Influenza Weekly Epidemiology Report, NSW

20 to 26 August 2011

Produced by: Population Health Division, NSW Health.

This report describes the surveillance data collected for influenza and other respiratory pathogens, collected by NSW Health during the reporting period to identify changing trends in disease activity. This includes data collected from Emergency Department presentations data, sentinel laboratory testing data, and death registry data. Links are also provided at the end of the report to national and international influenza surveillance reports.

Information on the number of laboratory-confirmed influenza cases notified to NSW Health is available at the following website: http://www.health.nsw.gov.au/data/diseases/influenza.asp. Notified cases are likely to represent only a small proportion of the true number of influenza cases in the community as most cases are not confirmed by laboratory testing.

For weekly communicable disease surveillance updates refer to the NSW Health Communicable Disease Weekly Report at http://www.health.nsw.gov.au/publichealth/infectious/index.asp.

1. Summary

For the week ending 26 August 2011:

- The rate of influenza-like illness (ILI) presentations to selected emergency departments (EDs) increased slightly but remained within the usual range for this time of year.
- Influenza was the most common respiratory virus identified by sentinel laboratories.
- Laboratory testing data indicated influenza A activity decreased further this week and influenza B remained the most common strain identified.
- At least five patients with confirmed influenza were admitted to intensive care units (ICU).
- One death was reported in a child with confirmed influenza B.

Resistance testing of a selection of influenza A samples collected since May 2011 has detected 27 H1N1 (2009) samples with the H275Y mutation associated with oseltamivir (Tamiflu™) resistance. Of these samples, 25 were collected from patients in the Hunter region while two were collected from patients in Sydney. None of the samples showed resistance to zanamivir (Relenza™), nor were they associated with more severe infections.

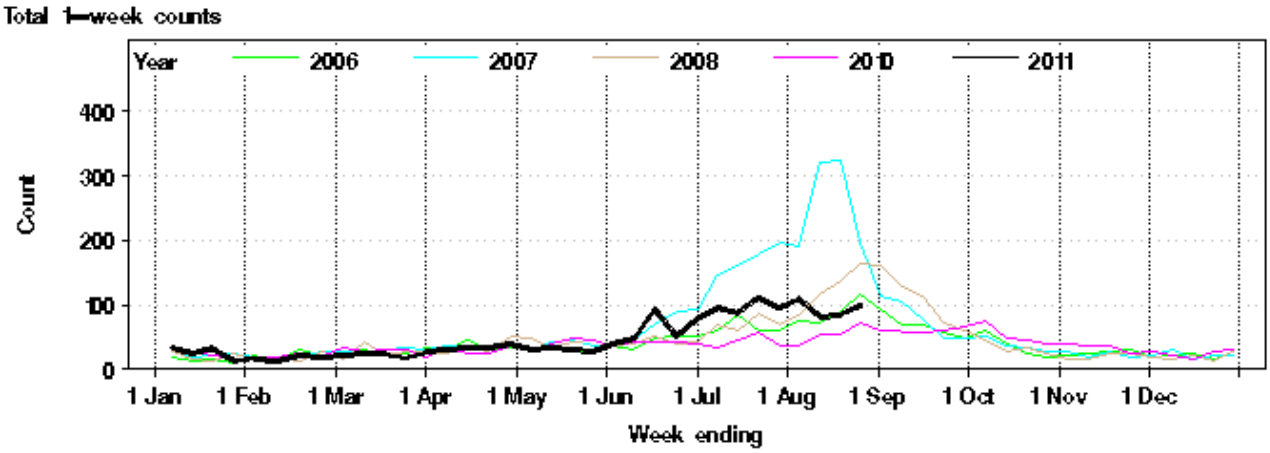
2. Emergency Department (ED) presentations

Data from 56 NSW emergency departments are included. Comparisons are made with data for the preceding six years. Recent counts are subject to change.

For the week ending 26 August 2011:

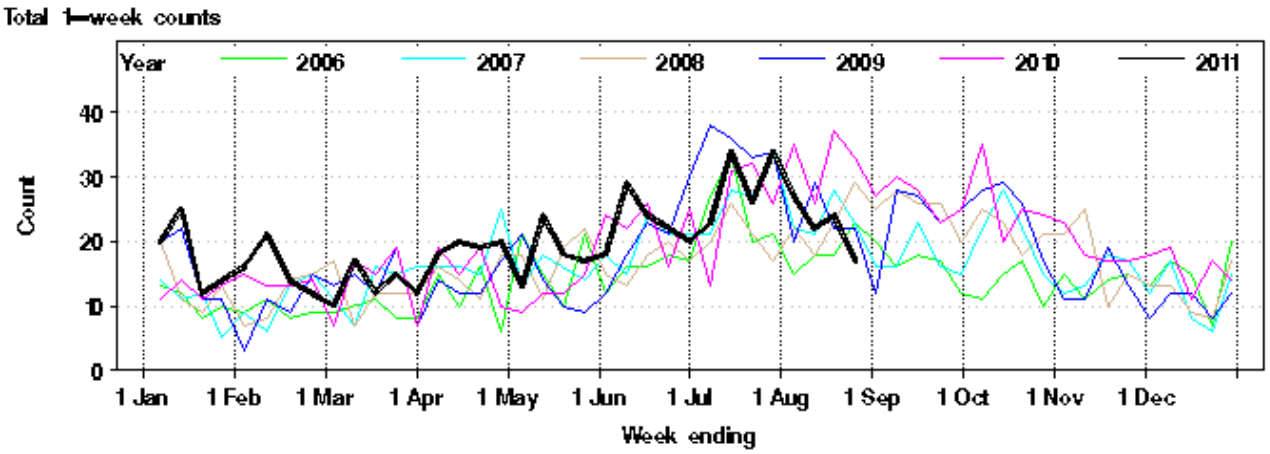
- The total number of patients presenting to EDs with influenza-like illness (ILI) increased slightly this week but remained within the usual range for this time of year (Figure 1 and Table 1).
- Just over half (54%) of ILI presentations were reported in people aged 15 to 34 years of age.
- Total admissions from ED to critical care units for influenza-like illness and pneumonia decreased this week but remained within the usual range for this time of year (Figure 2).
- Total ED presentations for bronchiolitis increased slightly this week but remained in the usual range for this time of year (Figure 3).

Figure 1: Comparison of weekly influenza-like illness presentations to NSW emergency departments, 2006-2011.



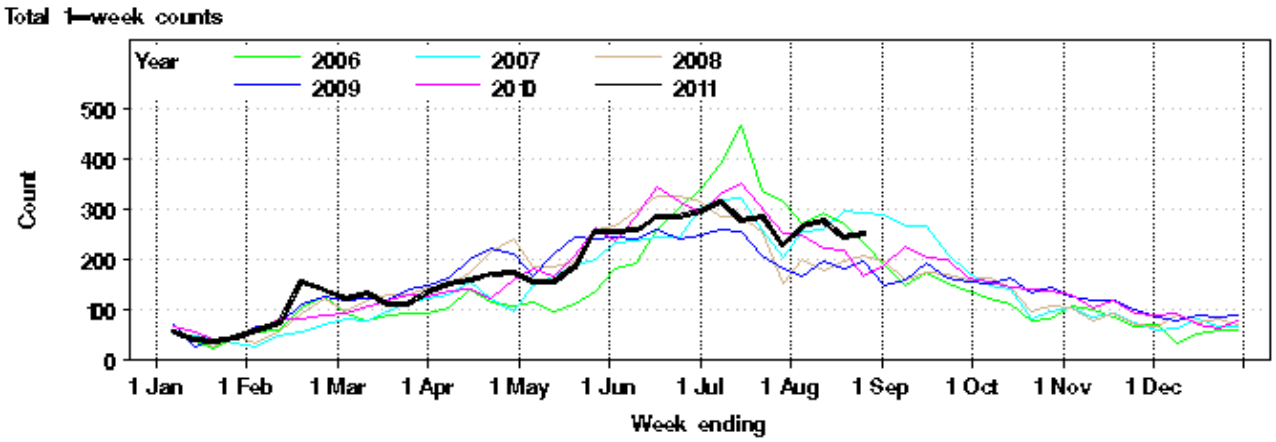
Note: Excludes data from 2009 to enable easier comparison of 2011 data with data from previous non-pandemic years. Includes data from 56 emergency departments. Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) and the Centre for Epidemiology and Research, NSW Health Department.

Figure 2: Comparison of weekly admissions to hospital critical care units for influenza-like-illness and pneumonia, 2006-2011.



Note: As for Figure 1, although includes 2009

Figure 3: Comparison of weekly bronchiolitis presentations to NSW emergency departments, 2006-2011.



Note: As for Figure 1, although includes 2009

Table 1: Weekly Emergency Department and Ambulance Respiratory Activity Summary

Data source	Diagnosis or problem category	Trend since last week	Overall comparison with usual range for time of year	Statistically significant age groups (if any)	Statistically significant local increase (if any)	Action other than this report (if any)	Comment
ED presentations, 56 NSW hospitals*	Influenza like illness (ILI)	Increased	Usual		**Cessnock ED**	Situation report sent on 22/8/11 to HNE LHD	
	Pneumonia	Decreased	Usual		**Goulburn ED**	Situation report sent on 24/8/11 to SNSW LHD	
	Pneumonia and ILI admissions	Decreased	Usual				
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Bronchiolitis	Increased	Usual		**Central Coast LHD**		
	Respiratory, fever and unspecified infections	Increased	Usual		**Cessnock ED**	Situation report sent on 22/8/11 to HNE LHD	
	Total presentations	Steady	4% above 2010				
Ambulance calls, Sydney region	Breathing problems	Increased	Below				

Notes on Table 1.

(1) Statistically significant increases are shown **in bold**.
(2) This report summarises activity from 56 Emergency Departments (EDs) across NSW and the Sydney Ambulance Operations Region. It provides information on general respiratory activity. Recent activity counts are subject to change.
(3) This is a routine general report for information on respiratory activity, and is additional to public health situation reports that advise of unusual increases in activity in particular provisional ED diagnosis groupings or Ambulance problem categories. It is prepared by the Centre for Epidemiology and Research.

3. Laboratory testing for influenza

For the week ending 26 August 2011:

- A total of 1516 tests for respiratory viruses were performed at sentinel NSW laboratories and the results are presented in Table 2 and Figure 3.
- The overall rate of laboratory tests positive for any influenza strain was 14 percent.
- The rate of laboratory tests positive for influenza A decreased further this week (rate 6.4 per 100 samples), with only 54 percent of these testing positive for A(H1N1)2009. The remainder are assumed to be due to A(H3N2).
- Influenza B remained the most common influenza strain (rate 7.4 per 100 samples).
- Laboratory testing indicated that five influenza cases were admitted to intensive care units.
- Respiratory Syncytial Virus (RSV) continued to be identified at higher than usual level for this time of year.
- Laboratory testing indicated that five influenza cases were admitted to intensive care units.
- A total of 27 influenza A(H1N1)2009 samples collected between May and August were found to be resistant to oseltamivir (**see note below**).
- One death was reported in an seven year old child with confirmed influenza B (**see note below**).

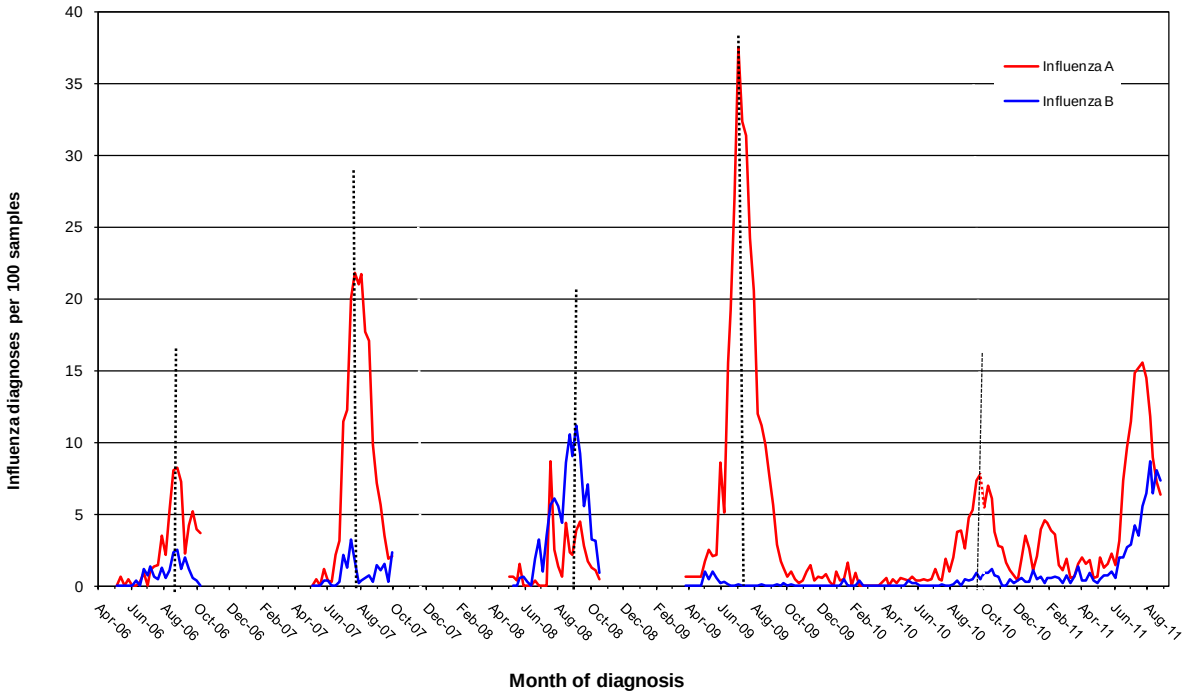
Table 2. Summary of testing for respiratory viruses and influenza at sentinel NSW laboratories, 1 January to 26 August 2011.

Four week period ending	Virology specimens tested	Influenza A (total pos) (%)	H1N1** influenza 09 (total pos) (%)	Influenza B (total pos) (%)	Adenovirus	Parainfluenza 1, 2 & 3	RSV	Rhinovirus	HMPV***
27/01/2011	1572	57 (3.7%)	36 (64%)	6 (0.4%)	22	50	36	97	20
25/02/2011	1842	43 (2.3%)	32 (74%)	9 (0.5%)	20	21	69	180	8
*01/04/2011	2697	36 (1.3%)	26 (72%)	18 (0.7%)	14	40	184	235	13
29/04/2011	2292	27 (1.1%)	14 (52%)	12 (0.5%)	22	36	288	174	29
27/05/2011	2595	49 (1.9%)	30 (61%)	24 (0.9%)	47	46	348	202	16
*01/07/2011	4373	363 (8.3%)	314 (85%)	104 (2.4%)	64	64	562	251	49
29/07/2011	6114	927 (15%)	758 (83%)	304 (5.0%)	128	135	520	252	103
Week ending									
05/08/2011	1561	184 (11.8%)	153 (83%)	136 (8.7%)	17	34	94	75	21
12/08/2011	1718	165 (9.6%)	125 (76%)	105 (6.1%)	30	42	104	83	43
19/08/2011	1583	119 (7.5%)	77 (65%)	125 (8.0%)	26	58	96	107	43
26/08/2011	1516	97 (6.4%)	52 (54%)	112 (7.4%)	33	64	84	74	41

* Equals a five week period ** Subset of influenza A cases *** HMPV = Human metapneumovirus # does not include HAPS data

Note: Data is provided by laboratories on a weekly basis. Excludes point of care tests. Influenza laboratory diagnoses using virology are reported by South Eastern Area Laboratory Services (SEALS), Institute of Clinical Pathology and Medical Research (ICPMR), The Children's Hospital at Westmead (CHW), South West Area Pathology Services (SWAPS), Pacific Laboratory Medicine Services (PaLMS), Royal Prince Alfred Hospital (RPAH), Hunter Area Pathology Services (HAPS), St Vincents (SydPath), Douglas Hanley Moir (DHM) and VDRLab, Nepean data recommenced 27 May 2011.

Figure 4: Percent of laboratory tests positive for influenza A and influenza B, 1 January 2006 to 26 August 2011, New South Wales.



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Oseltamivir Resistance

Routine resistance testing of a selection of NSW influenza A samples collected since May 2011 has detected 27 influenza A (H1N1)2009 samples with the H275Y neuraminidase mutation associated with resistance to oseltamivir (Tamiflu™) and peramivir. None of the samples showed resistance to zanamivir (Relenza™).

Of these samples, 25 were collected from patients in the Hunter region whose ages ranged from 4 months to 58 years. None had received oseltamivir prior to their specimen being collected. Seven patients were hospitalised but there were no fatal outcomes.

The remaining two resistant samples were collected from two immunosuppressed patients hospitalised in Sydney. The first patient had been treated with oseltamivir for an influenza infection prior to the collection of the resistant sample. This patient was believed to have been the source of infection with the resistant strain for the second patient who had no history of prior oseltamivir use.

It should be assumed that there is an oseltamivir-resistant influenza A strain currently circulating at low levels in the community. There has been no indication that this strain is associated with more severe infections in individuals. Zanamivir remains an effective alternative treatment if required.

Deaths with laboratory-confirmed influenza

In the week ending 26 August, clinical testing for a seven year old child who died in the North Coast region was positive for influenza B. To date this year there have been laboratory reports of six people who have died and tested positive for influenza. Four of these deaths have been in children under the age of 10 years.

Influenza is a mild to moderate disease in most people, but severe in some. Each year there are estimated to be hundreds of deaths in NSW due to influenza or its complications, including pneumonia and heart failure. In only a small proportion of these is influenza confirmed by laboratory testing.

Reports of deaths where a laboratory has confirmed an influenza infection are not routinely reported as the contribution of the influenza infection to the death is often not clear at the time of reporting. A better indication of the overall impact of influenza on mortality is shown by analysis of death registration data, as shown in the following section.

4. Deaths with pneumonia or influenza reported on the death certificate

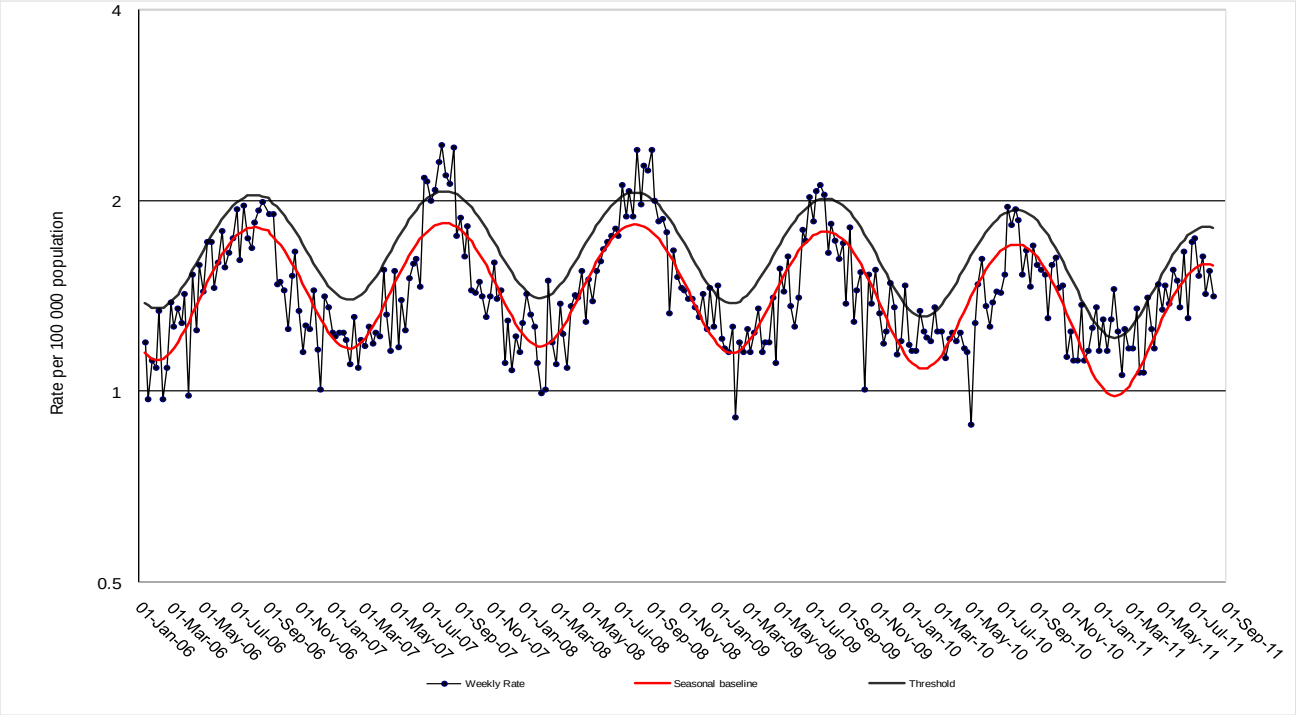
Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death.

The predicted seasonal baseline estimates the predicted rate of influenza or pneumonia deaths in the absence of influenza epidemics. If deaths exceed the epidemic threshold, then it may be an indication that influenza is beginning to circulate widely.

For the week ending 12 August:

- There were 1.4 pneumonia or influenza deaths per 100,000 NSW population, below the seasonal threshold of 1.8 per 100,000 population (Figure 4).*

Figure 4: Rate of deaths classified as influenza and pneumonia (by NSW Registered Death Certificates) per 100,000 NSW population, 2006-2011.*



Source: NSW Registry of Births, Deaths and Marriages.

*** Notes on interpreting death data:**

(1) The number of deaths mentioning "Pneumonia or influenza" is reported as a rate per 100,000 NSW population. Using the NSW population provides a more stable and reliable denominator than deaths from all causes. This is because pneumonia and influenza are known to contribute to increases in deaths from non-respiratory illnesses, such as deaths due to ischaemic heart disease. As the number of these deaths will increase with rises in influenza activity, the actual effect of influenza on mortality rates will be obscured if all-cause mortality is used as the denominator. This limitation is avoided by using the NSW population, which is relatively constant throughout the year, as the denominator.

(2) Deaths referred to a coroner during the reporting period may not be available for analysis. Deaths in younger people may be more likely to require a coronial inquest. Therefore influenza-related deaths in younger people may be under-represented in these data.

(3) The interval between death and death data availability is usually at least 7 days, and so these data are one week behind reports from emergency departments and laboratories. In addition, previous weekly rates may also change due to longer delays in reporting some deaths.

5. National and International Influenza Surveillance Links

For the latest information on national influenza activity please see the Australian Influenza Surveillance Reports at the following website:
http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-ozflu-2011.htm

For the latest information on international influenza activity please see the World Health Organization Influenza Updates at the following website:
http://www.who.int/csr/disease/influenza/en/index.html