



AUSTRALIAN INFLUENZA SURVEILLANCE SUMMARY REPORT

No.29, 2009, REPORTING PERIOD:
21 November 2009 – 27 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/NNDS; 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 at 27 November 2009, there had been 37,435 confirmed cases of pandemic (H1N1) 2009 and 191 deaths reported in Australia.
- A pandemic influenza-associated death has been reported in a 33 year old male.
- The Therapeutic Goods Administration (TGA) has approved for registration the Australian-made Panvax H1N1 Vaccine Junior enabling children from 6 months to 9 years of age to be protected against the pandemic (H1N1) 2009 influenza.
- As at 22 November 2009, the WHO had received reports of over 622,000 confirmed cases pandemic (H1N1) 2009, including over 7,820 deaths. These reports are likely to significantly underestimate the actual number of cases and deaths that have occurred.
- Influenza-like illness (ILI) activity appears to have peaked in most parts of US and Canada. In Europe, widespread and increasing transmission of pandemic influenza virus was observed across much of the continent and most countries that were not yet experiencing elevated ILI activity in the previous few weeks saw a rapid increase in ILI.
- As at 27 November 2009, WHO had received reports of 75 oseltamivir resistant pandemic (H1N1) 2009 viruses that had been detected and characterised worldwide. All of these isolates showed the same H275Y mutation. All were found to be 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.
- WHO has reported that all pandemic H1N1 2009 influenza viruses analysed to date have been antigenically and genetically closely related to the vaccine virus A/California/7/2009.

Summary

Is the situation changing?

As at 27 November 2009:

- There were 37,435 confirmed cases of pandemic (H1N1) 2009 in Australia.
- There have been 3 new laboratory confirmed pandemic (H1N1) 2009 notifications in reporting week 48 (ending 27 November 2009), with 6 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 22 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 and were below levels seen at the same time 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 456 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 247 clinical specimens tested.
- To date, the WHO has received formal notification of 75 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 22 November 2009, the WHO reported over 622,482 confirmed cases and at least 7,826 deaths associated with pandemic (H1N1) 2009 worldwide.
- Influenza-like illness (ILI) activity appears to have peaked in most parts of US and Canada. In Europe, widespread and increasing transmission of pandemic influenza virus was observed across much of the continent and most countries that were not yet experiencing elevated ILI activity in the last few weeks have seen a rapid increase in ILI.

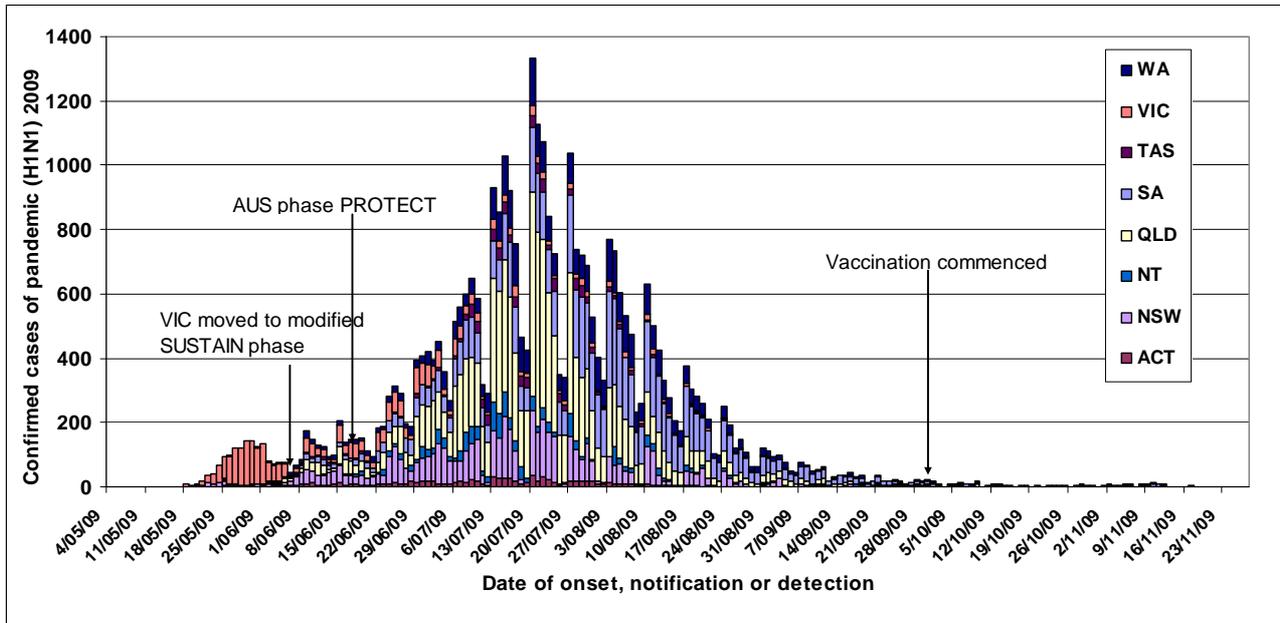
^a Note that while the analysis of severity is on-going, updates are only reported every four weeks unless there are significant changes detected. With the current low levels of pandemic (H1N1) 2009 activity in Australia it is anticipated that the indicators of pandemic severity will not vary significantly.

1. Influenza activity in Australia

Laboratory Confirmed Cases

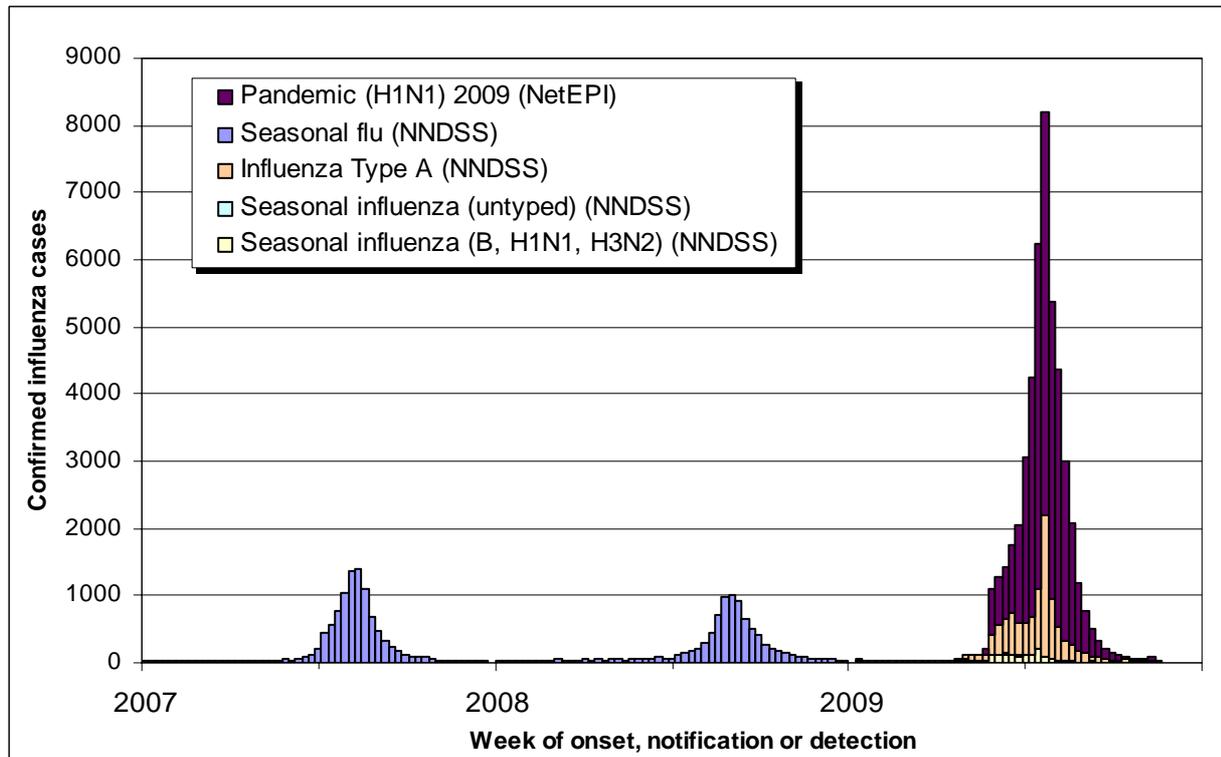
There have been 3 new laboratory confirmed pandemic (H1N1) 2009 notifications in reporting week 48 (ending 27 November 2009), with 6 jurisdictions reporting no new notifications. As of 27 November 2009 there were 37,435 confirmed cases of pandemic (H1N1) 2009 in Australia, including 190 pandemic influenza-associated deaths.

Figure 1. Laboratory confirmed cases of pandemic (H1N1) 2009 in Australia, to 27 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

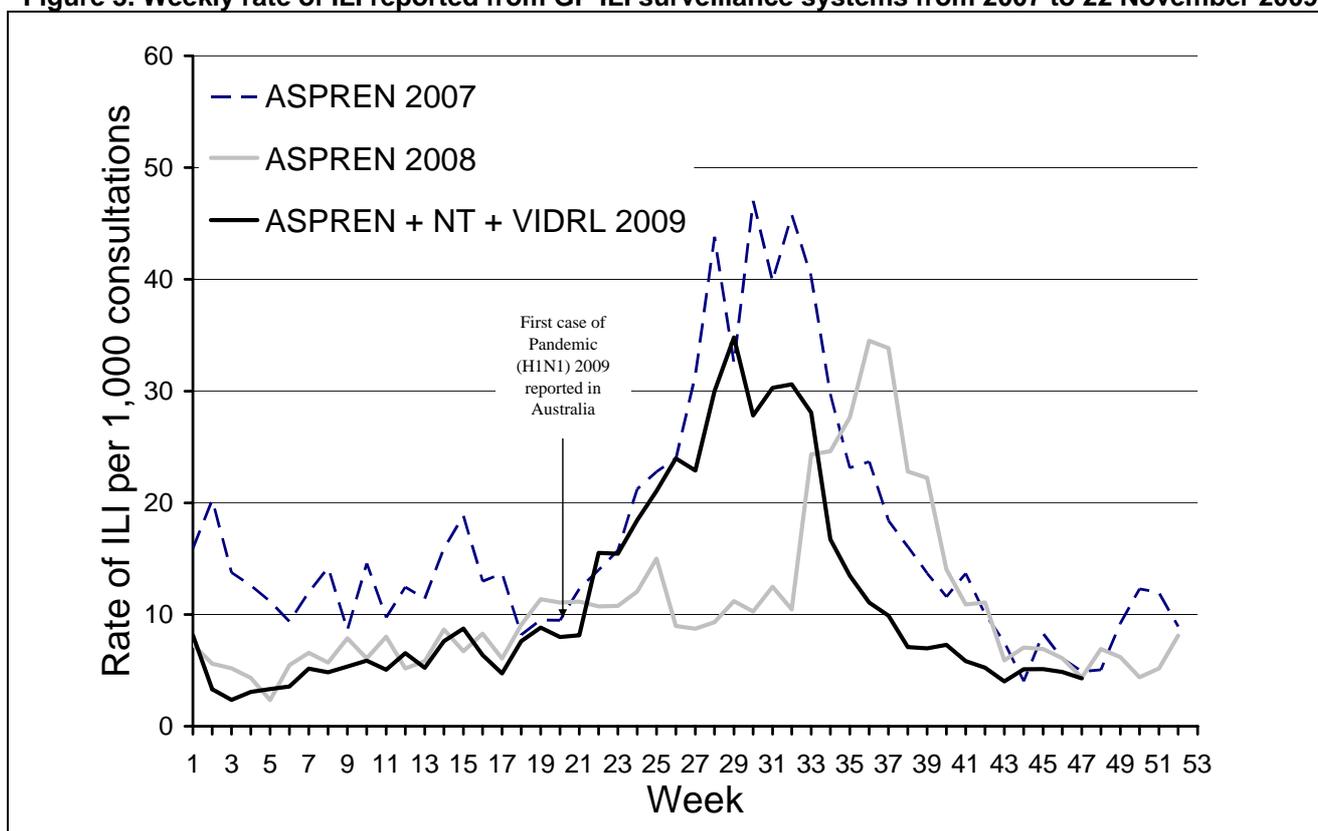
Influenza-Like Illness ^b

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 22 November 2009, show that nationally, influenza like illness (ILI) consultation rates remained stable this reporting period and were similar to 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 4 cases per 1,000 patients seen.

Figure 3. Weekly rate of ILI reported from GP ILI surveillance systems from 2007 to 22 November 2009*



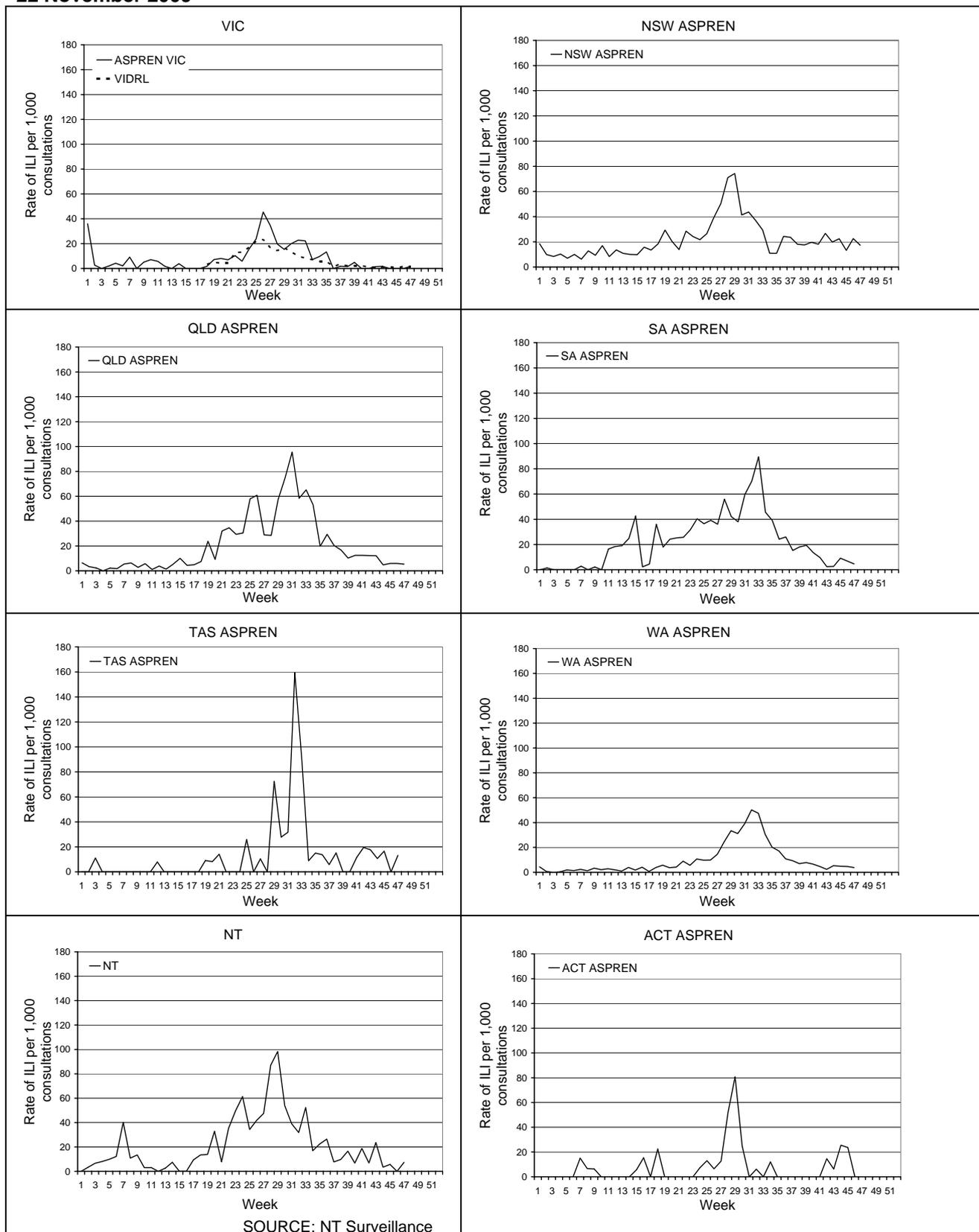
* Delays in the reporting of data may cause data to change retrospectively. As data from the NT and the VIDRL surveillance systems are combined with ASPREN data, rates may not be directly comparable across 2007, 2008 and 2009.

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).

^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 22 November 2009 *

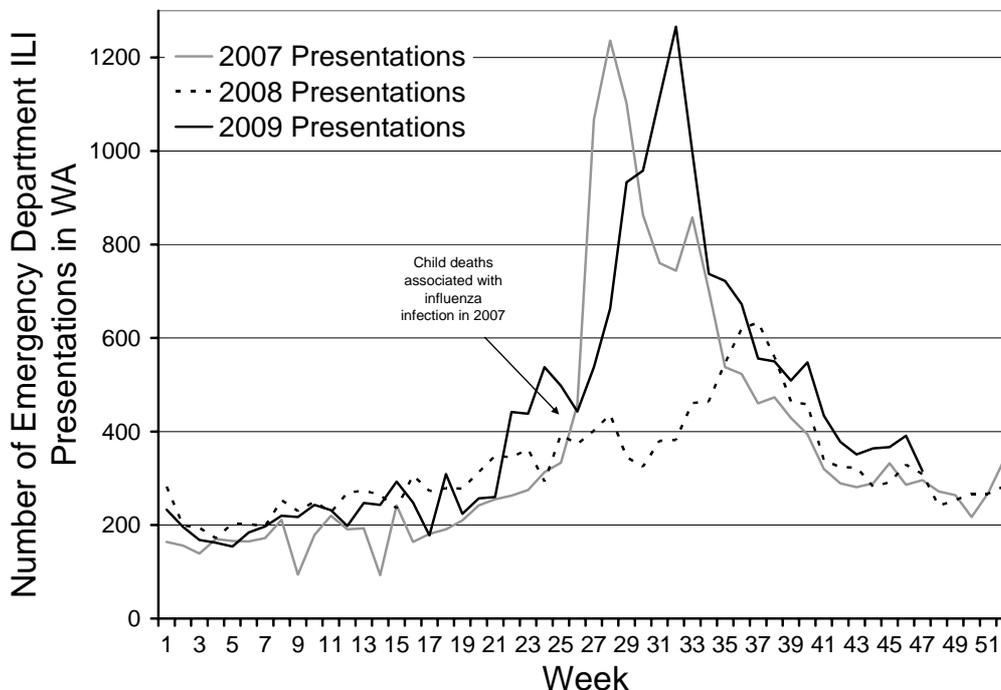


*Care should be taken when interpreting graphs due to lags in reporting in some instances and small numbers being reported from jurisdictions. The last data point may be modified in future reports.

WA Emergency departments

The number of ILI presentations reported in Western Australian EDs has decreased during this reporting period and is similar to 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 22 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

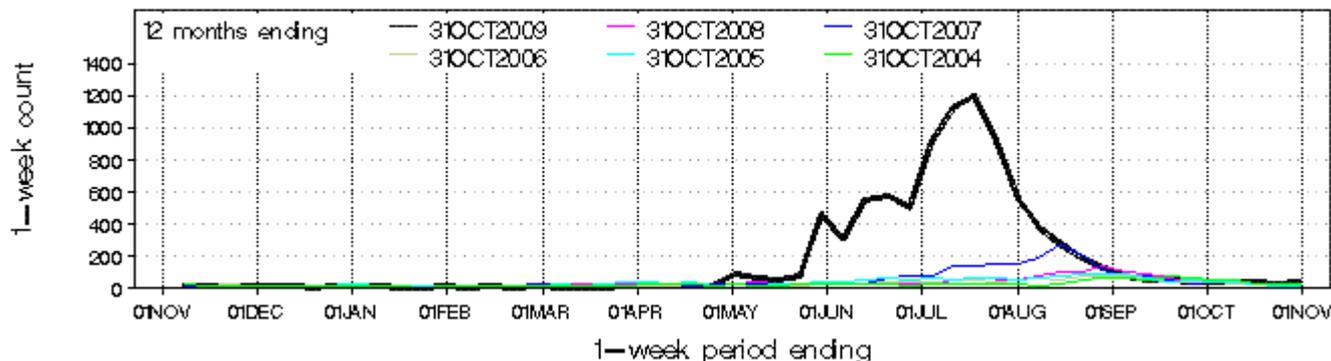
NSW emergency departments

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*

Category: All visits with the above inclusions

Total 1-week counts



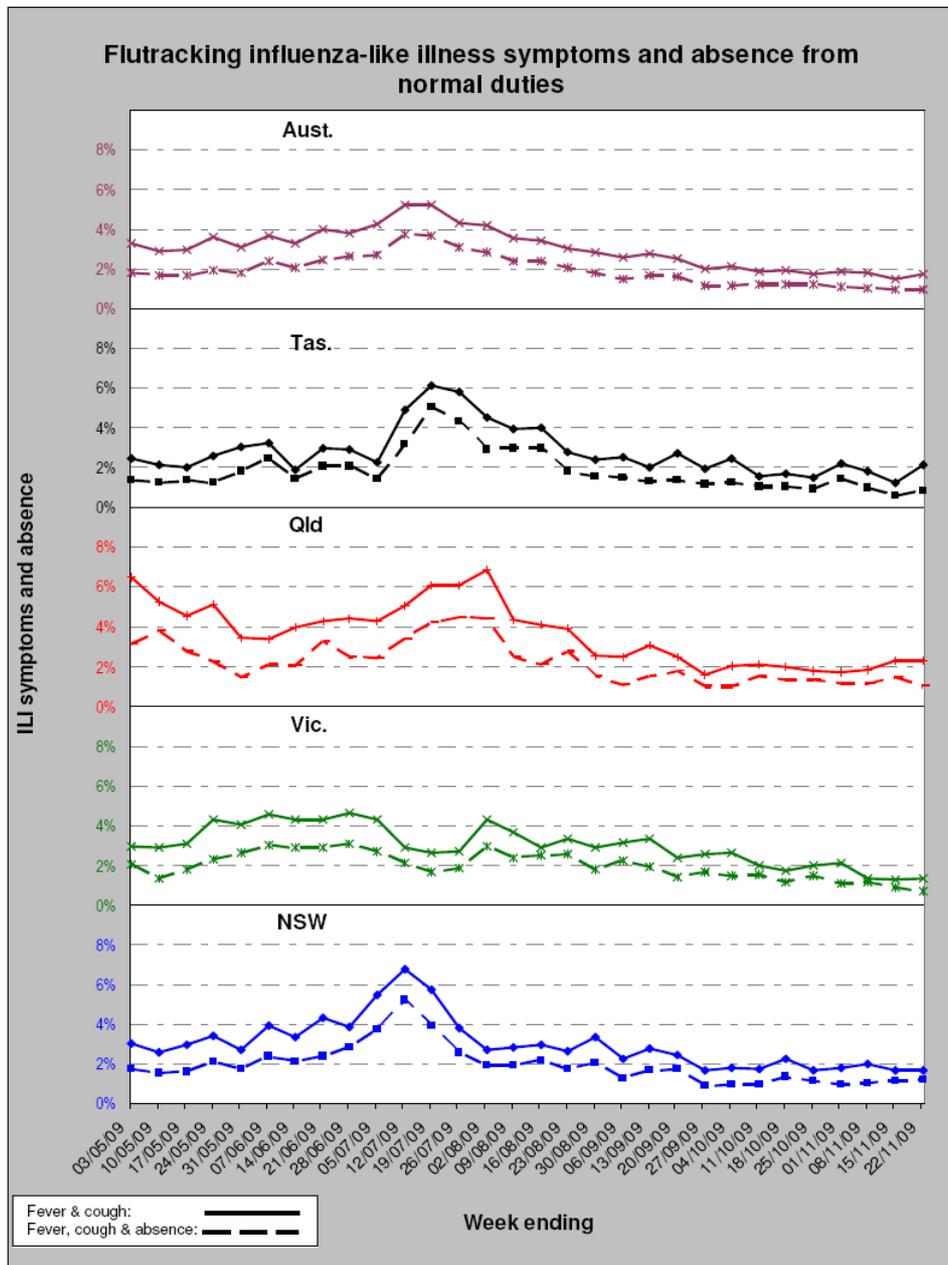
*Emergency department data are preliminary and may be updated in later weeks.

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 22 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 22 November 2009

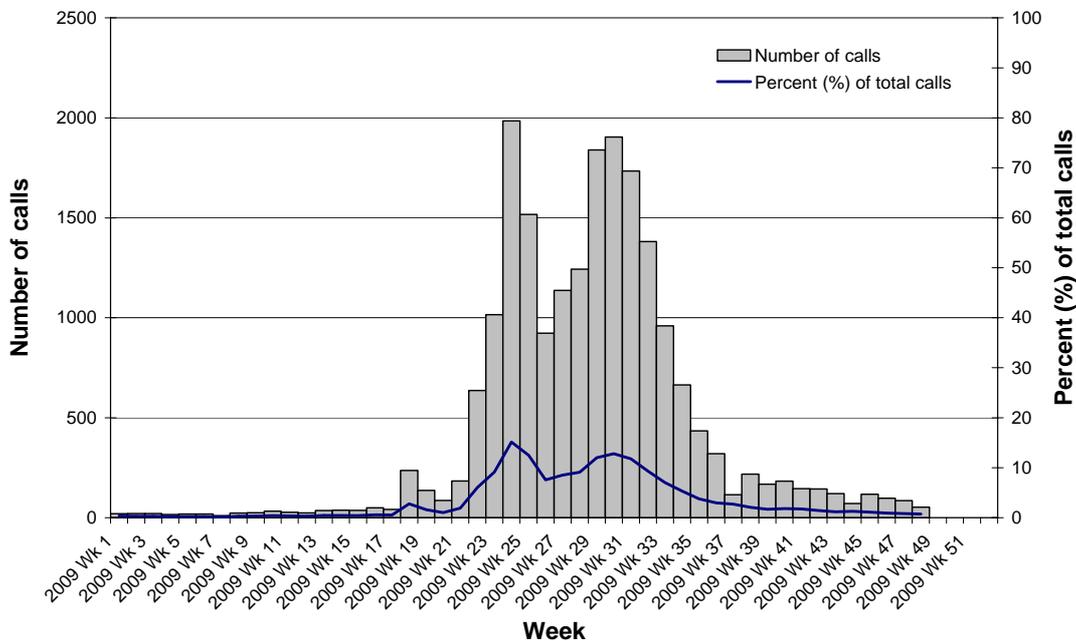


Source: Flutracking Interim Weekly Report

National Health Call Centre Network

The number of calls related to ILI to the National Health Call Centre Network (NHCCN) remained stable, with 53 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 27 November 2009 (Wk48)*



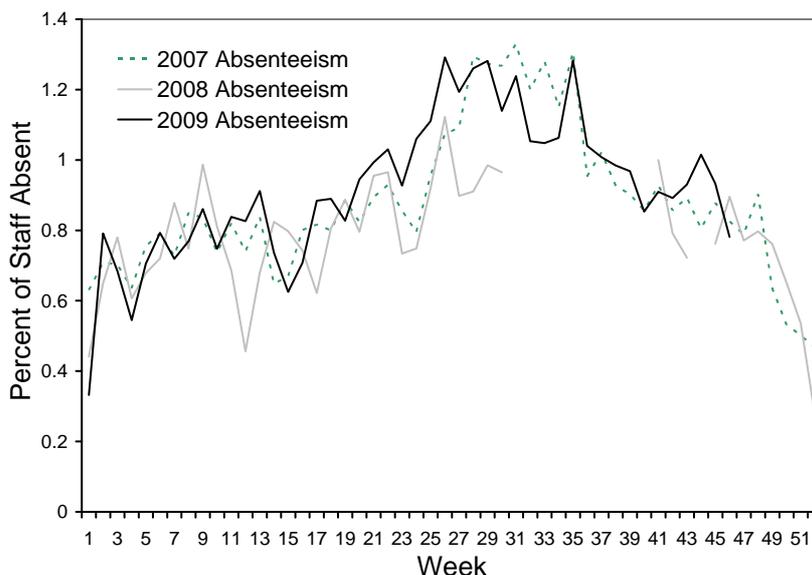
*Data in the most recent week are incomplete and will update retrospectively.

SOURCE: NHCCN data

Absenteeism

The most recent available data indicates that in the week ending 18 November 2009, absenteeism rates nationally decreased (Figure 9). Rates are similar to levels seen in 2007 and 2008.

Figure 9. Rates of absenteeism of greater than 3 days absent, National employer, 1 January 2007 to 18 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	WA NIC	NT (reported by WA NIC)
Latest report			
Number of specimens tested	4	120 (at 27/11)	120 (at 27/11)
Number tested which were Influenza A	0	3	2
Number tested which were pandemic (H1N1) 2009	0	2	2
Previous report			
Number of specimens tested	6	137 (at 20/11)	137 (at 20/11)
Number tested which were Influenza A	0	2	1
Number tested which were pandemic (H1N1) 2009	0	2	1

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

From 1 January to 27 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 1:2.3.

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 required 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

Another data source focussing on ICU admissions (ANZICs data) show similar figures to the ones reported above: the median age of confirmed cases admitted to ICU was 43 years; vulnerable groups accounted for 81% of the ICU cases; and 73% of the confirmed cases had at least one co-morbidity.

Of particular interest is the number of confirmed cases who were admitted to ICU with viral pneumonitis (2.0 per 100,000 population) and their young age (median age was 39 years). There were 368 adults (over 16 years of age) hospitalised in ICU with Viral Pneumonitis/Acute Respiratory Distress Syndrome 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% (316) were aged 25-64 years (ANZICs data).

^c Note that 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 27 November 2009, 1,354 Australian influenza isolates have been subtyped by the WHO CC (Table 3). Of these, 745 influenza isolates have been antigenically characterized, with 66% confirmed as pandemic A/H1N1 2009 (A/California/7/2009-like).

Table 3. Typing of Influenza isolates from the WHO Collaborating Centre, 1 Jan. – 27 Nov. 2009

Antigenic characterization	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	TOTAL
A(H1N1)	2	25	0	29	21	1	11	27	116
Pandemic (H1N1) 2009	41	64	141	77	161	9	208	239	940
A(H3)	16	95	8	41	2	8	39	68	277
B	0	8	0	1	0	0	4	8	21
Total	59	192	149	148	184	18	262	342	1354

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. Globally, since the beginning of the pandemic 19 April to 14 November, the total number of specimens reported positive for influenza viruses by Nation Influenza Centres was 297,366. Of these, 209,614 (70.5%) were pandemic H1N1, 8025 (2.7%) were seasonal A (H1), 23,437 (7.9%) were A (H3), 50,533 (17.0%) were A (not subtyped) and 5757 (1.9%) were influenza B. This data should be interpreted with caution as many laboratories are not testing for influenza subtypes during surges in pandemic activity. (2)

A virus mutation at position 222 of the amino acid sequence of the haemagglutinin protein of the pandemic virus was recently reported in a few viruses from Norway. The mutation is D222G (aspartic acid to glycine), which, according to a public accessible gene sequence database "GenBank", has also been detected sporadically in viruses from several other countries since April 2009. This change in the virus has been found in mild as well as severe cases. GISN is monitoring virus mutations that are of potential public health importance. (2)

Antiviral Resistance

Pandemic (H1N1) 2009

To 27 November 2009, WHO reported that 75 oseltamivir resistant pandemic (H1N1) 2009 viruses had been detected and characterised worldwide. All of these isolates showed the same H275Y mutation 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. All pandemic H1N1 2009 influenza viruses analysed to date were antigenically and genetically closely related to the vaccine virus A/California/7/2009. (2)

On 2 December, WHO reported on two recent clusters of patients infected with oseltamivir resistant pandemic (H1N1) 2009 viruses. Both clusters, detected in Wales, UK and North Carolina, USA, occurred in a single ward in a hospital, and both involved patients whose immune systems were severely compromised or suppressed. Transmission of resistant virus from one patient to another is suspected in both outbreaks. All of the resistant viruses carried the same H275Y mutation, indicating resistance to oseltamivir but susceptibility to the second antiviral drug, zanamivir. WHO experts have made modified treatment recommendations for severely immunocompromised patients with influenza (3)

The WHOCC in Melbourne has reported that two isolates 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	456	1	-
Clinical specimens	247	-	5

Seasonal Influenza

The last WHO report on resistance of seasonal influenza 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) More recent oseltamivir resistance testing data on seasonal influenza strains from Australia and New Zealand are shown in Table 5.

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 22 November 2009) (5)	100% (53/53) resistant to oseltamivir	n/a	n/a

4. International Influenza Surveillance^d

As at 22 November 2009, the WHO Regional Offices reported over 622,482 confirmed cases and at least 7,826 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. (6)

Influenza-like illness (ILI) activity appears to have peaked in most parts of US and Canada. In Europe, widespread and increasing transmission of pandemic influenza virus was observed across much of the continent and most countries that were not yet experiencing elevated ILI activity in the last few weeks have seen a rapid increase in ILI. (6)

North America –All influenza indicators decreased in the United States and Canada, indicating that disease activity appears to have peaked. Most countries in the Caribbean have falling ILI activity.

- The US reported a slight overall decrease in influenza activity during week 46 (week ending 21 November 2009). The proportion of outpatient visits for ILI decreased from 5.5% the previous week to 4.3 in week 46, which is still 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 eighth consecutive week. Thirty-five influenza-associated paediatric deaths were reported, of which 27 were associated with 2009 influenza A (H1N1) virus infection, and 7 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. (7)
- In Canada, all influenza indicators decreased in week 46 (ending 21 November 2009), indicating that the epidemic peak might have been reached. 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 still high, with 1,554 hospitalizations, 243 ICU admissions and 61 deaths reported in week 46. While the number of hospitalized cases, ICU admissions and deaths reported this week decreased, the number of hospitalizations was higher than the overall number of hospitalizations for the first wave. The proportion of severe cases (ICU admissions and deaths) among all hospitalized cases was lower in the second wave than in the first wave. (8)
- In Mexico as at 30 November 2009, confirmed cases of pandemic (H1N1) 2009 (65,672) and related deaths (656) continue to increase. (9)

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 Ecuador and Venezuela. (6)

Europe – In Europe, widespread and increasing transmission of pandemic influenza virus was observed across much of the continent and most countries that were not yet experiencing elevated ILI activity in the last few weeks, have seen a rapid increase in ILI. Very high activity is seen in Sweden, Norway, Moldova and Italy. Over 99% of subtyped influenza A viruses in Europe were pandemic H1N1 2009. Impact on health care services is severe in Albania and Moldova. Some countries seem to have peaked already: Belgium, Bulgaria, Belarus, Ireland, Luxemburg, Norway, Serbia, Ukraine and Iceland. (10)

- In the UK, the weekly ILI consultation rates increased slightly to per39.2 per 100,000 consultations in week 47 (ending 22 November) compared to 35.9 in week 46. This is still above the English baseline threshold of 30 per 100,000 consultations. HPA modelling gives an estimate of 46,000 new cases in England in week 47. The estimated number of new cases has decreased in most regions and age groups. The main influenza virus circulating in the UK continues to be the pandemic (H1N1) 2009 strain, with few influenza H1 (non-pandemic), H3

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

and B viruses detected. The majority of pandemic influenza cases continue to be mild. The cumulative number of deaths reported due to pandemic (H1N1) 2009 in the UK is 240. The hospitalisation rates have increased in the under 5-year age group, but have decreased in most other age groups recently. (11)

- In Ireland, influenza activity continued to decrease during week 47 (ending 22 November), but remains at higher levels than those recorded in previous seasons. The sentinel GP ILI consultation rate was 126.9 per 100,000 population in week 47, a decrease compared to 134.4 reported during week 46. The highest sentinel GP age-specific ILI consultation rates occurred in the 0-4 year age group. The number of laboratory confirmed cases of pandemic (H1N1) 2009 decreased slightly. While the number of hospitalised cases of confirmed pandemic (H1N1) 2009 remained stable, ICU admissions decreased compared the previous week. Pandemic (H1N1) 2009 was the only influenza virus circulating in week 47. (12)

Middle East

- The Saudi Minister of Health has reported that this year's Hajj is free from epidemics and contagious diseases. An additional report quoting the Ministry of Health said that among the estimated 2.3 million Hajj pilgrims there had been only 73 cases of pandemic (H1N1) 2009 including 5 deaths. (13,14)

Asia – In East Asia, influenza transmission remains active. In the tropical zone of Asia, influenza transmission remains variable but low in many countries (6).

- In Japan, overall influenza activity remains stable but elevated, but may be decreasing slightly in populated urban areas. (6) There were 128 encephalopathy cases associated with influenza during the weeks 28 to 45 in Japan, of which 88% were confirmed pandemic (H1N1) 2009 cases. For comparison, in weeks 1 to 27, there were 48 cases of encephalopathy. Of the 128 cases, 96% were under 15 years (median age 8 years). Of 59 patients for whom outcome was available, 5% died and 12% suffered “after-effects”. (15)
- Intense influenza activity continues to be observed in Mongolia but has peaked already. (6)
- ILI activity in India and Nepal and Sri Lanka has increased. (6)

Oceania - In the temperate region of the southern hemisphere, little pandemic influenza activity has been reported. (6)

- ILI consultation rates increased slightly in New Zealand in the week ending 22 November (week 46), with 27.9 per 100,000 population from 24.2 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

Analyses carried out by the Finnish Food Safety Authority and the Finnish National Institute for Health and Welfare have confirmed pandemic (H1N1) influenza virus in samples taken from pigs. This is the first case in Finland where the human pandemic influenza virus has been proven to have been transmitted to pigs. (16)

WHO has advised that vigilance for changes in the H1N1 virus includes monitoring to detect possible influenza infections in susceptible animals, both mammals and birds, as well as humans. While most influenza A viruses circulating in mammals preferentially infect a single species, cross-species transmission is known to occur. Recent reports further suggest that influenza A viruses in animals and humans increasingly behave like a pool of genes circulating among multiple hosts, and that the potential exists for novel influenza viruses to be generated in animals other than swine. This situation reinforces the need for close monitoring and close collaboration between public health and veterinary authorities. (17)

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 is 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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