the 'Virus Watch' Report. This report is provided weekly. The Western Australia Influenza Surveillance Program collects data from eight Perth EDs.
NSW - ED surveillance data are extracted from the 'Weekly Influenza Report, NSW'. The New South Wales Influenza Surveillance Program collects data from 56 EDs across New South Wales.

### FluTracking

FluTracking is a project of the University of Newcastle, the Hunter New England Area Health Service and the Hunter Medical Research Institute. FluTracking is an online health surveillance system to detect epidemics of influenza. It involves participants from around Australia completing a simple online weekly survey, which collects data on the rate of ILI symptoms in communities.
Further information on FluTracking is available at www.flutracking.net/index.html.

### National Notifiable Diseases Surveillance System (NNDSS)

Laboratory confirmed influenza (all types) is notifiable under public health legislation in all jurisdictions in Australia. Confirmed cases of influenza are notified through the NNDSS by all jurisdictions. The national case definition is available at:
http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-nndss-casedefs-cd_flu.htm.

Analyses of Australian cases are based on the diagnosis date, which is the earliest of the onset date, specimen date or notification date.

### Sentinel Laboratory Surveillance data

Laboratory testing data are provided weekly directly from PathWest (WA), VIDRL (VIC), ICPMR (NSW), sentinel Tasmanian laboratories, and ASPREN (national).

### Influenza Complications Alert Network (FluCAN)

The Victorian Influenza Complications Alert Network (FluCAN) sentinel hospital system monitors influenza hospitalisations at the following sites throughout Victoria: Geelong, Royal Melbourne, Monash and Alfred.

### Australian Paediatric Surveillance Unit

The Australian Paediatric Surveillance Unit (APSU) conducts seasonal surveillance of children aged 15 years and under who are hospitalised with severe complications of influenza. Reports are collated on a weekly basis from approximately 1,300 paediatricians and other child health clinicians around Australia. The protocol and case definition is available at:
http://www.apsu.org.au/download.cfm?DownloadFile=96DE7B48-0CC2-E99A-525BCD4BD6A2CB80.

### WHO Collaborating Centre for Reference & Research on Influenza (WHO CC)

Data are provided weekly to the Communicable Disease and Surveillance Branch from the WHO CC.

### Deaths associated with influenza and pneumonia

Nationally reported influenza associated deaths are notified by jurisdictions to the NNDSS which is maintained by the Department of Health and Ageing. However these are an underestimation of the true number of deaths occurring in the community associated with influenza.

NSW influenza and pneumonia deaths data are collected from the NSW Registry of Births, Deaths and Marriages. Figure 6 is extracted from the 'Weekly Influenza Report, NSW'.

## 5. References


1 The 2011 Victorian Influenza Vaccine Effectiveness Audit Report #12, 24 July 2011. Available from: www.victorianflusurveillance.com.au. Accessed 28 July 2011.

2 WA Virus Watch Report, 24 July 2011. Available from: http://www.public.health.wa.gov.au/3/487/3/virus_watch.pm. Accessed 29 July 2011

3 NSW Influenza Weekly Epidemiology Report, 16 to 22 July 2011. Available from: http://www.health.nsw.gov.au/resources/publichealth/infectious/influenza/pdf/week_ending_22072011.pdf, Accessed 29 July 2011.

4 Flutracking Weekly Interim Report #12, 24 July 2011. Available from: http://www1.hnehealth.nsw.gov.au/hneph/HNEPHApplications/FluSurvey/Reports/LatestReport.pdf . Accessed 28 July 2011.

5 WHO Weekly Influenza Update 138 (15 July 2011). Available from: http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html#. Accessed 28 July 2011.

6 WHO Laboratory confirmed data from the Global Influenza Surveillance Network - 15 July 2011. Available from: http://www.who.int/csr/disease/influenza/influenzanetwork/flunet/summaryreport/en/index.html. Accessed 28 July 2011

7 WHO Summary review of the 2010-2011 northern hemisphere winter influenza season. Available from: http://www.who.int/csr/disease/influenza/2010_2011_GIP_surveillance_seasonal_review/en/index.html. Accessed 16 June 2011

8 WHO Recommended composition of influenza virus vaccines for use in the 2011-2012 northern hemisphere influenza season. Available from: http://www.who.int/csr/disease/influenza/recommendations_2011_12north/en/index.html. Accessed 3 June 2011.