



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:

<b>Is the situation changing?</b>	Indicated by trends in: <ul style="list-style-type: none"> <li>laboratory confirmed cases reported to the National Notifiable Diseases Surveillance System;</li> <li>GP Sentinel influenza-like illness (ILI) Surveillance;</li> <li>emergency department (ED) presentations for ILI;</li> <li>ILI-related absenteeism and call centre calls; and</li> <li>sentinel laboratory test results.</li> </ul>
<b>How severe is the disease, and is severity changing?</b>	Indicated by trends in: <ul style="list-style-type: none"> <li>hospitalisations, ICU admissions and deaths from sentinel systems; and</li> <li>clinical severity in hospitalised cases and ICU admissions.</li> </ul>
<b>Is the virus changing?</b>	Indicated by trends in: <ul style="list-style-type: none"> <li>drug resistance; and</li> <li>genetic drift or shift from laboratory surveillance.</li> </ul>

## Summary

- Levels of influenza-like illness (ILI) in the community have continued to increase through most surveillance systems this reporting period. Local, regional and widespread activity was reported within jurisdictions. However, the number of laboratory confirmed notifications continued to decline.
- There were 502 laboratory confirmed notifications of influenza during this reporting period, including 358 pandemic (H1N1) 2009 cases. Notifications of laboratory confirmed influenza were highest in SA.
- Results from sentinel laboratory surveillance systems for this reporting period show that 14% of the respiratory tests conducted over this period were positive for influenza, which is a slight decrease from the last reporting period (16%). In 2010, a total of 848 specimens have been positive for influenza (of 11,501 specimens tested), of which 71% were pandemic (H1N1) 2009, 10% were A/H3N2 and 17% were influenza B.
- Up to 17 September 2010, there have been 5606 confirmed cases of influenza diagnosed in 2010. A total of 40,541 confirmed cases of pandemic (H1N1) 2009 have occurred in Australia since May 2009.
- Sentinel hospitals reported a decrease in the number of influenza associated hospitalisations in comparison to previous weeks, with 19 admissions during the reporting period, including 18 for pandemic (H1N1) 2009. ANZICS reported nine ICU admissions for influenza and the APSU reported four cases of influenza complications in children (<15 years) this reporting period.
- The WHO has advised that the world is no longer in phase 6 of influenza pandemic alert, and has moved into the post pandemic period. As at 1 August 2010, over 18,449 deaths worldwide have been reported associated with the pandemic virus. The WHO is currently reporting that influenza transmission is most intense in the temperate areas of the Southern Hemisphere, including Australia, New Zealand, Chile, and regions in southern Asia.

# 1. Influenza activity in Australia

## Geographic spread of influenza and ILI – Jurisdictional Surveillance

In the fortnight ending 17 September, influenza and ILI activity as reported by state and territory Health Departments indicated that there was 'sporadic' activity in TAS, 'local' activity in the ACT, 'regional' activity in NT and 'widespread' activity in SA, WA, QLD, VIC and NSW (Figure 1). Definitions of these activity levels are provided in the Data Considerations section of this report.

**Figure 1. Map of influenza and ILI activity, by state and territory, during fortnight ending 17 September 2010**

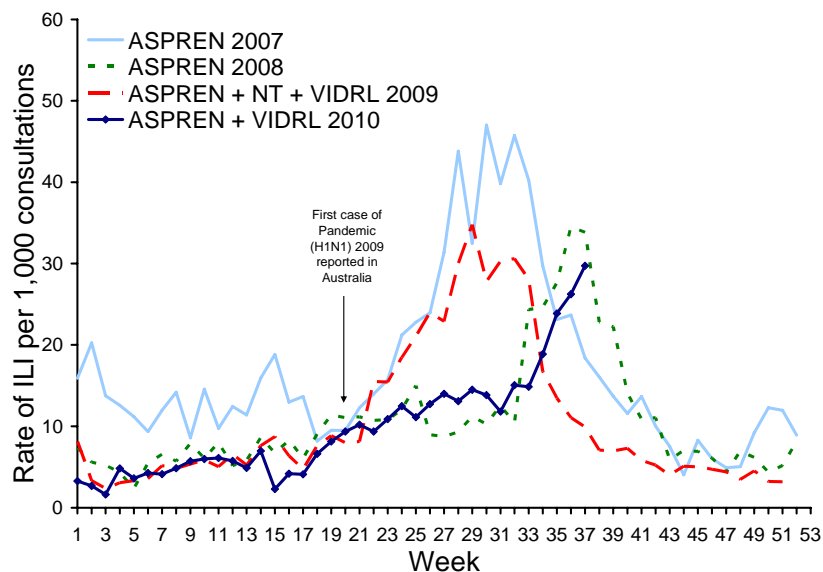


## Influenza-Like Illness

### Sentinel General Practice Surveillance

In the week ending 12 September 2010, the national ILI consultation rate to sentinel GPs was approximately 30 cases per 1,000 consultations (Figure 2), an increase from the previous week. The consultation rate has risen sharply in the previous four weeks, and is now above levels seen at this time in 2007 and 2009.

**Figure 2. Weekly rate of ILI reported from GP ILI surveillance systems from 1 January 2007 to 12 September 2010\***



\* 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, rates may not be directly comparable across 2007, 2008 and 2009.

SOURCE: ASPREN, and VIDRL GP surveillance system.

Of the ASPREN ILI consultations where a specimen was collected in the week ending 17 September 2010, 46% were positive for influenza, of which the majority were pandemic (H1N1) 2009 (15/17) (Table 1). Please note the results of ASPREN ILI laboratory respiratory viral tests do not currently include WA.

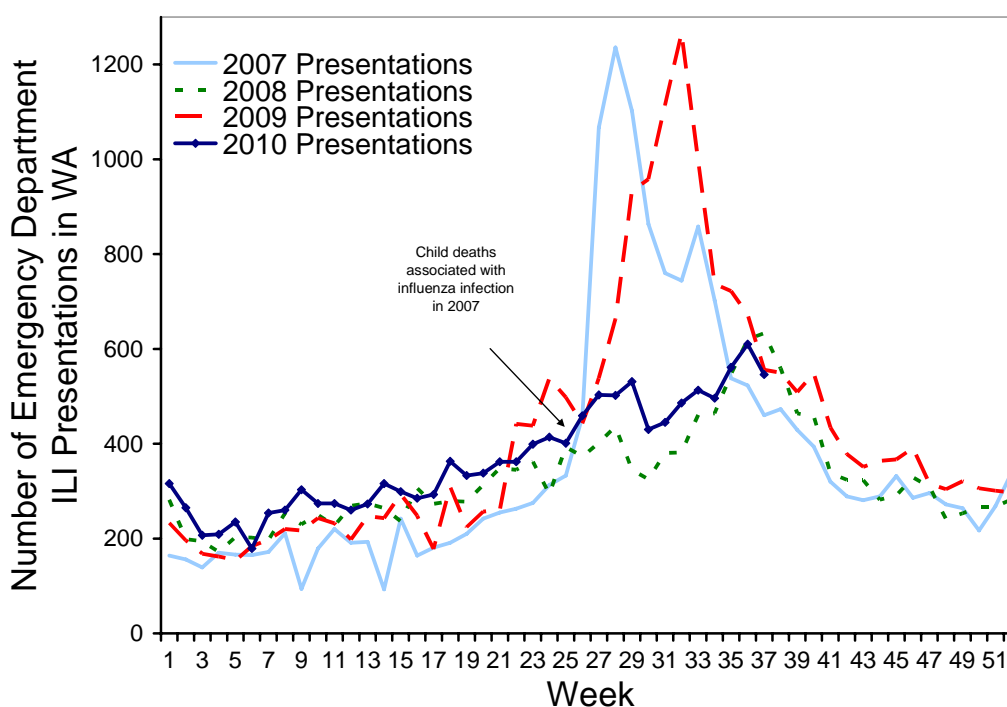
**Table 1. ASPREN ILI consultations laboratory respiratory viral tests that were positive for influenza for the week ending 17 September 2010.**

	ASPREN – national
<b>Total specimens tested</b>	37
<b>Positive Influenza A</b>	<b>17</b>
<i>Pandemic (H1N1) 2009</i>	15
<i>Seasonal A/H1N1</i>	0
<i>Seasonal A/H3N2</i>	0
<i>Influenza A untyped</i>	2
<b>Positive Influenza B</b>	<b>0</b>
<b>The most common respiratory virus detected</b>	<b>Influenza</b>

### WA Emergency Departments

Respiratory viral presentations reported in WA EDs decreased in the most recent week. An overall upward trend in ILI related ED presentations has been observed since the beginning of 2010 (Figure 3). In the week ending 12 September 2010 there were 546 respiratory viral presentations, including 23 admissions, a decrease from 610 presentations in the previous reporting week.

**Figure 3. Number of respiratory viral presentations to WA EDs from 1 January 2007 to 12 September 2010 by week**

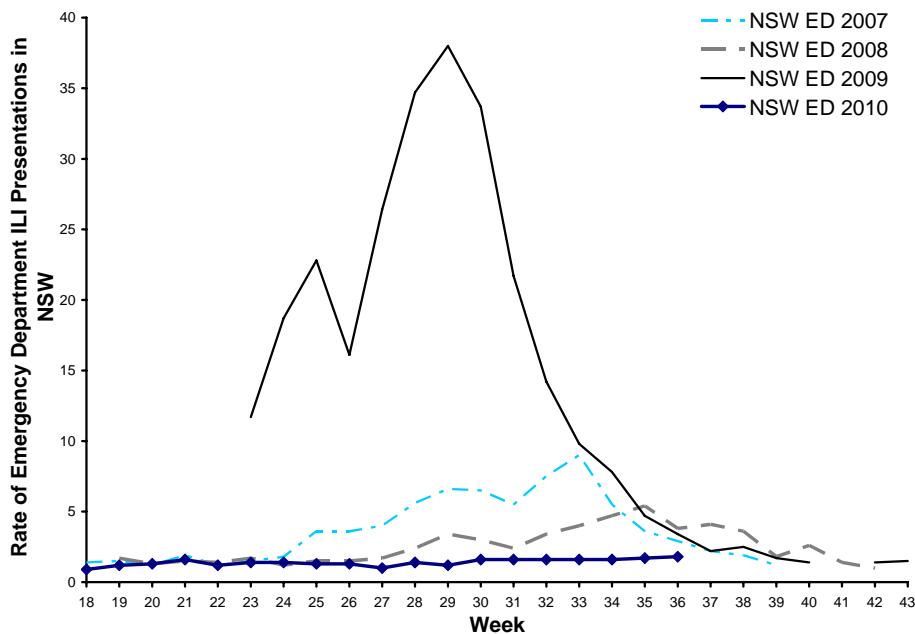


Source: WA 'Virus Watch' Report

### NSW Emergency Departments

In the week ending 10 September 2010, ILI presentations to NSW EDs have remained low and stable at a rate of 1.8 per 1,000 presentations (Figure 4). In August 2010, there were 236 presentations with influenza-like illness, a rate of 1.7 per 1,000 presentations, with 19 admissions to hospital following presentation to EDs with ILI. This is similar to the previous month and the count of presentations is significantly lower than in August 2009 but similar to the same periods in 2005-2008.

**Figure 4: ILI presentations to NSW EDs from 2007-2010, by week**

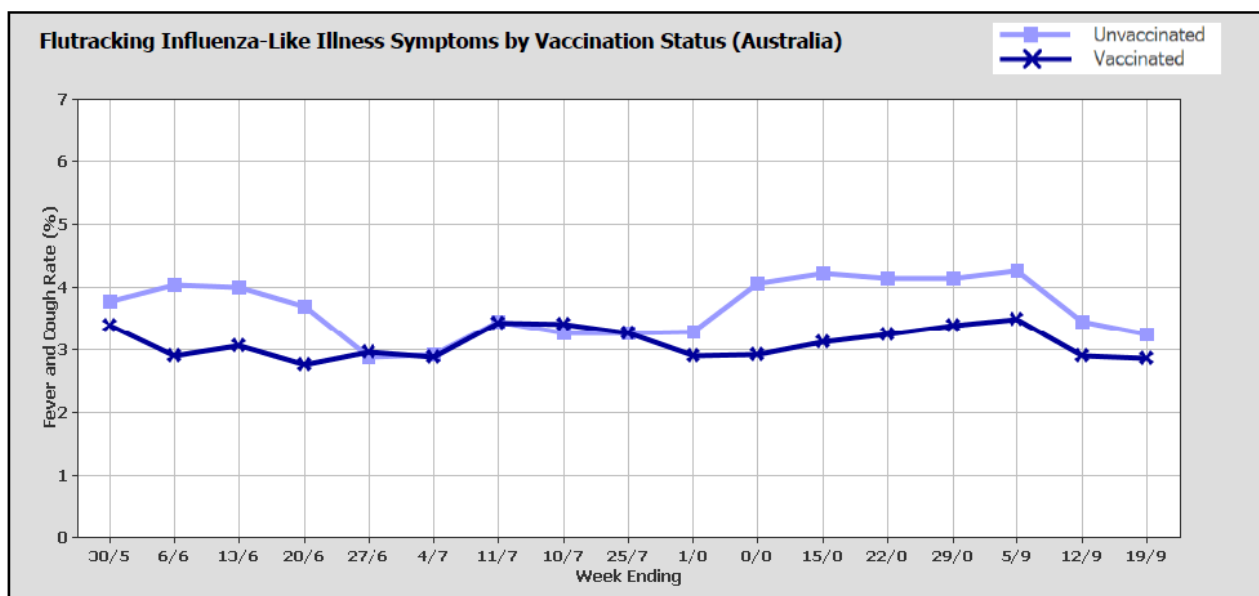


Source: NSW Health 'Influenza Weekly Epidemiology Report

**Flutracking**

Flutracking, a national online system for collecting data on ILI in the community, reported that in the week ending 19 September 2010, ILI activity levels appeared to decrease across Australia. Fever and cough continued to be reported at a slightly higher rate amongst unvaccinated participants (3.2%) compared to vaccinated participants (2.8%) (Figure 5).

**Figure 5. Rate of ILI symptoms among Flutracking participants by week, from week ending 30 May 2010 to week ending 19 September 2010**



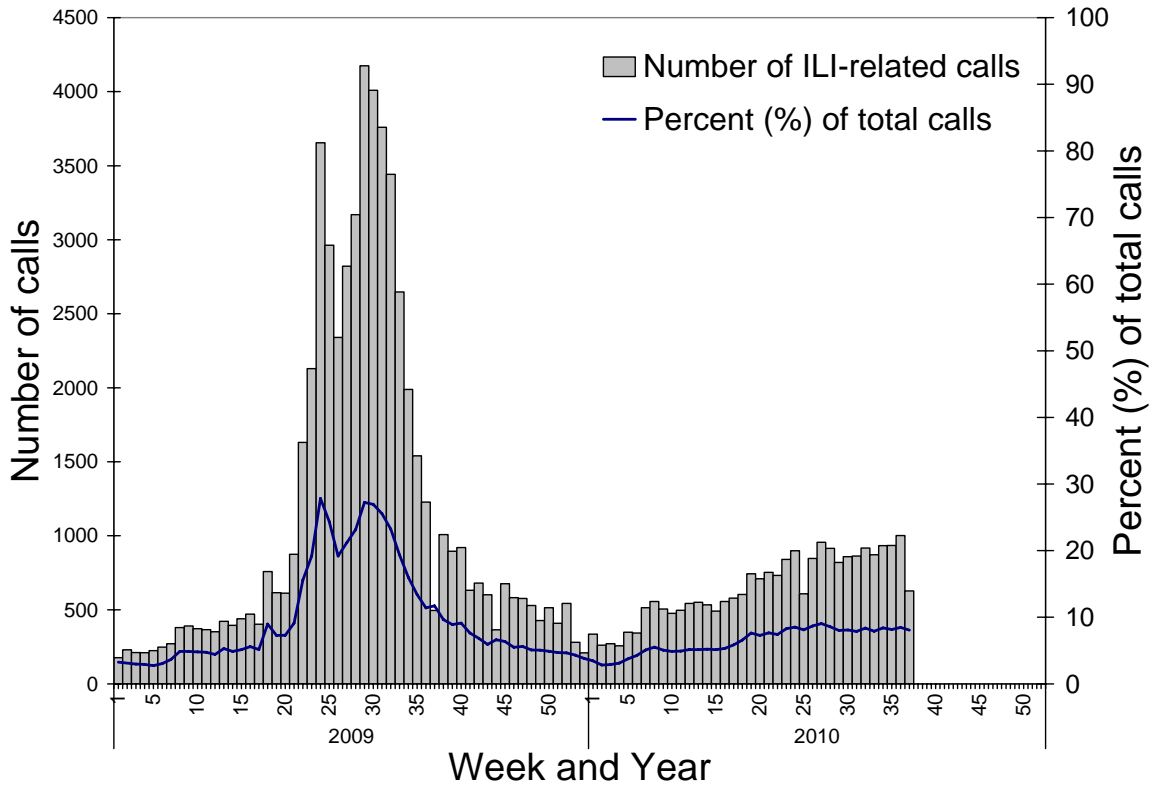
Source: Flutracking Interim Weekly Report

## National Health Call Centre Network

The number of calls to the National Health Call Centre Network (NHCCN) in this reporting period was slightly lower than in previous reporting periods (Figure 6), however the percentage of total calls remained stable.

Call numbers cannot be compared between early 2009 and early 2010 as not all call centres were online in early 2009. The difference in operating call centre numbers accounts for this apparent increase in recorded ILI calls (and baseline levels) between the two years.

**Figure 6. Number of calls to the NHCCN related to ILI and percentage of total calls, Australia, 1 January 2009 to 17 September 2010**

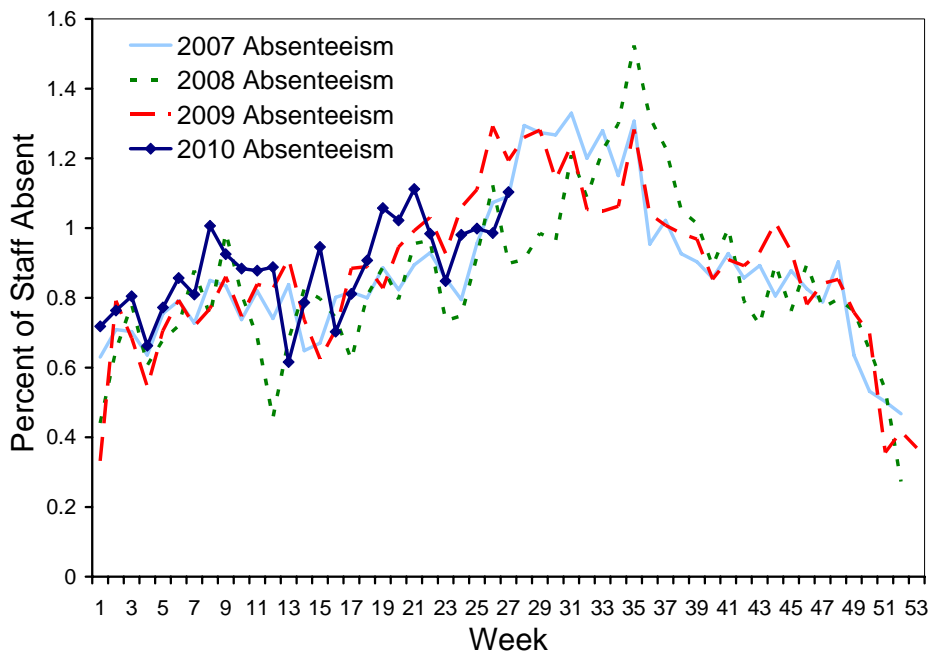


Note: national data does not include QLD and VIC  
Source: NHCCN data

## Absenteeism

Overall, there had been a gradual increasing trend in absenteeism since the beginning of 2010, with levels at 1.1% by 14 July 2010 (Figure 7). Please note, due to system changes, this data has not been updated for eight weeks.

**Figure 7. Rates of absenteeism (greater than 3 days absent on sick leave), national employer, from 28 January 2007 to 14 July 2010, by week**



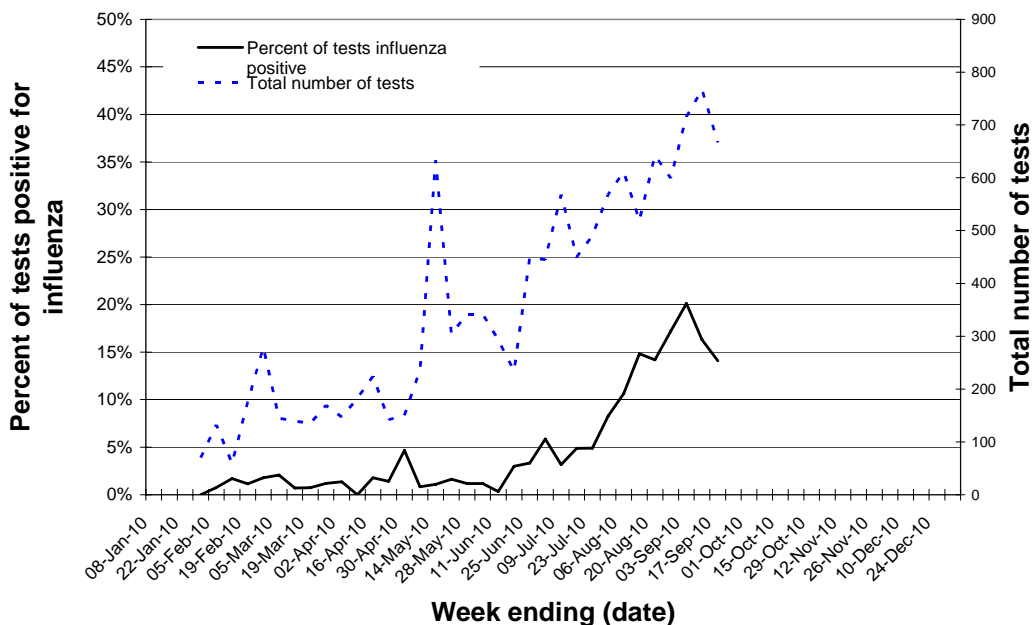
SOURCE: Absenteeism data

**Laboratory confirmed influenza**

**Sentinel Laboratory Surveillance**

Results from sentinel laboratory surveillance systems for this reporting period show that 14% (94/667) of the respiratory tests conducted over this period were positive for influenza, which is a decrease compared to the last reporting period (16%) (Figure 8).

**Figure 8. Total number of specimens tested by sentinel laboratories, and proportion positive, 1 January 2010 to 17 September 2010, by week**



SOURCE: Sentinel laboratory data from ASPREN, NSW NIC, WA NIC, VIC NIC & TAS Labs

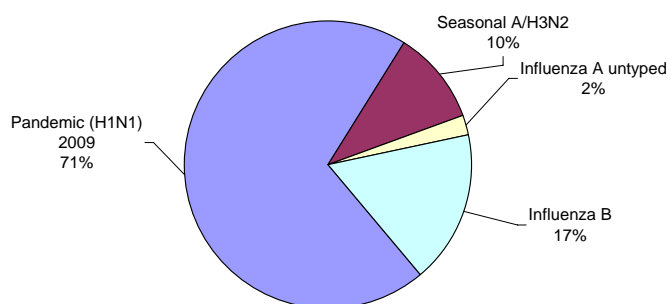
Sentinel laboratories reported 94 specimens positive for influenza during this reporting period, of which 65 were pandemic (H1N1) 2009, 5 were A/H3N2, 1 was influenza A (untyped) and 23 were influenza B (Table 2).

**Table 2. Laboratory respiratory tests that tested positive for influenza**

	NSW NIC	WA NIC	NT (reported by WA NIC)	VIDRL	TAS
<b>Total specimens tested</b>	135	318	n/a	156	58
<b>Positive Influenza A</b>	<b>3</b>	<b>32</b>	<b>2</b>	<b>27</b>	<b>7</b>
<i>Pandemic (H1N1) 2009</i>	2	28	2	27	6
<i>Seasonal A/H1N1</i>	0	0	0	0	0
<i>Seasonal A/H3N2</i>	1	4	0	0	0
<i>Influenza A untyped</i>	0	0	0	0	1
<b>Positive Influenza B</b>	<b>1</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>The most common respiratory virus detected</b>	<b>RSV, Rhinovirus and hMPV</b>	<b>RSV</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

In 2010, a total of 848 specimens have been positive for influenza (7% of 11,501 specimens tested), of which 71% were pandemic (H1N1) 2009, 10% were A/H3N2 and 17% were influenza B (Figure 9). Sentinel laboratory data are used in addition to National Notifiable Diseases Surveillance System (NNDSS) data to understand the strains circulating in Australia, as approximately 38% of NNDSS notifications are reported as influenza A untyped.

**Figure 9. Percentage of specimens tested by sentinel laboratories influenza positive, 1 January 2010 to 17 September 2010, by subtype**



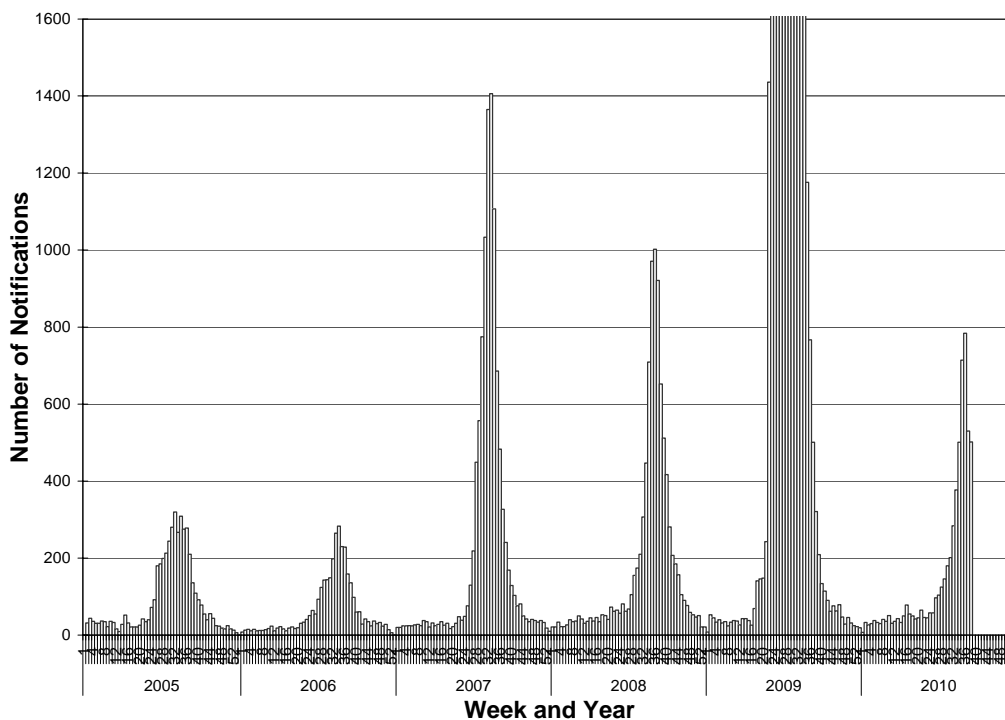
SOURCE: Sentinel laboratory data from ASPREN, NSW NIC, WA NIC, VIC NIC & TAS Labs

### Laboratory Confirmed Cases Notified to Health Departments

During this reporting period there were 502 influenza notifications reported to NNDSS (286 in SA, 149 in Qld, 28 in WA, 18 in NSW, 10 in Vic, 7 in the NT, 3 in the ACT and 1 in TAS). They included 358 cases of pandemic (H1N1) 2009, 117 of influenza A (untyped), 2 cases of influenza A/H3N2, 14 of influenza B, and 11 untyped (see Figure 10). The apparent recent decline in notifications compared to the beginning of September will need to be confirmed in coming weeks.

There have been 5,606 confirmed cases of influenza of all types diagnosed during 2010 up to 17 September (Figure 10). Of these, 2,905 (52%) have been sub-typed as pandemic (H1N1) 2009, 2,154 (38%) as influenza type A untyped, 117 (2%) as A/H3N2 and 10 (<1%) as type A&B. A further 331 (6%) have been characterised as influenza type B, and 89 (2%) were untyped.

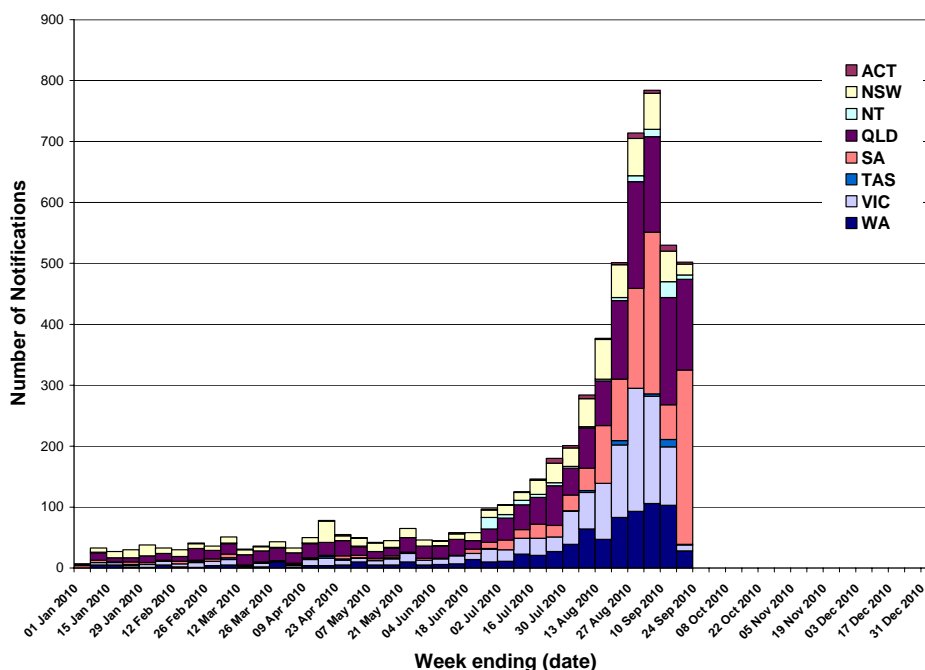
**Figure 10. Laboratory confirmed cases of influenza in Australia, 1 January 2005 to 17 September 2010**



Source: NetEpi (2009; NSW 2010) and NNDSS (2010)  
 Note: The scale in this figure has been limited to 1600 notifications per week to allow for comparison between 2010 and previous years. In 2009, notifications peaked at approximately 8,300 in Week 30.

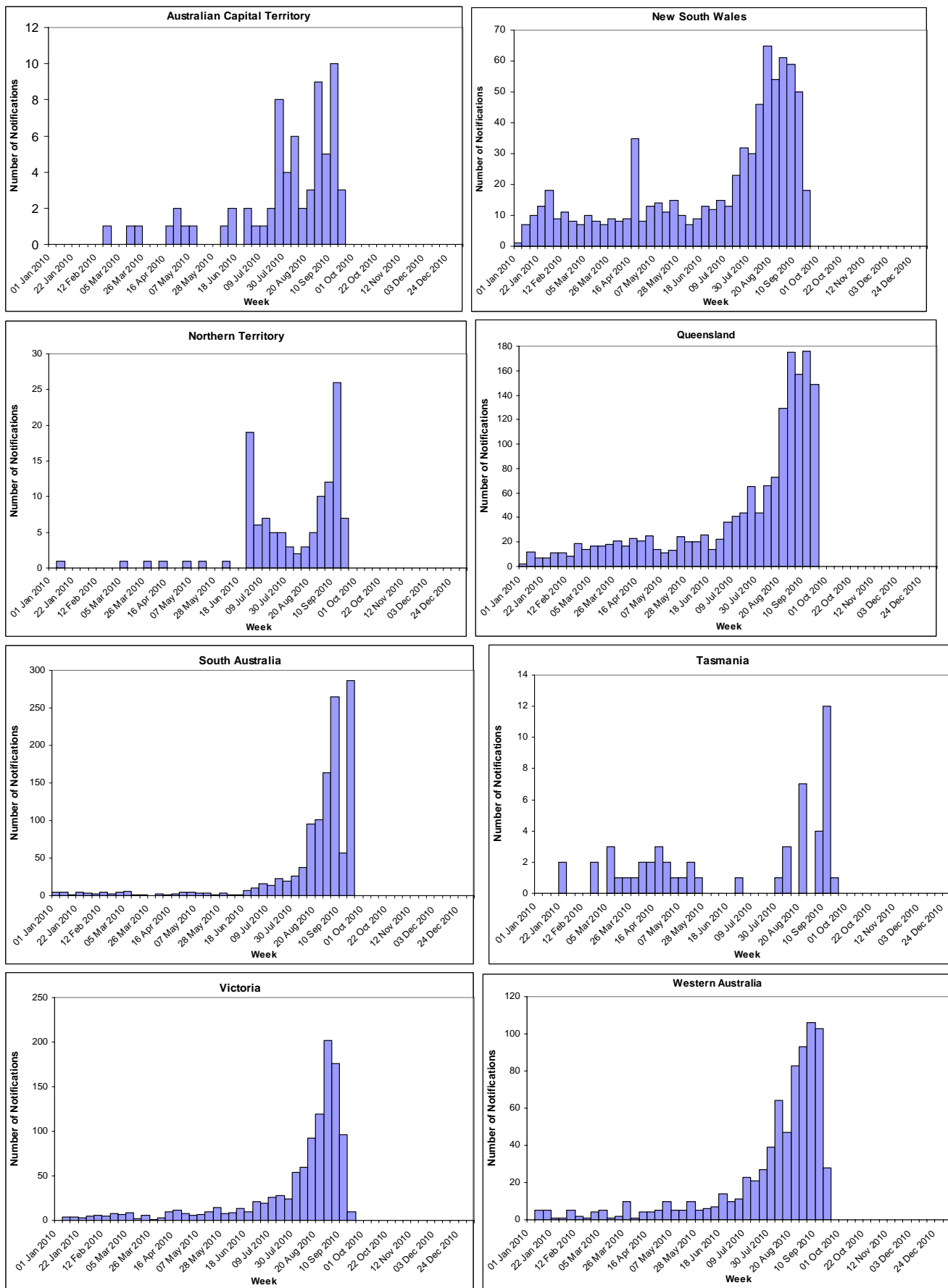
In 2010 up to 17 September, the number of laboratory confirmed cases of influenza was 1,569 in QLD, 1182 in SA, 1097 in VIC, 773 in WA and 748 in NSW. There were a further 117 cases in the NT, 67 cases in the ACT and 53 cases in TAS (Figure 11). For a breakdown of trends by state and territory, see Figure 12.

**Figure 11. Laboratory confirmed cases of influenza in Australia, 1 January to 17 September 2010, by state, by week.**



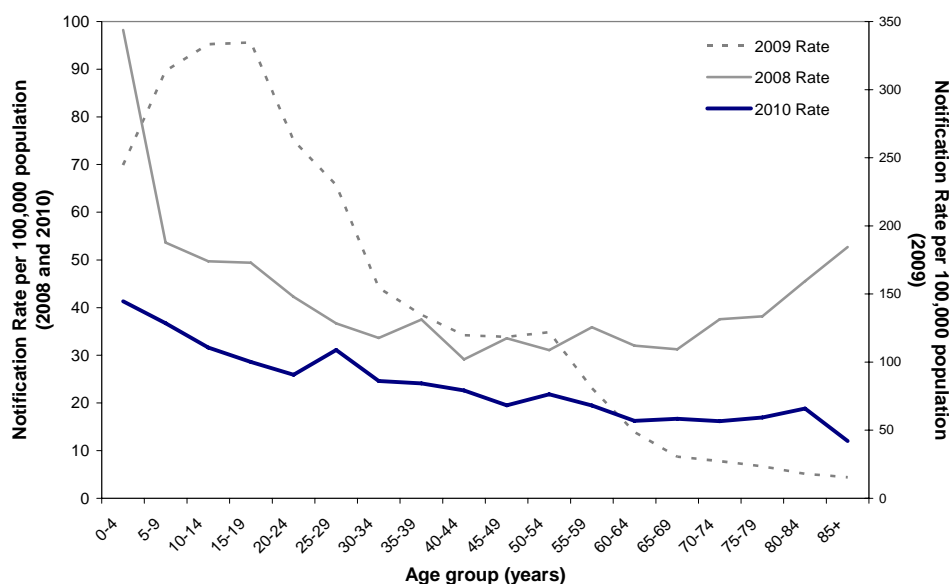


**Figure 12. State breakdowns of laboratory confirmed cases on influenza, 1 January to 17 September 2010, by week**



In 2010, the distribution of influenza notifications is relatively consistent across all age groups with an overall slight downward trend with increasing age. This distribution is reasonably similar to 2008 except in the 0-4 and the 74 and over age groups where sharp increases are seen (Figure 13). In 2009 the distribution of influenza notifications tended to occur in persons aged less than 55 years, with substantially higher rates observed in persons aged less than 30 years, compared to older age groups.

**Figure 13. Laboratory confirmed cases of influenza (pandemic (H1N1) 2009 and seasonal) in Australia, 1 January 2008 to 17 September 2010, by age group**



Source: NNDSS and NetEpi (NSW).

## 2. Influenza severity to 3 September 2010 <sup>1</sup>

### Pandemic (H1N1) 2009

While pandemic (H1N1) 2009 is generally considered a mild disease at the community level, it has had serious consequences for some who experience it. Figures of hospitalisations, ICU admissions and deaths are currently used as indicators of the severity of the disease in Australia (Table 3).

Pandemic (H1N1) data for 2009 are currently being finalised through cleaning and validation processes. It is possible that these processes will result in some changes in the data presented here. Validated data will be progressively reported as these steps are completed.

Since the first case of pandemic (H1N1) 2009 in Australia in May 2009, there have been a total of 40,541 confirmed cases of pandemic (H1N1) 2009 in Australia as at 17 September 2010. Of these, 37,636 cases were reported in 2009 and 2,905 cases were reported in 2010. A total of 207 pandemic influenza-associated deaths have been reported, with 16 deaths occurring in 2010.

<sup>1</sup> Note that while the analysis of severity is on-going, updates are presented as required when there are significant changes detected. With the current low levels of pandemic (H1N1) 2009 influenza activity in Australia it is anticipated that the indicators of pandemic associated severity will not vary significantly.

**Table 3. Summary of severity indicators of pandemic (H1N1) in Australia, 2009 and 2010 (up to 17 September 2010)**

	2009 <sup>#</sup>				2010 <sup>a</sup>	
	Confirmed pandemic (H1N1) 2009 cases	Hospitalised cases	ICU cases	Deaths	Confirmed (H1N1) 2010 cases	Deaths
Total number	37,636	13% (4,992/37,636) confirmed cases)	14% (681/4,992 hospitalisations)	191	<b>2905</b>	<b>16</b>
Crude rate per 100,000 population	172.1	22.8	3.1	0.9	<b>13.3</b>	<b>n/a</b>
Median age (years)	21	31	44	53	<b>23</b>	<b>51</b>
Females	51% (19,139/37,636)	51% (2,528/4,992)	53% (364/681)	44%	<b>50.9% (1480/2905)</b>	<b>38% (6/16)</b>
Vulnerable groups (Indigenous persons, pregnant women & individuals with at least 1 co-morbidity)	n/a	58% (2,892/4,992)	74% (504/681)	67%	<b>n/a</b>	<b>88% (14/16)</b>
Indigenous people~	11% (3,877/34,750)	20% (808/4,048)	19% (102/533)	13%	<b>6.4% (80/1255)</b>	<b>0%</b>
Pregnant women*	n/a	27% (287/1,056 hospitalised females aged 15-44 years)	16% (47/289) hospitalised pregnant women)	4%	<b>n/a</b>	<b>0%</b>
Cases with at least 1 co-morbidity	n/a	46% (2,303/4,992)	67% (457/681)	62%	<b>n/a</b>	<b>88% (14/16)</b>

<sup>#</sup>Data are extracted from a number of sources depending on the availability of information. Figures used in the analysis have been provided in parentheses. Data are not always complete for each summarised figure.

<sup>a</sup>Data for 2009 from NetEpi, data for 2010 from NNDSS and NetEpi (NSW).

<sup>b</sup>The number of deaths is most likely under-reported and representative of hospital related death notifications only.

n/a - No data collected or available.

~The denominator for this row is the number of confirmed cases for which Indigenous status is known. In 2010, 1650 cases had Indigenous status unknown.

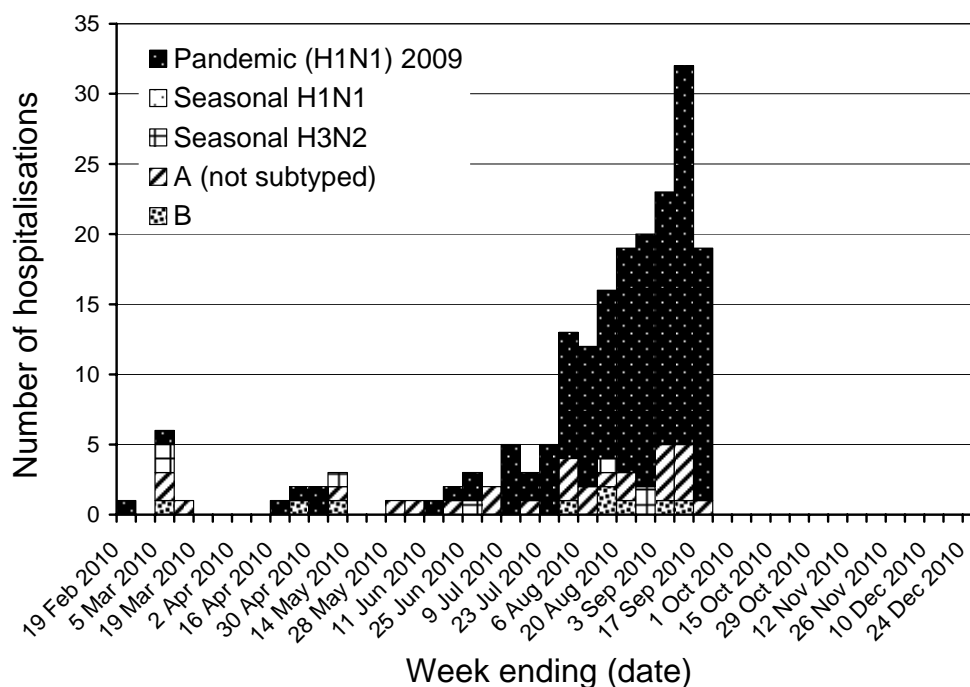
\*Includes women in the post-partum period.

## **Influenza Hospitalisations**

### **Influenza Complications Alert Network (FluCAN)**

The Influenza Complications Alert Network (FluCAN) reported a decrease in the number of influenza associated hospitalisations in the week ending 17 September 2010, with 18 pandemic (H1N1) 2009 hospitalisations and one influenza A (not subtyped) hospitalisation from sentinel hospitals. For the period of 1 March to 17 September 2010, FluCAN has reported a total of 187 influenza associated hospitalisations (Figure 14). Of these hospitalisations, 150 have been associated with pandemic (H1N1) 2009, including 44 with ICU admission.

**Figure 14. Number of influenza hospitalisations, sentinel hospitals, Australia, 1 March to 17 September 2010**



Source: Influenza Complications Alert Network (FluCAN). Data from 15 sentinel hospitals from all jurisdictions.

**Table 4. FluCAN sentinel hospitalisation severity indicator summary 1 March to 17 September 2010**

	Pandemic (H1N1) 2009			Seasonal			Total Influenza		
	All hospitalised	ICU cases	Deaths	All hospitalised	ICU cases	Deaths	All hospitalised	ICU cases	Deaths
ICU proportion of all hospitalised	28%			22%			28%		
Median age (years)	34	37	36	42	50	0	35	35	38
Females	51%	48%	33%	59%	38%	0%	53%	43%	67%
Total of vulnerable groups (Indigenous, pregnant & individuals with at least 1 co-morbidity)	71%	81%	100%	68%	100%	0%	59%	68%	66%
Indigenous people	4%	2%	0%	0%	0%	0%	3%	1%	0%
Pregnant women	9%	17%	0%	3%	0%	0%	10%	14%	0%
% of all admission									
% of women of child bearing age (15-49years)	18%	35%	0%	5%	0%	0%	26%	35%	0%
Cases with at least 1 co-morbidity	67%	79%	100%	65%	100%	0%	66%	82%	100%

### Australian Paediatric Surveillance Unit (APSU)

A survey of admissions of children aged 15 years and under to Intensive Care Units (ICUs) around Australia following complications due to influenza infection is conducted through the Australian Paediatric Surveillance Unit (APSU). Details of admissions are reported on a weekly basis.

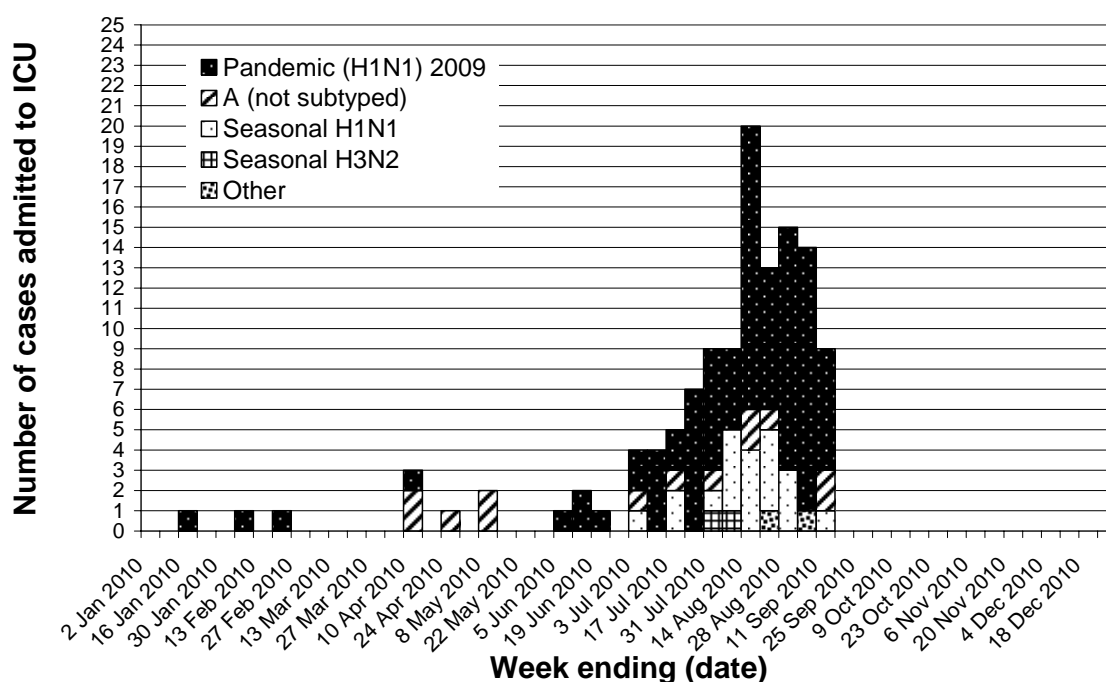
For the week ending 21 September 2010, there were four cases of severe influenza complication in children reported to the APSU. This is an increase compared to the previous reporting week where there was one case reported. Since 1 July 2010, 22 cases of hospitalisations related to severe influenza complications have been reported in children aged 15 years and under. Eleven cases have been associated with pandemic (H1N1) 2009, of which three were admitted to ICU. Six cases were associated with Influenza A (not further subtyped), and one case was associated with influenza B. Two of the cases associated with pandemic (H1N1) 2009 had an underlying chronic condition.

### Intensive care admissions

The Australian and New Zealand Intensive Care Society (ANZICS) has reported a total of 122 ICU admissions for influenza in 2010, nine of which occurred during this reporting period. Of these ICU admissions, 85 have been associated with pandemic (H1N1) 2009, 13 with influenza A (not subtyped), 2 with seasonal A/H3N2, 20 with seasonal H1N1 (these may be pandemic cases, yet to be confirmed) and 2 with influenza not typed (Figure 15).

Of the 85 pandemic (H1N1) 2009 ICU admissions in 2010, 68 had known co-morbidities and the median age at admission was 42 years (range 2-80).

**Figure 15. Number of ICU admissions for influenza, ANZICS, Australia, 1 January to 17 September 2010**



Source: Australian and New Zealand Intensive Care Society (ANZICS) data base

### Deaths associated with influenza and pneumonia

#### Nationally reported pandemic (H1N1) 2009 deaths

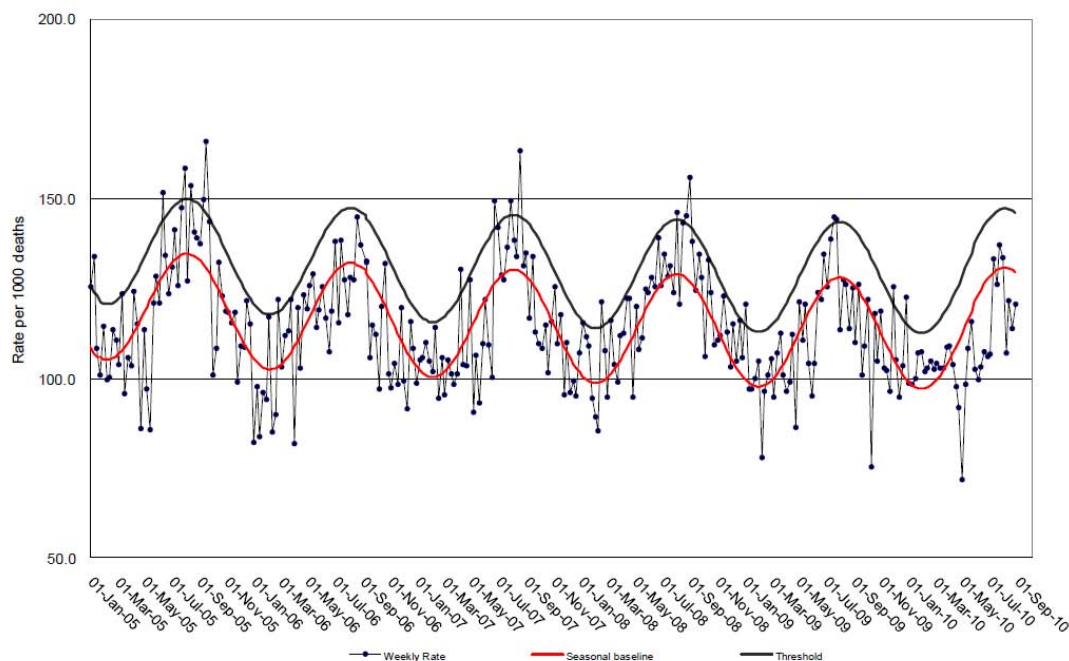
In 2010, 16 pandemic influenza related deaths have been notified to the NNDSS. The deaths occurred in late May, July, August and September, with a median age of 51 years. Fourteen of the deaths were reported as having underlying risk factors.

#### NSW

Death registration data show that for the week ending 10 September 2010, there were 121 pneumonia or influenza associated deaths per 1,000 deaths in NSW, which is below the seasonal threshold for this period of 146 per 1,000 deaths (Figure 16).

NSW death registration data cross-matched with laboratory cases of influenza show 13 people with laboratory confirmed influenza have died up to 27 August 2010. All 13 cases had multiple comorbidities and were aged 50 years and over<sup>1</sup>.

**Figure 16. Rate of deaths classified as influenza and pneumonia from the NSW Registered Death Certificates, 2005 to 10 September 2010**



Source: NSW 'Influenza Monthly Epidemiology Report'

### 3. Virology

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

From 1 January to 19 September 2010, there were 628 Australian influenza isolates subtyped by the WHO CC (Table 3).

**Table 5. Typing of influenza isolates from the WHO Collaborating Centre, from 1 January 2010 to 19 September 2010**

Type/Subtype	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	TOTAL
A(H1N1)	0	0	0	0	0	0	0	0	0
Pandemic (H1N1) 2009	16	33	75	132	77	1	166	71	571
A(H3N2)	2	2	0	5	0	2	8	13	32
B	0	3	0	2	5	0	14	1	25
<b>Total</b>	<b>18</b>	<b>38</b>	<b>75</b>	<b>139</b>	<b>82</b>	<b>3</b>	<b>188</b>	<b>85</b>	<b>628</b>

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, hence proportions of pandemic (H1N1) 2009 to seasonal are not representative of the proportions circulating.

Antigenic characterisation of 340 pandemic (H1N1) 2009 isolates has shown 307 to be the A/California/7/2009-like strain and 3 a low reactor version of this strain. Antigenic characterisation of 21 type A/H3N2 isolates has shown 14 to be the A/Perth/16/2009-like and 7 to be the A/Perth/16/2009-like low reactor versions of the strain. One isolate was antigenically characterised as a low-reactor version of B/Florida/4/2006-like and 8 were characterised as B/Brisbane/60/2008-like.

## Antiviral Resistance

The WHO Collaborating Centre in Melbourne has reported that from 1 January 2010 to 19 September 2010, no isolates (out of 405 tested) have shown resistance to oseltamivir or zanamivir by enzyme inhibition assay (EIA) and two pandemic (H1N1) 2009 isolates (out of 41 tested) have shown the H275Y mutation known to confer resistance to oseltamivir.

## 4. International Influenza Surveillance

The WHO has advised that the world is no longer in phase 6 of influenza pandemic alert, and has moved into the post pandemic period.<sup>2</sup> The WHO has reported that as of 1 August 2010 there have been over 18,449 deaths associated with pandemic (H1N1) 2009 influenza worldwide since April 2009. Up to 10 September, WHO has reported that influenza virus transmission is currently most intense in the temperate areas of the Southern Hemisphere and southern Asia<sup>3</sup>.

- Northern Hemisphere
  - India is still experiencing a country-wide outbreak of pandemic (H1N1) 2009 with active transmission and a substantial number of fatal cases in several states across the country.
  - Europe is reporting low influenza activity, with an increasing trend being observed by Estonia, Hungary and Poland.<sup>4</sup>
- Southern Hemisphere
  - In New Zealand, pandemic (H1N1) 2009 virus transmission has decreased, although activity remains above baseline levels and with significant regional differences. Pandemic (H1N1) 2009 accounted for 91% of all influenza viruses tested from sentinel and non sentinel laboratories. The national ILI consultation rate has decreased in this reporting week, however, is above the seasonal baseline.<sup>3</sup>
  - Chile reported a sharp increase in respiratory disease activity in the last two weeks, with the age groups below 65 years being more affected than the older population. The pandemic (H1N1) 2009 virus has been the most commonly detected influenza virus, although influenza type A/H3N2 and influenza B are circulating at low levels. RSV transmission is also widespread and intense.<sup>3</sup>

## 5. 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 and improve, this report will be refined and additional information will be included.***

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 Team through [flu@health.gov.au](mailto:flu@health.gov.au).

On 17 June 2009 Australia commenced the transition to a new response phase called PROTECT, in which laboratory testing is directed towards people with moderate or severe illness; those more vulnerable to severe illness; and those in institutional settings. This means that the number of confirmed cases does not reflect how many people in the community have acquired pandemic (H1N1) 2009 infection.

### **Geographic spread of influenza and ILI – Jurisdictional Surveillance**

Jurisdictions report activity levels (in line with the definitions below) on a fortnightly basis, based on laboratory-confirmed notifications, various syndromic surveillance systems, outbreak reporting and rumour surveillance.

<b>Activity level</b>	<b>Definitions:</b>
No activity	No influenza or ILI activity
Syndromic only	an increase in syndromic surveillance systems with no laboratory confirmed cases
Sporadic	small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak during the reporting period, but no increase in cases in syndromic surveillance systems
Local	outbreaks of influenza or increases in cases in syndromic surveillance systems and recent laboratory-confirmed influenza in a single region of the state
Regional	outbreaks of influenza or increases in cases in syndromic surveillance systems and a recent laboratory confirmed influenza in at least two but less than half the regions of the state
Widespread	outbreaks of influenza or increases in cases in syndromic surveillance systems and recent laboratory-confirmed influenza in at least half the regions of the state.

### **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 2010 may be different from that of previous years. ASPREN data and VIDRL influenza surveillance data are sent to the Surveillance Branch on a weekly basis. Further information on Sentinel GPs' Influenza Surveillance and ASPREN activities are available at [www.dmac.adelaide.edu.au/aspren](http://www.dmac.adelaide.edu.au/aspren).

### **Sentinel ED 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. Data have been provided weekly and have been presented in this report to show the pattern of self reported ILI in the community over the 2009 season.

Further information on FluTracking is available at [www.flutracking.net/index.html](http://www.flutracking.net/index.html).

### **National Health Call Centre Network**

A national organisation provides call centre data for calls relating to ILI or influenza. Data are provided daily and are collated weekly and have been presented in this report to show the pattern of calls to this Call Centre over the 2009 and 2010 season. Data is available for all jurisdictions other than QLD and VIC.

### **Absenteeism**

A national organisation provides data on the number of employees who have been on sick leave for a continuous period of more than three days. These data are not influenza or ILI specific and absenteeism may be a result of other illnesses.

### **Sentinel Laboratory Surveillance data**

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



## **National Notifiable Diseases Surveillance System (NNDSS)**

Laboratory confirmed influenza (all types) is notifiable in all jurisdictions in Australia. Confirmed cases of influenza are notified through NNDSS by all jurisdictions except NSW. NSW data are sourced from NetEpi.

## **NetEpi**

In 2009, NetEpi, a web-based outbreak case reporting system for pandemic (H1N1) 2009, was used as the primary source of enhanced data on confirmed cases, hospitalisations and ICU admissions in all jurisdictions. In 2010, only data for NSW are sourced from NetEpi.

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

## **Data Analysis**

Analysis of confirmed influenza cases is conducted on combined NetEpi and NNDSS data. Analysis of morbidity (hospitalisations and ICU admissions) and mortality data in 2009 has been conducted on combined NetEpi and QLD hospitalisation data.

## **FluCAN**

The Influenza Complications Network (FluCAN) collects detailed clinical information on all hospitalised cases of influenza and pneumonia from a sample of 15 sentinel hospitals across Australia. The data for this reporting period are sourced only from 14 hospitals.

## **APSU**

The Australian Paediatric Surveillance Unit collects clinical information on hospitalised cases of children aged 15 years and under with complications due to influenza infection. Approximately 1300 (80% of total) Paediatric clinicians registered with the Paediatrics and Child Health Division of the Royal College of Physicians, respond to APSU report cards. These report cards seek information regarding hospitalisations relating to 12 diseases or conditions, including influenza.

## **Australian and New Zealand Intensive Care Society data (ANZICS data)**

The Australian and New Zealand Intensive Care Society provide data from a `near real time` registry of patients admitted to Australian ICUs. This documents the key factors influencing mortality, as well as the need for hospitalisation and mechanical ventilation. Information collected includes person characteristics and information on relevant co-morbidities, nature of the clinical syndrome associated with pandemic (H1N1) 2009, major therapeutic interventions from which organ failure outcomes can be imputed, vaccination status and vital status at time of ICU discharge and hospital discharge.

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

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

## **Deaths associated with influenza and pneumonia**

Nationally reported pandemic (H1N1) 2009 deaths are notified by jurisdictions to the Commonwealth Department of Health and Ageing as they occur.

NSW influenza and pneumonia deaths data are collected from the NSW Registry of Births, Deaths and Marriages. Figure 14 is extracted from the 'Weekly Influenza Report, NSW'

## 6. References

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<sup>1</sup> NSW Influenza Monthly Epidemiology Report, August 2010. Available from [http://www.health.nsw.gov.au/publichealth/infectious/reports/influenza\\_report\\_august.asp](http://www.health.nsw.gov.au/publichealth/infectious/reports/influenza_report_august.asp) Accessed 3 September 2010.

<sup>2</sup> World Health Organisation virtual press conference, 10 August 2010. Accessed 11 August 2010. Available from <http://www.who.int/en/>

<sup>3</sup> WHO Influenza update – 10 September 2010. Available from <http://www.who.int/csr/don/en/> Accessed 23 September 2010.

<sup>4</sup> ECDC Surveillance Report – Bi-weekly influenza surveillance overview 10 September 2010. Available from [http://ecdc.europa.eu/en/publications/Publications/100910\\_SUR\\_Biweekly\\_Influenza\\_Surveillance\\_Overview.pdf](http://ecdc.europa.eu/en/publications/Publications/100910_SUR_Biweekly_Influenza_Surveillance_Overview.pdf) Accessed 17 September 2010.