Australian Government
Department of Health and Ageing

AUSTRALIAN INFLUENZA SURVEILLANCE SUMMARY REPORT

No.28, 2009, REPORTING PERIOD: 14 November 2009 – 20 November 2009

Key Indicators

The counting of every case of pandemic influenza is not feasible in the PROTECT phase. Influenza activity and severity in the community is instead monitored by the surveillance systems listed below.

Is the situation changing?	Indicated by: laboratory confirmed cases reported to NetEpi/NNDSS; Sentinel syndromic surveillance systems GP Sentinel ILI Surveillance; and ED presentations of ILI at sentinel hospitals (NSW and WA). Laboratory data are used to determine the proportion of influenza and pandemic (H1N1) 2009 circulating in the community.
How severe is the disease, and is severity changing?	Indicated by: number of hospitalisations, ICU admissions and deaths
Is the virus changing?	Indicated by: emergence of drug resistance or gene drift/shift from laboratory surveillance.

The Department of Health and Ageing acknowledges and greatly appreciates the providers of the many sources of data used to collate this report and to inform public health decisions regarding influenza.

Key Items

As of 20 November 2009, there had been 37,269 confirmed cases of pandemic (H1N1) 2009 and 190 deaths reported in Australia. No new deaths have been reported this reporting period.

- The World Health Organization (WHO) reports that in temperate regions of the Northern Hemisphere, the early arriving winter influenza season continues to intensify across parts of North America and much of Europe. However, there are early signs of a peak in disease activity in some areas of the Northern Hemisphere.
- Following a report from Norway on mutations to the pandemic (H1N1) 2009, WHO has stated that these small changes have also been noted in a few unlinked cases from other countries but appear to occur sporadically and spontaneously. No particular relationship has been observed between this particular mutation and the severity of disease. Viruses with these small changes do not appear to be spreading to other people and studies have confirmed they remain sensitive to antiviral medicines and are well-matched to current pandemic vaccines.
- Health Canada recently requested the vaccine manufacturer GlaxoSmithKline (GSK) to recall a single pandemic H1N1 vaccine lot (about 172,000 doses) after health officials reported a higher than expected number of severe allergic reactions in vaccine recipients in the western province of Manitoba.
- Health officials in Wales have reported a cluster of patients in a Cardiff hospital infected with oseltamivir-resistant pandemic H1N1 influenza. Samples from six patients hospitalised in one hospital tested positive for oseltamivir-resistant pandemic (H1N1) 2009. In North Carolina, over the past 6 weeks, a cluster of patients with oseltamivir-resistant H1N1 viruses has been detected, of which four patients were hospitalized.
- The Oregon State Public Health Veterinarian confirmed on 18 November that a cat in Oregon has died from presumed pandemic (H1N1) 2009 infection, which was likely to be acquired from humans in the same household who were sick with influenza-like-symptoms. It is believed that this is the first feline fatality and the third case of a cat with the virus.

- Saudi health officials have announced the deaths of four pilgrims at this year's Hajj. The Saudi Health Ministry said none of the victims had been vaccinated, and all fell ill within two to three days of arriving

Summary

Is the situation changing?

As at 20 November 2009:

- There were 37,269 confirmed cases of pandemic (H1N1) 2009 in Australia.
- There have been 5 new laboratory confirmed pandemic (H1N1) 2009 notifications in reporting week 47 (ending 20 November 2009), with 5 jurisdictions reporting no new notifications.
- There have been a total of 190 pandemic influenza-associated deaths.
- National influenza activity continued to decrease.
    - Influenza-like illness (ILI) presentation rates to General Practitioners at a national level were below the baseline levels reached at the end of the 2007 and 2008 influenza seasons. Rates remained stable in most jurisdictions although some reported rates were slightly above background levels.
    - ILI presentations to emergency departments (EDs) remained steady, and are not yet at background levels.
    - FluTracking surveillance for the week ending 15 November 2009 indicated that ILI activity remained at low levels in all jurisdictions.
    - Enquiries to the National Health Call Centre Network (NHCCN) regarding ILI continued to drop and were at low levels.
    - Absenteeism rates decreased in the last week but were above levels seen at the same time period in 2007 and 2008.

The number of respiratory tests positive for influenza A and pandemic (H1N1) 2009 remained low. Type A influenza is the predominant seasonal influenza type reported by all jurisdictions and the pandemic A/H1N1 2009 strain has almost replaced the current seasonal H1N1 strain. Of the seasonal influenza A notifications, influenza A/H3N2 remains the predominant strain reported by most jurisdictions.

How severe is the disease? [a]

Analysis of data from NetEpi to 20 November 2009 indicated that:

- The number of people with pandemic (H1N1) 2009 requiring hospitalisation continued to decrease. In total, 4,855 people had been hospitalised, with 13% admitted to Intensive Care Units. Of the hospitalisations for which Indigenous status is known, 807 (21%) have been Indigenous Australians. Pregnant women represented 27% of all hospitalisations for pandemic (H1N1) 2009 of women aged between 15 and 44 years.
- Of the 190 fatal cases associated with pandemic (H1N1) 2009, 3 (4% of female deaths) were pregnant women and 25 (13%) were Indigenous Australians.

Is the virus changing?

- In Australia, two of the 419 pandemic (H1N1) 2009 viral isolates tested by NA enzyme inhibition assay (both from the same person) were resistant to oseltamivir, and the H275Y resistance mutation was found in 5 of 152 clinical specimens tested.
- To date, the WHO has received formal notification of 52 cases of oseltamivir resistance pandemic (H1N1) 2009 viruses worldwide.

International influenza surveillance

- The number of human cases of pandemic (H1N1) 2009 continues to increase in many countries. As at 15 November 2009, the WHO reported over 526,060 confirmed cases and at least 6,770 deaths associated with pandemic (H1N1) 2009 worldwide.
- The international situation remains similar since the last update. In temperate regions of the Northern Hemisphere, the early arriving winter influenza season continues to intensify across parts of North America and much of Europe. However, there are early signs of a peak in disease activity in some areas of the Northern Hemisphere.

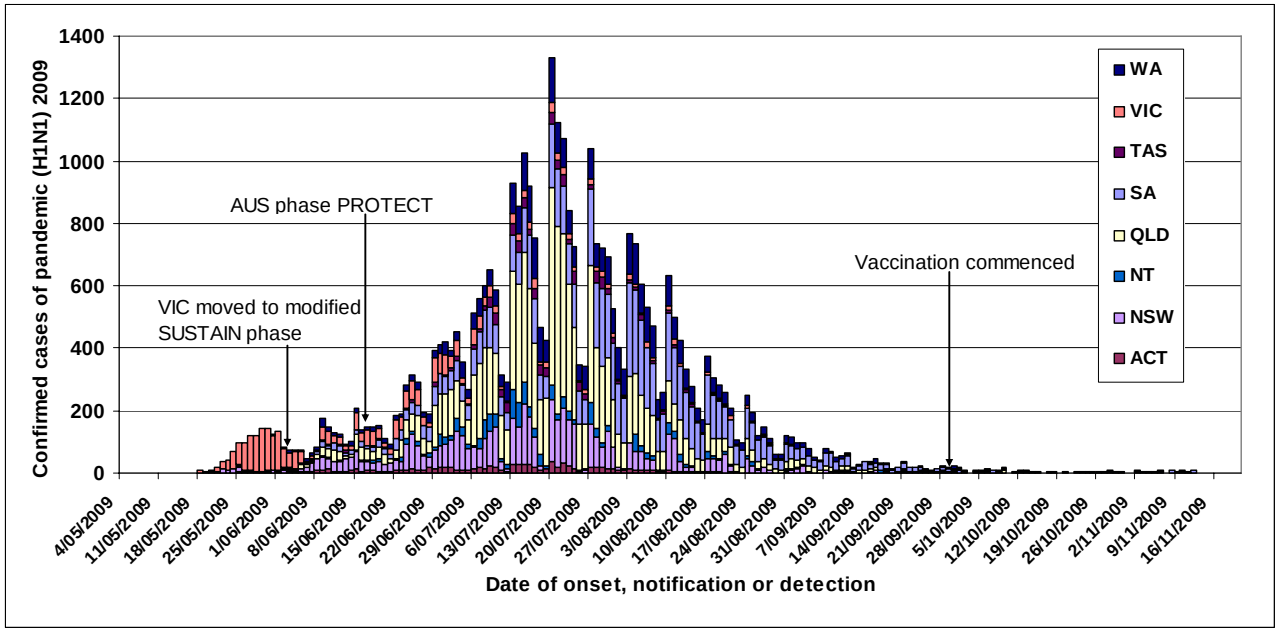
[a] Note that the while the analysis of severity is on-going, updates are only reported every four weeks unless there are significant changes detected. With the current low levels of pandemic (H1N1) 2009 activity in Australia it is anticipated that the indicators of pandemic severity will not vary significantly.

1. Influenza activity in Australia

Laboratory Confirmed Cases

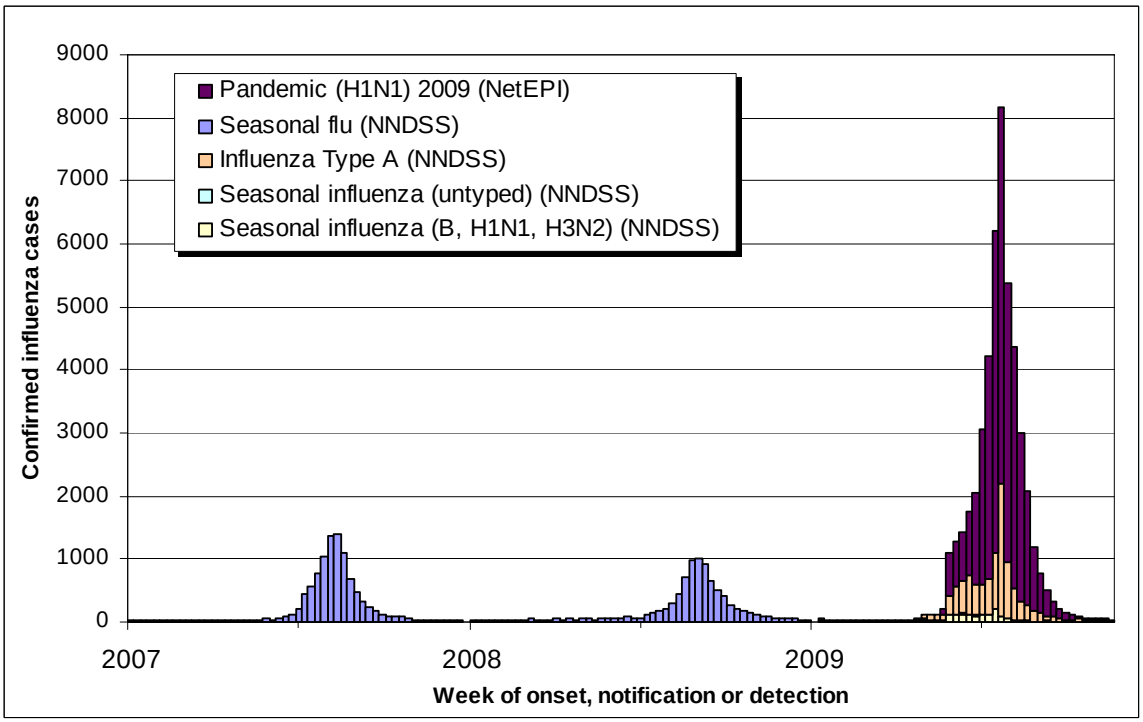
There have been 5 new laboratory confirmed pandemic (H1N1) 2009 notifications in reporting week 47 (ending 20 November 2009), with 5 jurisdictions reporting no new notifications. As of 20 November 2009 there were 37,269 confirmed cases of pandemic (H1N1) 2009 in Australia, including 190 pandemic influenza-associated deaths.

Figure 1. Laboratory confirmed cases of pandemic (H1N1) 2009 in Australia, to 20 November 2009 by jurisdiction



Source: NetEPI database

Figure 2. Influenza activity in Australia, by reporting week, years 2007, 2008 and 2009*



* Data on pandemic (H1N1) 2009 cases is extracted from NetEPI; data on seasonal influenza is extracted from NNDSS.

Sources: NNDSS and NetEPI databases

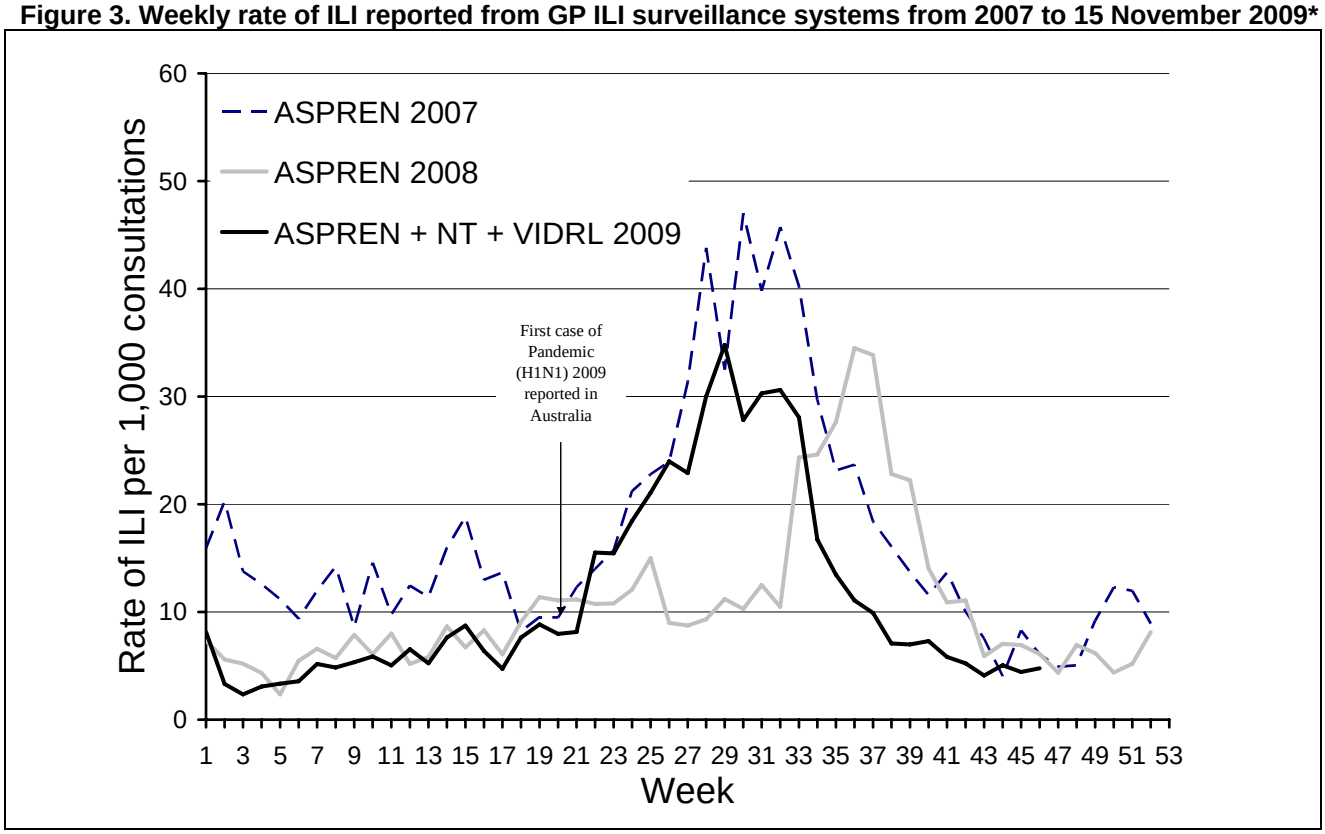
Influenza-Like Illness [b]

Sentinel General Practice Surveillance

Combined data available from the Australian Sentinel Practices Research Network (ASPREN), the Northern Territory GP surveillance system and VIDRL, up until 15 November 2009, show that nationally, influenza like Illness (ILI) consultation rates remained stable this reporting period and were below levels seen at the end of the 2007 and 2008 seasons (Figure 3).

In the last week, the presentation rate to sentinel GPs in Australia was approximately 5 cases per 1,000 patients seen.

Figure 3. Weekly rate of ILI reported from GP ILI surveillance systems from 2007 to 15 November 2009*



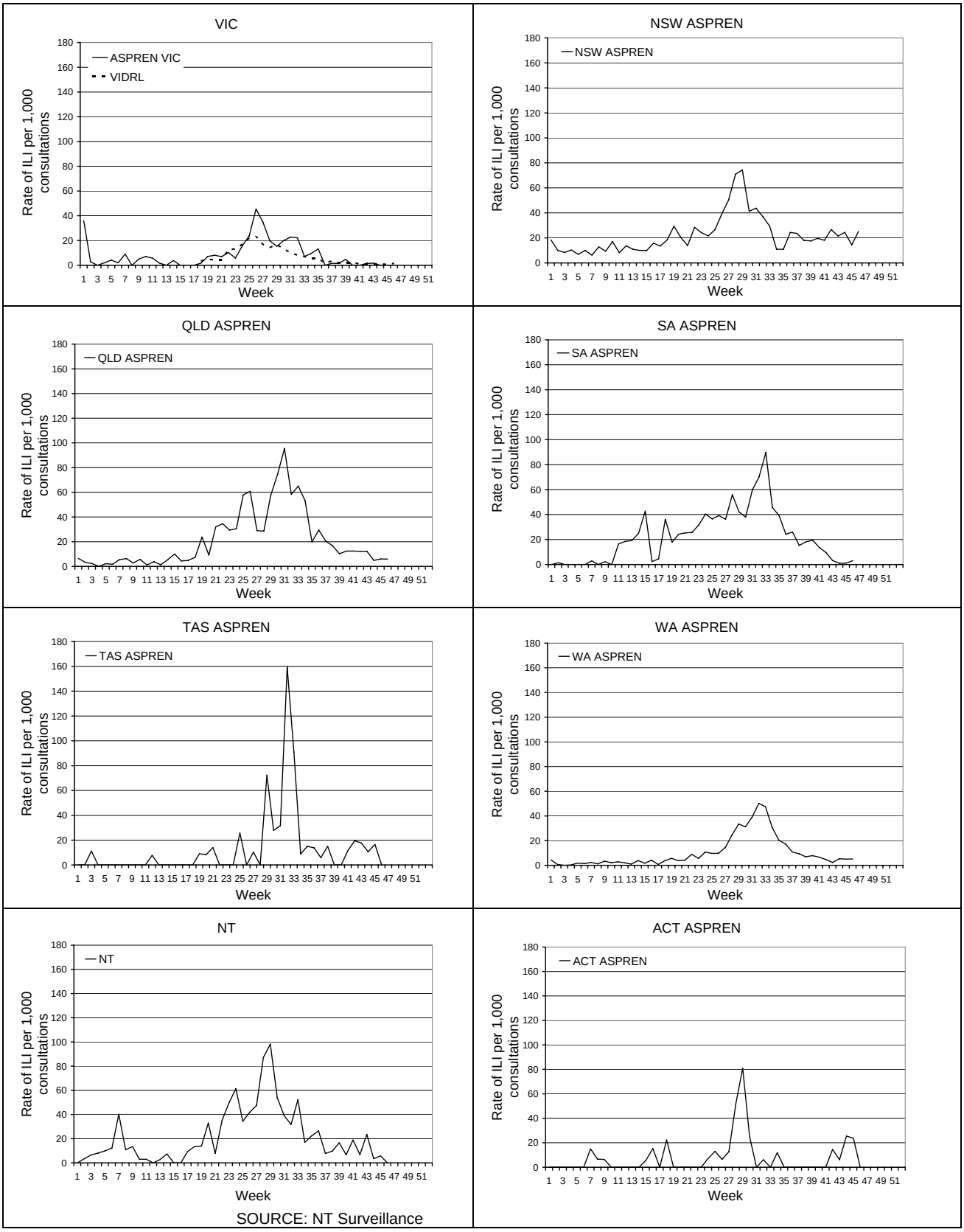
* Delays in the reporting of data may cause data to change retrospectively. As data from the NT and the VIDRL surveillance systems are combined with ASPREN data, rates may not be directly comparable across 2007, 2008 and 2009.

SOURCE: ASPREN, NT, VIDRL

Further analysis of the ILI data during this period indicates that levels remained stable or decreased in most jurisdictions; however this is above background levels in some jurisdictions (Figure 4). An increase was observed in New South Wales.

[b] As the counting of every case is no longer feasible in the PROTECT phase, influenza activity, including Influenza Like Illness (ILI) activity in the community is instead monitored by surveillance systems including: GP Sentinel ILI surveillance; Emergency Department presentations of ILI at sentinel hospitals (NSW and WA); and Absenteeism rates. Laboratory data are used to determine the proportion of pandemic (H1N1) 2009 circulating in the community.

Figure 4. Weekly rate of ILI reported from ASPREN, VIDRL and NT by State from January 2009 to 15 November 2009 *

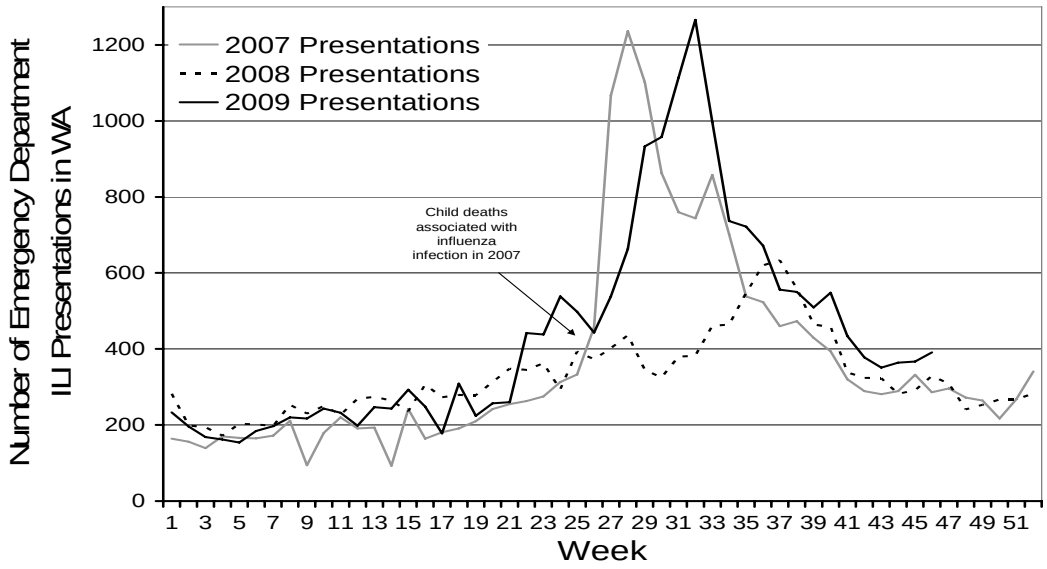


*Care should be taken when interpreting graphs due to lags in reporting in some instances and small numbers being reported from jurisdictions. The last data point may be modified in future reports.

WA Emergency departments

The number of ILI presentations reported in Western Australian EDs have increased slightly during this reporting period and are above levels seen at the same time in 2007 and 2008 (Figure 5).

Figure 5. Number of Emergency Department presentations due to ILI in Western Australia from 1 January 2007* to 15 November 2009 by week



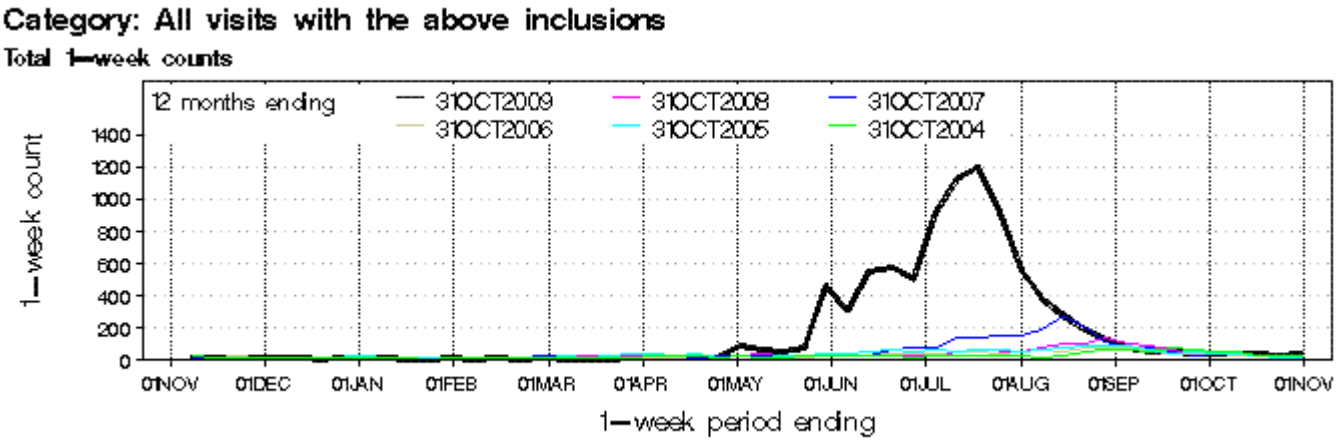
* In early July 2007 (week 26), several deaths associated with influenza infection were reported in children from Western Australia. The public response to these deaths could account for the sudden increase in ILI presentations to Perth EDs in 2007.

Source: WA 'Virus Watch' Report

NSW emergency departments

In October 2009, there were 244 presentations to NSW EDs with ILI (Figure 6). This is below levels seen in September 2009 (317 presentations) but higher than in October 2008 (144).

Figure 6. Comparison of weekly ILI presentations to NSW emergency departments, 2003-2009*



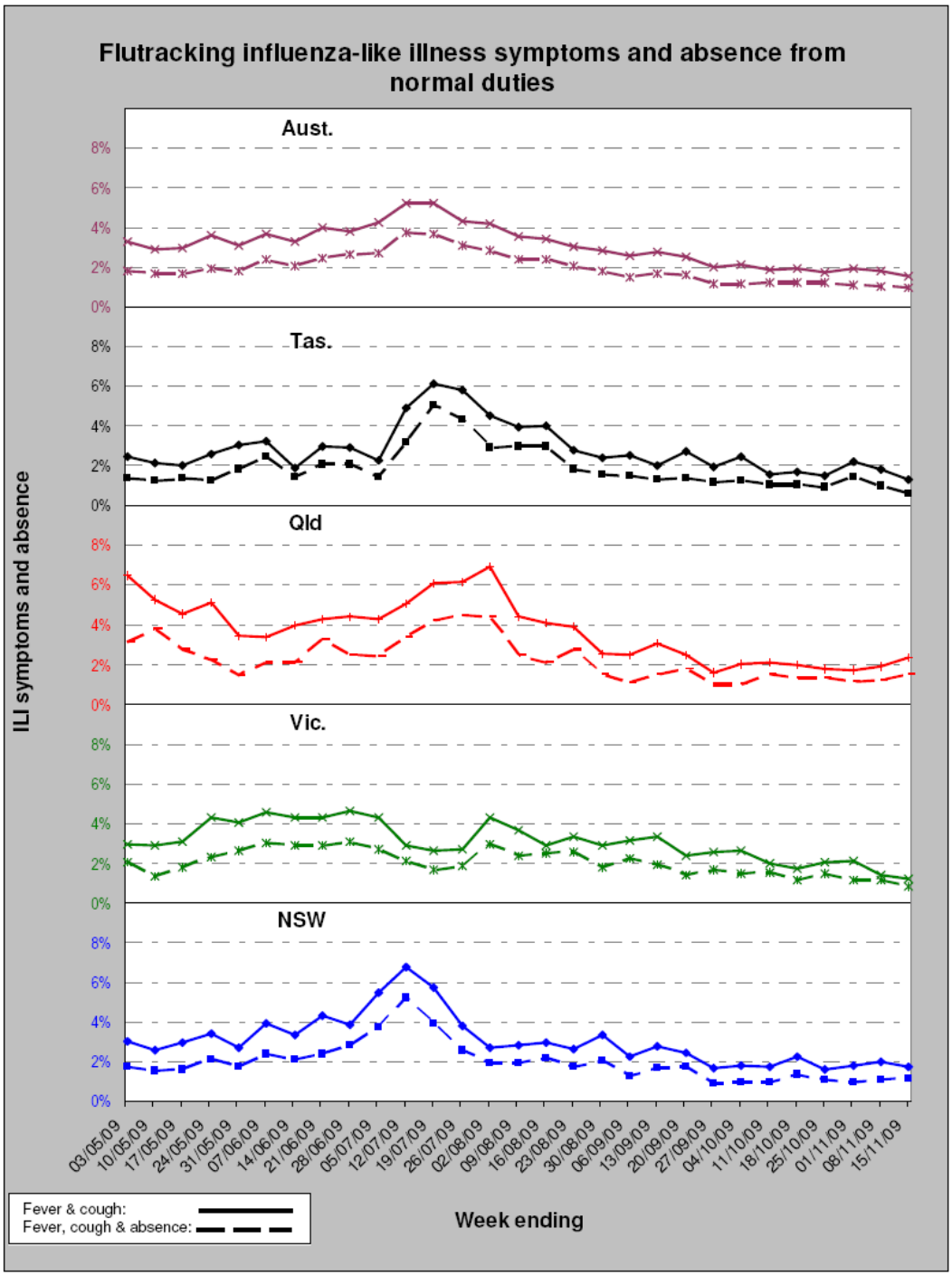
*Emergency department data are preliminary and may be updated in later weeks.

Source: NSW Health 'Influenza Monthly Epidemiology Report'

Flutracking

Flutracking, a national online tool for collecting data on ILI, reported that activity remained at low levels nationally and in the four States with sufficient data for reporting in the week ending 15 November 2009 (Figure 7).

Figure 7. Rate of ILI symptoms and absence from regular duties among Flutracking participants by week, from week ending 3 May 2009 to week ending 15 November 2009

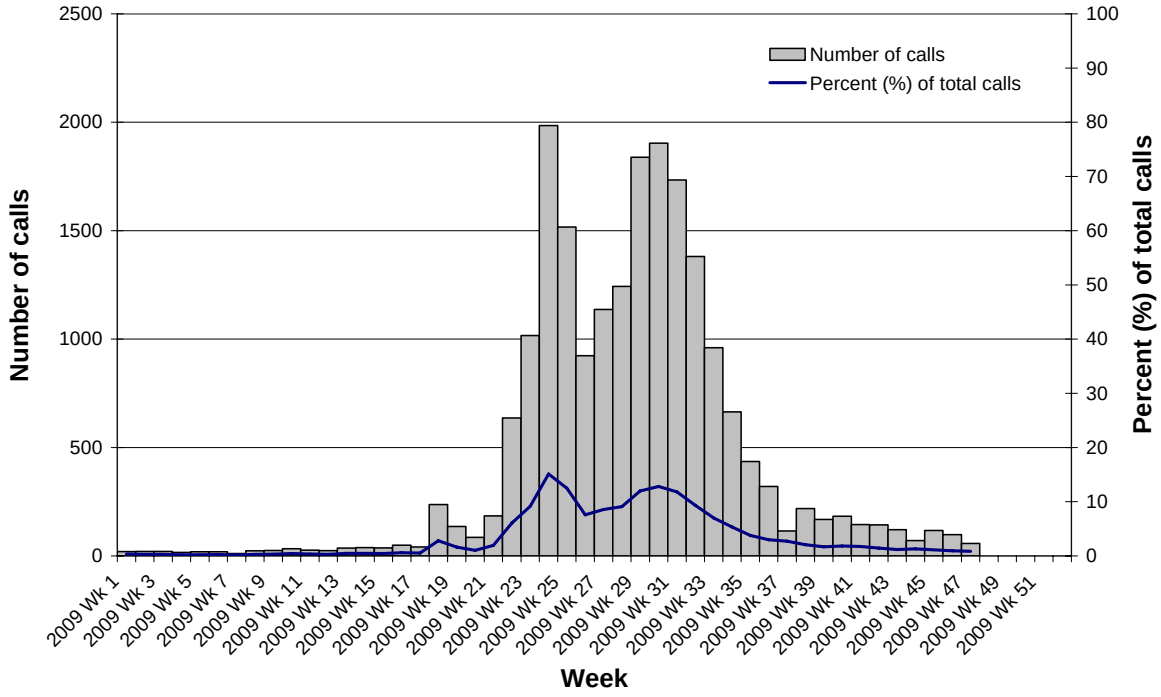


Source: Flutracking Interim Weekly Report

National Health Call Centre Network

The number of calls related to ILI to the National Health Call Centre Network (NHCCN) remained stable, with 57 calls in the week ending 20 November 2009. At the peak, the NHCCN received approximately 1900 ILI-related calls per week. The number of calls currently being received is low but not yet at pre-pandemic levels (Figure 8).

Figure 8. Number of calls to the National Health Call Centre Network (NHCCN) related to ILI, Australia, 1 January 2009 (Wk1) to 20 November 2009 (Wk46)*

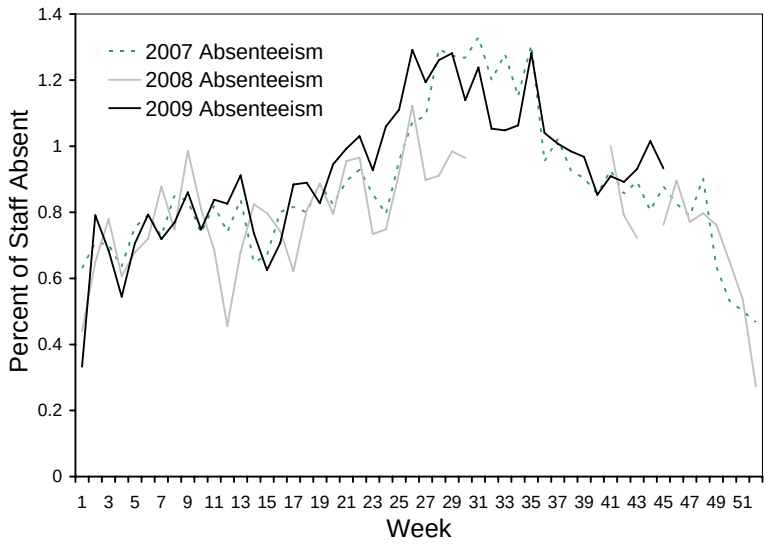


*Data in the most recent week are incomplete and will update retrospectively. SOURCE: NHCCN data

Absenteeism

The most recent available data indicates that in the week ending 11 November 2009, absenteeism rates nationally decreased (Figure 9). Rates are above levels seen in 2007 and 2008.

Figure 9. Rates of absenteeism of greater than 3 days absent, National employer, 1 January 2007 to 11 November 2009, by week.



SOURCE: Absenteeism data (Employer not disclosed)

Sentinel Laboratory Surveillance - confirmed influenza notifications

Results from sentinel laboratory surveillance systems continued to show very few samples are being confirmed positive for Influenza A virus, but of those that were positive, the majority were further subtyped as pandemic (H1N1) 2009 strains (Table 1).

Table 1. Laboratory Respiratory tests that tested positive for influenza A and pandemic (H1N1) 2009

	ASPREN* – national	VIC NIC	WA NIC	NT (reported by WA NIC)
Latest report				
Number of specimens tested	6	109 (at 20/11)	137 (at 20/11)	137 (at 20/11)
Number tested which were Influenza A	0	7	2	1
Number tested which were pandemic (H1N1) 2009	0	5	2	1
Previous report				
Number of specimens tested	6	135 (at 13/11)	148 (at 3/11)	148 (at 3/11)
Number tested which were Influenza A	0	3	4	1
Number tested which were pandemic (H1N1) 2009	0	3	4	1

*ASPREN tests are collected every Tuesday. Results are reported for a rolling fortnight as data changes retrospectively.

From 1 January to 20 November 2009, type A was the predominant seasonal influenza type reported by all jurisdictions. Of the type A notifications for which there was subtyping information in NNDSS, the ratio of seasonal H1N1 to H3N2 was 1:2.7.

2. Overview of pandemic (H1N1) 2009 severity - to 20 November 2009 [c]

While pandemic (H1N1) 2009 is generally considered a mild disease at the community level, it has had serious consequences at the acute end of the disease. Figures of hospitalisations, ICU admissions and deaths are currently used as indicators to provide evidence on the severity of the disease in Australia (Table 2).

Of particular note is the difference in the age distribution of the novel influenza virus to seasonal influenza and the increasing median age as the severity of the disease progresses: 21 years for all confirmed cases; 31 years for hospitalised cases; 40 years for ICU cases; and 48 years for deaths.

The disease has also had a differential impact upon Indigenous Australians, who are ten times more likely to be hospitalised with the disease than non-Indigenous Australians. Pregnant women are also over-represented in the more severe cases with pregnancy being a risk factor in 27% of women aged 15 to 44 years who require hospitalisation for the disease.

Table 2. Summary of severity indicators of pandemic (H1N1) in Australia, to 20 November 2009[c]

	Confirmed pandemic (H1N1) 2009 cases	Hospitalised cases	ICU cases	Deaths
Total number	37,269	13% (4,855/37,269 confirmed cases)	13% (655/4,855 hospitalisations)	190
Crude rate per 100,000 population	174.4	22.7	3.1	0.9
Median age (years)	21	31	40	48
Females	51% (18,968/37,141)	51% (2,468/4,855)	54% (351/655)	44% (84/190)
Vulnerable groups (Indigenous, pregnant & individuals with at least 1 co-morbidity)	n/a	51% (2,471/4,855)	74% (483/655)	68% (129/190)
Indigenous people~	11% (3,830/34,457)	21% (807/3,928)	20% (100/505)	13% (25/190)
Pregnant women*	n/a	27% (280/1,034 hospitalised females aged 15-44 years)	17% (47/280 hospitalised pregnant women)	4% (3/84 female deaths)
Cases with at least 1 co-morbidity	n/a	49% (2,395/4,855)	70% (459/655)	64% (121/190)

#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 is not always complete for each summarised figure.
~The denominator for this row is the number of confirmed cases for which Indigenous status is known.
* Includes women in the post-partum period

ANZICs data on ICU admissions showed that a distinguishing feature of the pandemic was the number of people who were hospitalised in ICU with viral pneumonitis (2.0 per 100,000 population) and their young age (median age was 43 years). There were over 350 adults (over 16 years of age) hospitalised in ICU with viral pneumonitis due to influenza A compared with a reported annualized median total of only 57 adults admitted with viral pneumonitis (from any cause) from 2005-08 (1). Of the adults, 86% were aged 25-64 years (ANZICs data).

[c] Note that the while the analysis of severity is on-going, updates are only reported every four weeks unless there are significant changes detected. With the current low levels of pandemic (H1N1) 2009 activity in Australia it is anticipated that the indicators of pandemic severity will not vary significantly.

3. Virology

Antigenic characteristics - WHO Collaborating Centre for Reference & Research on Influenza (WHO CC) in Melbourne

In 2009 up to 20 November 2009, 1,340 Australian influenza isolates have been subtyped by the WHO CC (Table 3). Of these, 697 influenza isolates have been antigenically characterized, with 63% confirmed as pandemic A/H1N1 2009 (A/California/7/2009-like).

Table 3. Typing of Influenza isolates from the WHO Collaborating Centre, 1 Jan. – 20 Nov. 2009

Antigenic characterization	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	TOTAL
A(H1N1)	2	15	0	29	21	1	11	27	106
Pandemic (H1N1) 2009	41	64	141	77	161	9	205	238	936
A(H3)	16	95	8	41	2	8	39	68	277
B	0	8	0	1	0	0	4	8	21
Total	**59**	**182**	**149**	**148**	**184**	**18**	**259**	**341**	**1340**

SOURCE: WHO CC

Please note: There may be up to a months delay on reporting of samples
Isolates tested by the WHO CC are not a random sample of all those in the community hence proportions of pandemic (H1N1) 2009 to seasonal are not representative of the proportions circulating. Early in the pandemic all influenza A untypeable samples were sent to the WHO CC for testing and later many pandemic (H1N1) 2009 positive samples were sent for confirmation, resulting in biases in the data.

In general, seasonal influenza A strains circulating this influenza season are the same as strains in the vaccine, with the A(H3N2) virus drifting. Influenza B strains match more closely with those in the 2009-2010 Northern Hemisphere vaccine and may be drifting.

A number of A(H3N2) viruses similar to the reference virus A/Perth/16/2009, have been isolated in Queensland, Western Australia and New South Wales during the influenza season in Australia. As viruses of this type have also been isolated elsewhere in 2009, an A(H3N2) A/Perth/16/2009-like virus has been recommended for inclusion in the 2010 Australian influenza vaccine.

International updates

The Global Influenza Surveillance Network (GISN) is monitoring the global circulation of influenza viruses, including pandemic, seasonal and other influenza viruses infecting, or with the potential to infect, humans including seasonal influenza. The Network comprises 5 WHO Collaborating Centres (WHO CCs), 4 Essential Regulatory Laboratories and 128 institutions in 99 countries, which are recognized by WHO as National Influenza Centres (NICs). Globally, since the beginning of the pandemic 19 April to 7 November, the total number of specimens reported positive for influenza viruses by NICs was 272,326. Of these, 187,290 (68.8%) were pandemic H1N1, 7771 (2.9%) were seasonal A (H1), 23,019 (8.5%) were A (H3), 48,653 (17.9%) were A (not subtyped) and 5593 (2.1%) were influenza B. As some laboratories are under pressure of the pandemic surge and do not test for seasonal subtypes, this data should be interpreted with caution. (2)

The Norwegian Institute of Public Health (NIPH) recently identified a mutation in 2009 H1N1 influenza virus isolated from the first two pandemic deaths and one other patient with severe disease. It has been suggested that this mutation could make the virus more likely to infect deeper in the airways and cause more severe disease. The WHO has put a statement on the Norwegian report which stresses that:

- The same mutation has been seen in several other countries with no particular relationship with severity of disease, i.e. also seen in mild cases.
- The virus with this mutation remains sensitive to the antiviral drugs, oseltamivir and zanamivir, and studies show that currently available pandemic vaccines confer protection.
- Although further investigation is under way, no evidence currently suggests that these mutations are leading to an unusual increase in the number of H1N1 infections or a greater number of severe or fatal cases.

Antiviral Resistance

Pandemic (H1N1) 2009

To 20 November 2009, WHO reported that 52 oseltamivir resistant pandemic (H1N1) 2009 viruses had been detected and characterised worldwide. (3) All of these isolates showed the same H275Y mutation (which confers resistance to oseltamivir), but all were sensitive to zanamivir. More than 10,000 other clinical specimens of the pandemic (H1N1) 2009 virus have been tested and found to be sensitive to oseltamivir.

The WHOCC in Melbourne has reported that two isolates (both from the same person) have shown resistance to oseltamivir by enzyme inhibition assay and five clinical specimens have shown the H275Y mutation (Table 4).

Table 4. Neuraminidase resistance testing of Australian pandemic (H1N1) 2009 viruses

Description	No. tested	EIA Resistant	H275Y mutation
Viral isolates	419	1	-
Clinical specimens	152	-	5

Seasonal Influenza

The last WHO report on resistance of seasonal strains to oseltamivir was released on 4 June 2009, during the Northern Hemisphere influenza season 2008-2009 and stated that 96% of seasonal influenza A (H1N1) isolates tested from 36 countries worldwide were resistant to oseltamivir. (4)

Table 5. Resistance Testing – Seasonal Influenza - Global

Country	% of H1N1 viruses	% of A(H3N2)	% of B viruses
Australia (since 1 January 2009)	97.2% (36/37) resistant to oseltamivir	0% (0/40) resistant to oseltamivir	0% (0/6) resistant to oseltamivir
New Zealand (up to 8 November 2009) (5)	100% (53/53) resistant to oseltamivir	n/a	n/a

4. International Influenza Surveillance [d]

As at 15 November 2009, the WHO Regional Offices reported over 526,060 confirmed cases and at least 6,770 deaths associated with pandemic (H1N1) 2009 worldwide.(2) As many countries have stopped counting individual cases, particularly of milder illness, the global case count is likely to be significantly lower than the actual number of cases that have occurred.

The international situation remains similar since the last update. In temperate regions of the Northern Hemisphere, the early arriving winter influenza season continues to intensify across parts of North America and much of Europe. However, there are early signs of a peak in disease activity in some areas of the Northern Hemisphere.

North America – In the United States, influenza transmission remains active and geographically widespread, although disease activity appears to have recently peaked in most areas except in the North Eastern United States. In Canada, influenza transmission continues to intensify without a clear peak in activity; the ILI consultation rate, which has been highest among children aged 5-19, continues to significantly exceed mean rates observed over the past 12 influenza seasons.

- The US reported a slight overall decrease in influenza activity during week 45 (week ending 14 November 2009). The proportion of outpatient visits for ILI was 5.5%, which is above the national baseline of 2.3% and all regions reported ILI above region-specific baseline levels. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the seventh consecutive week. Twenty-one influenza-associated paediatric deaths were reported, of which 15 were associated with 2009 influenza A (H1N1) virus infection, and 6 were associated with an influenza A virus for which the subtype was undetermined. Over 99% of all subtyped influenza A viruses being reported to CDC were 2009 influenza A (H1N1) viruses. (6)
- In Canada, while the number of hospitalizations and deaths increased, the proportion of positive influenza tests was comparable to the previous week and the national ILI consultation rate and the number of influenza outbreaks reported decreased. The pandemic (H1N1) 2009 strain accounted for nearly 100% of the positive influenza A subtyped specimens. The intensity of Pandemic (H1N1) 2009 in the population was high, with 1,674 hospitalizations, 261 ICU admissions and 84 deaths reported in week 45. Numbers of deaths were more than two times higher that the previous reporting week. The number of hospitalizations and deaths reported this week were higher than the overall number of hospitalizations and deaths for the first wave. (7)
- In Mexico as at 20 November 2009, confirmed cases of pandemic (H1N1) 2009 (64,322) and related deaths (573) continue to increase. (8)

Central and South America – In the tropical areas of Central and South America, most countries continue to report declining influenza activity, with the exception of Peru and Colombia. In the Caribbean Epidemiology Centre (CAREC) countries, after a recent peak of disease activity, rates of Acute Respiratory Infection (ARI) have declined over the past 3-4 weeks.

Europe –All 27 EU countries are reporting cases of pandemic (H1N1) 2009 influenza. Routine surveillance reports from primary care indicate that almost all European countries reported intensity above baseline levels. Since week 41 the numbers of deaths each has shown a steady increase almost doubling every fortnight over the last six weeks. A total of 714 deaths have been reported since April 2009. While the most deaths have to date been in Western Europe there are increasing numbers of deaths being reported from Central and Eastern Europe. (9)

- In the UK, the weekly influenza/ILI consultation rates decreased slightly to 35.9 per 100,000 consultations in week 46 compared to 37.8 in week 45. This is still above the English baseline threshold of 30 per 100,000. HPA modelling gives an estimate of 53,000 new cases in England

[d] When possible, information in this section is collated from reports available within the current reporting period.

last week (range 26,000 to 114,000) which represents a decrease from the previous week. This estimate incorporates data from National Pandemic Flu Service and GP consultations. The HPA estimates a cumulative total number of cases of 715,000 (with a range 336,000 to 1,483,000) since the pandemic began. (10)

- In Ireland, influenza activity continued to decrease during week 46 (ending 15 November), but remains at higher levels than those recorded in previous seasons. The sentinel GP influenza-like illness (ILI) consultation rate was highest in the 0-4 and 5-14 year age groups. (11)

Asia – In Central and Western Asia, increasing diseases activity and pandemic influenza virus isolations continue to be reported in several countries. In East Asia, influenza transmission remains active. With the exception of Sri Lanka, overall transmission continues to decline in most parts of tropical South and Southeast Asia.

- A high intensity of respiratory diseases with increasing trend was reported in Kazakhstan. Recent increases in rates of ILI or ARI have been observed in Uzbekistan and in parts of Afghanistan (particularly in the capital region and in southern and northeastern provinces).
- In Israel, sharp increases in rates of ILI and pandemic virus detections have been reported in recent weeks.
- Intense influenza activity continues to be observed in Mongolia with a severe impact on the healthcare system; however, disease activity may have recently peaked in the past 1-2 weeks.
- In Japan, influenza activity remains elevated but stable nationally, and may be decreasing slightly in populated urban areas.
- A small number of seasonal H3N2 and H1N1 influenza viruses continue to be detected in China and South East Asia, though the proportion of seasonal viruses is declining in relation to the proportion of pandemic influenza H1N1.
- In Hong Kong SAR, rates of ILI have returned baseline after a recent wave of predominantly pandemic H1N1 influenza in September and October.

Oceania - In the temperate region of the southern hemisphere, little pandemic influenza activity has been reported.

- ILI consultation rates increased slightly in New Zealand in the week ending 15 November (week 46), with 24.2 per 100,000 population from 23.2 in the previous week. The highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years. (5)

5. Pandemic (H1N1) 2009 virus in animals

The Oregon State Public Health Veterinarian confirmed on 18 November that a cat in Oregon has died from presumed pandemic (H1N1) 2009 infection, which was likely to be acquired from humans in the same household who were sick with influenza-like-symptoms. It is believed that this is the first feline fatality and the third case of a cat with the virus. (12)

6. 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.

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.

NetEpi
All jurisdictions except QLD are reporting pandemic (H1N1) 2009 cases using NetEpi, a web-based outbreak case reporting system. Data from jurisdictional systems are being imported into NetEpi by VIC, NSW, WA, TAS and SA, and the remainder are entering directly into NetEpi. QLD ceased reporting hospitalisations into NetEpi on 6 July 2009.

Analyses of Australian cases are based on clinical onset date, if this information is available. Where an onset date is not available, notification date has been used. Victorian cases use a calculated onset date which is the earliest available date calculated from specimen date, onset date, notification date or detection date. This assumption was made for all calculations and data on which the figures are based.

National Notifiable Diseases Surveillance System (NNDSS)
NNDSS comprises of notifications from jurisdictions of laboratory-confirmed influenza cases. Laboratory confirmed influenza is notifiable in all jurisdictions in Australia. Confirmed pandemic (H1N1) 2009 cases are being received from all jurisdictions through NNDSS except for Victoria and New South Wales. NSW is also unable to send seasonal influenza notifications data.

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

Australian and New Zealand Intensive Care data (ANZICs data)
During the initial months of the pandemic (H1N1) 2009, the Australian and New Zealand Intensive Care society, with support from the Commonwealth of Australia Department of Health established a `near real time` registry of patients admitted to Australian ICUs. This tracked and documented the evolution of the pandemic through Australia's health care system and established the key factors influencing mortality, as well as the need for hospitalisation and mechanical ventilation. Information collected includes demographic data, information on relevant co-morbidities, nature of the clinical syndrome associated with pandemic (H1N1) 2009, provision of information on major therapeutic interventions from which organ failure outcomes can be imputed (intubation, ventilation, ExtraCorporeal Membrane Oxygenation (ECMO), vasopressor administration, dialysis), vaccination status and vital status at time of ICU discharge and hospital discharge.

Laboratory Surveillance data
Laboratory testing data are extracted from the 'NSW Influenza Report,' and the 'The 2009 Victorian Influenza Vaccine Effectiveness Audit Report' (VIDRL) 'South Australian Seasonal Influenza Report'. These reports are provided weekly.

WHO Collaborating Centre for Reference & Research on Influenza (WHO CC)
Data are provided weekly to the Surveillance Branch from the WHO CC.

Sentinel General Practice Surveillance
The Australian Sentinel Practices Research Network (ASPREN) has Sentinel GPs who report influenza-like-illness (ILI) presentation rates in NSW, 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 2009 may be different from that of previous years. ASPREN data are sent to the Surveillance Branch on a weekly basis. Northern Territory GP surveillance data are sent to the Surveillance Branch on a weekly basis. VIDRL influenza surveillance data are sent to the Surveillance Branch on a weekly basis.

A new testing protocol introduced through ASPREN requires GPs to test all patients presenting with an ILI on one day of the week. These data should provide a cross section of age, sex and severity of patients who seek GP assistance for ILI. This system is in the early stages of implementation and will be further developed over coming weeks.

Sentinel Emergency Department (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 8 Perth Emergency Departments (EDs).

NSW - ED surveillance data are extracted from the 'Influenza Monthly Epidemiology Report, NSW' This report is provided monthly. The New South Wales Influenza Surveillance Program collects data from 49 EDs across New South Wales.

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.

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 season.

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.

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