Influenza Weekly Epidemiology Report, NSW

4 to 10 August 2012

Produced by: Population Health Division, NSW Ministry of Health.

This report describes the surveillance for influenza and other respiratory pathogens, undertaken by NSW Health to date. This includes data from a range of surveillance systems.

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

1. Summary

For the week ending 10 August 2012:

- The influenza-like illness (ILI) presentation rate to selected emergency departments (ED) was steady and was within the usual range for this time of year, and well below the peak seen in mid-July.
- ED admissions to critical care units for ILI and pneumonia were steady this week, and are within the usual range for this time of year.
- Three influenza outbreaks were reported in residential care facilities.
- Laboratory testing data showed that influenza A(H3N2) activity remained high but was declining. Influenza B activity increased.
- The population death rate for influenza and pneumonia was above the epidemic threshold (as of 20 July).
- CDC reported human infections with variant influenza A (H3N2v) viruses have continued to be reported across the United States related to exposure to infected swine. No sustained human to human transmission has been reported.

2. Emergency Department (ED) presentations

Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change.

Source: NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health.

Presentations for influenza-like illness and other respiratory illness

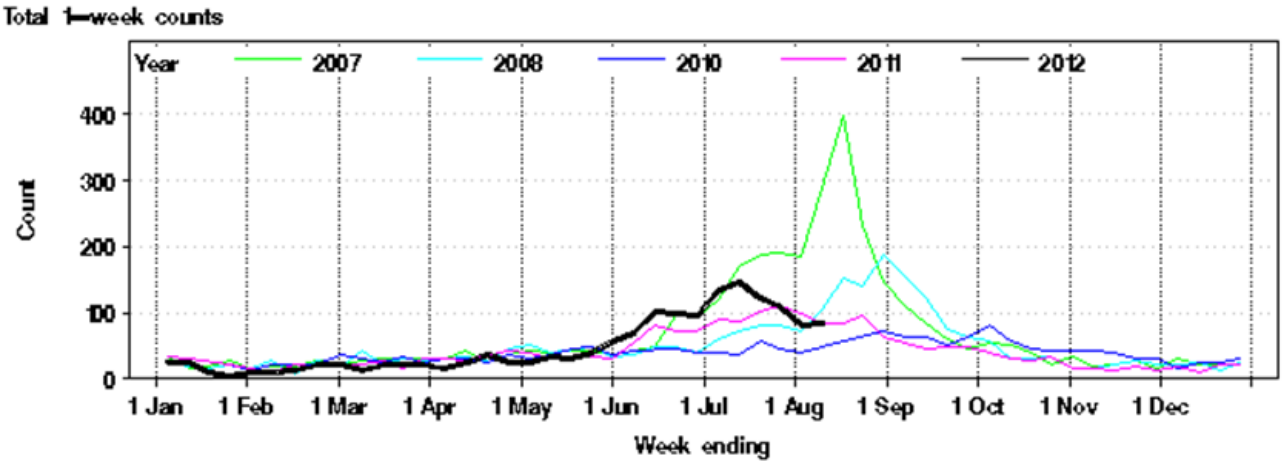
- The total number of patients presenting to ED with influenza-like illness (ILI) was similar to that of last week (rate of 2.5 cases per 1000 presentations) and was within the usual range for this

time of year (Figure 1 and Table 1). The Hunter Local Health District reported the highest number of ILI presentations (29%) to ED's.

- Total admissions from ED to critical care units for ILI and pneumonia were similar to that of last week were within the usual range for this time of year (Figure 2).

- The number of patients presenting with any respiratory illness was steady compared with the previous week. However, the number of presentations for patients over the age of 65 years for pneumonia increased this week, and although it was below this year's peak in July it remained above the usual range for this time of year compared with previous years.

Figure 1: Total weekly counts of Emergency Department visits for influenza-like illness, from January – August 2012 (black line), compared with each of the 5 previous years (coloured lines) excluding 2009, for 59 NSW hospitals.*



*** Note:** Excludes 2009 data to enable comparison of 2012 data with data from previous non-pandemic years.

Figure 2: Total weekly counts of Emergency Department visits for pneumonia and influenza-like illness, which were subsequently admitted to a critical care ward, from January – August 2012 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.

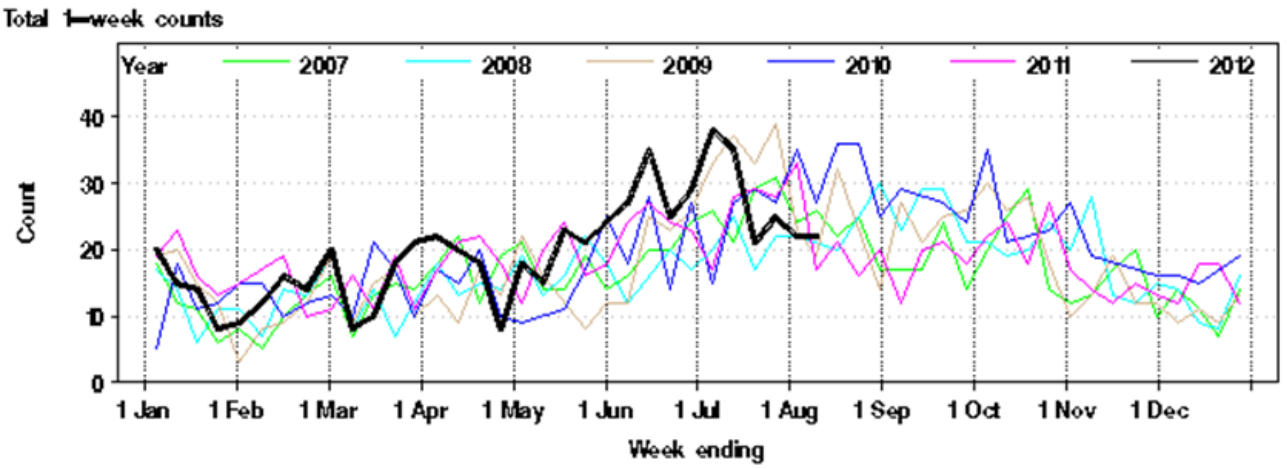


Table 1: Weekly Emergency Department and Ambulance Respiratory Activity Summary. Includes 59 NSW Emergency Departments (EDs) and Sydney Ambulance Division.

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, 59 NSW hospitals*	Influenza like illness (ILI)	Steady	Usual				
	Pneumonia	Increased	Usual	**65+ years**			The 65+ year age group was below this year's peak in July but increased again to a level above the usual range for this time of year.
	Pneumonia and ILI admissions	Increased	Usual				
	Pneumonia and ILI critical care admissions	Steady	Usual				
	Bronchiolitis	Slight increase	Usual				
	Respiratory, fever and unspecified infections	Steady	Usual	**65+ years**			The 65+ year age group was below this year's peak in July but remained above the usual range for this time of year.
	Asthma	Steady	Usual				
	Total presentations	Steady	Same as 2011				7% higher than 2011 in the 65+ year age group
Ambulance calls, Sydney region	Breathing problems	Increase	**Above**	**65+ years**			32% higher than usual in the 65+ age group, but below this year's peak in July.

Notes on Table 1:
(1) Statistically significant increases are shown in bold.
(2) This report summarises activity from 59 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 Intelligence.

3. Laboratory testing summary for influenza

For the week ending 10 August 2012:

- A total of 1622 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 2) with 16.1% testing positive for influenza.
- Influenza A: 199 specimens (12.1%) tested positive (Table 2, Figure 4). Of these:
  - 124 (62%) tested positive for influenza A(H3N2)
  - Two tested positive for influenza A(pH1N1). The remainder tested negative to influenza A(pH1N1) and are assumed to have been A(H3N2)
- Influenza B: 63 specimens (3.9%) tested positive (Table 2, Figure 4).
- The proportion of respiratory specimens positive for influenza A continues to decrease compared to previous weeks. However, influenza B activity doubled over the last week.

Influenza A(H3N2) continues to be the dominant respiratory virus identified by NSW sentinel laboratories.

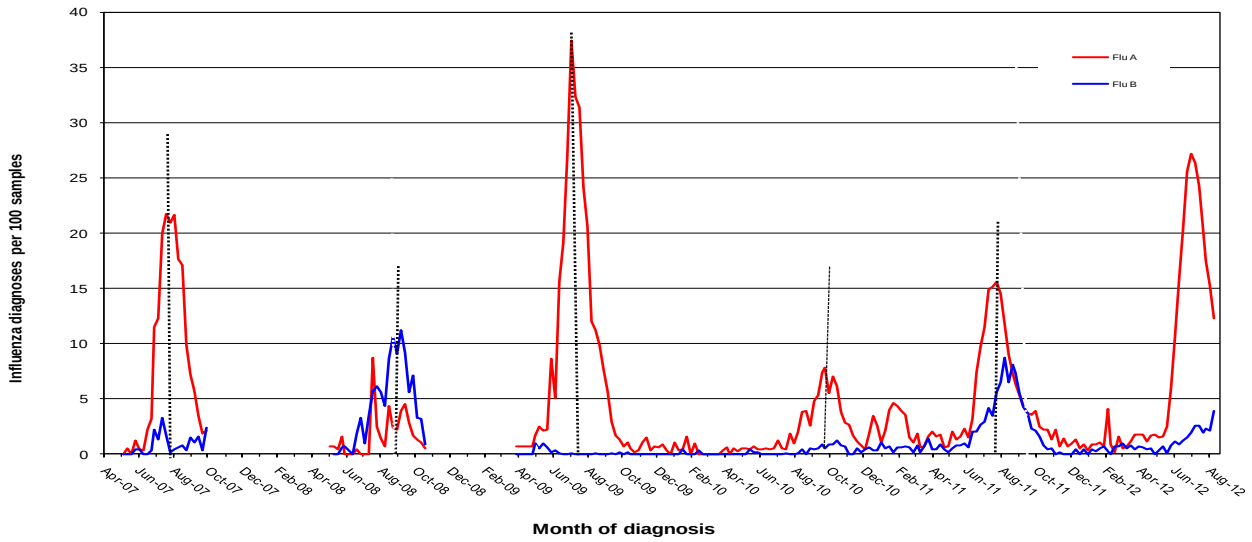
Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 10 August 2012.

Month ending	Total Tests	Influenza A		A(H3N2)		A(pH1N1)		Influenza B		Adeno.	Parainf. 1, 2 & 3	RSV	Rhino.	Entero.	HMPV**
		Total	(%)	Total	(% Flu A) *	Total	(% Flu A) *	Total	(%)						
27/01/2012	1617	14	(0.9%)	6	(42.9%)	4	(28.6%)	7	(0.4%)	37	60	38	119	64	36
02/03/2012*	2520	31	(1.2%)	12	(38.7%)	1	(3.2%)	15	(0.6%)	44	65	156	224	128	30
30/03/2012	2573	36	(1.4%)	25	(69.4%)	3	(8.3%)	16	(0.6%)	59	79	269	263	114	40
27/04/2012	2857	46	(1.6%)	31	(67.4%)	5	(10.9%)	11	(0.4%)	65	63	422	231	114	28
01/06/2012	4394	209	(4.8%)	166	(79.4%)	2	(1.0%)	30	(0.7%)	91	76	574	463	170	31
29/06/2012	5704	1316	(23.1%)	613	(46.6%)	2	(0.2%)	84	(1.5%)	96	68	558	535	16	53
27/07/2012	6818	1552	(22.8%)	982	(63.3%)	5	(0.3%)	159	(2.3%)	138	70	551	552	13	88
Week ending															
03/08/2012	1443	220	(15.2%)	143	(65.0%)	2	(0.9%)	31	(2.1%)	22	24	93	93	8	40
10/08/2012	1622	199	(12.3%)	124	(62.3%)	2	(1.0%)	63	(3.9%)	33	21	118	115	6	37

* Subset of influenza A positive tests; ** HMPV = Human metapneumovirus

Note: Data is provided by laboratories on a weekly basis. Includes point of care tests as of 10 August 2012. 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), Sydney South West Area Services (SSWPS), Pacific Laboratory Medicine Services (PaLMS), Royal Prince Alfred Hospital (RPAH), Hunter Area Pathology Service (HAPS), St Vincent's (SydPath) , Nepean, Douglas Hanley Moir (DHM) , VDRLab .

Figure 4: Percent of respiratory samples positive for influenza A or influenza B, 1 January 2007 – 10 August 2012, New South Wales.



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Laboratory-confirmed Influenza outbreaks in residential care facilities

There were three respiratory outbreaks in residential care facilities reported this week associated with influenza A.

In the year to date (up to week ending 10 August), there have been 18 laboratory confirmed influenza A outbreaks in institutions reported to NSW Public Health Units (Table 3). All but one outbreak occurred in an aged care facility. At least 358 residents were reported to have had ILI symptoms and 39 required hospitalisation. Seventeen deaths in residents linked to the outbreaks have been reported, all of whom were noted to have other significant co-morbidities.

Table 3. Reported influenza outbreaks in NSW institutions, 2005-2012.

Year	2005	2006	2007	2008	2009	2010	2011	2012*
No. of outbreaks	5	2	25	9	1	2	4	21

*Preliminary data up to 10 August 2012. These data are subject to change as more information is obtained.

Respiratory outbreaks in aged care facilities were uncommon from 2009 to 2011, and this is thought to be due to the predominance of the influenza A(pH1N1) strain in these years, against which people in older age-groups appeared to have higher levels of protection.

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

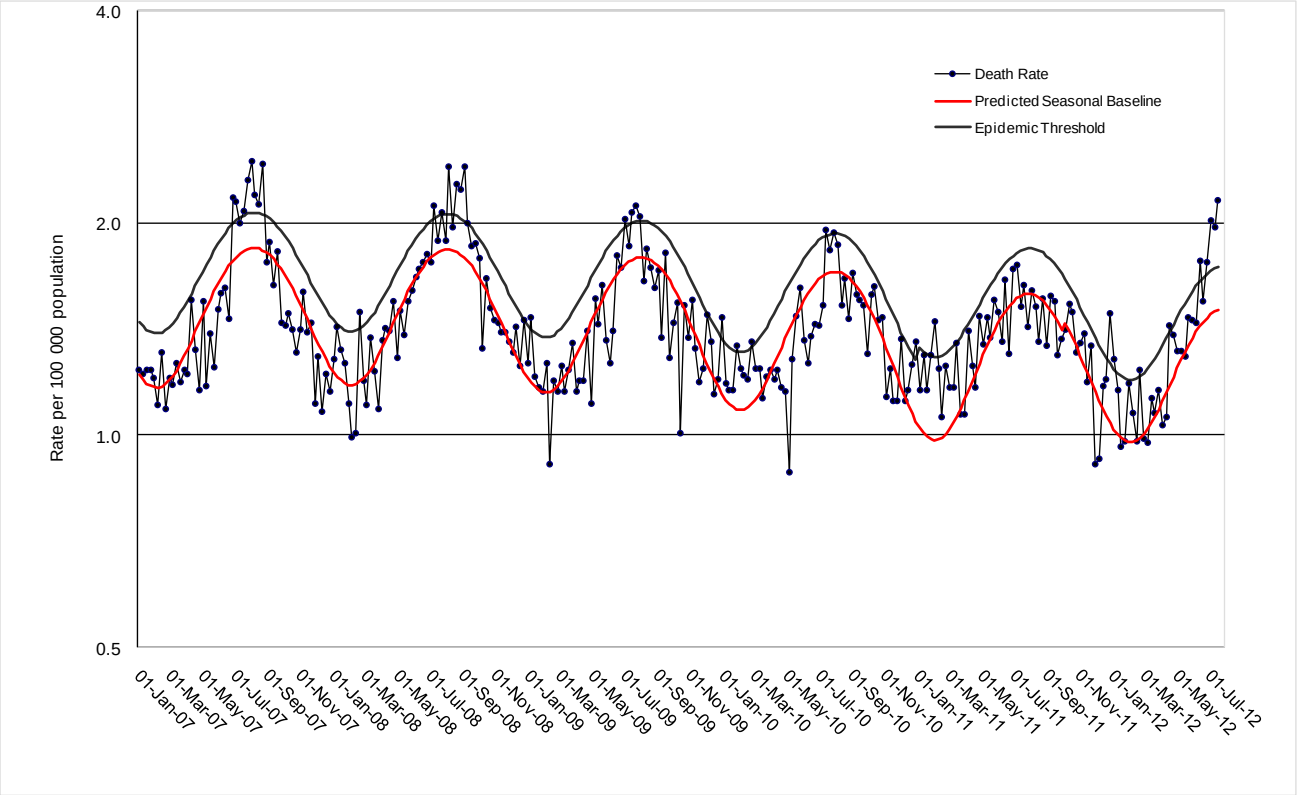
Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death.

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 20 July:

- There were 2.2 pneumonia or influenza deaths per 100,000 NSW population, which is well above the epidemic threshold of 1.7 per 100,000 population (Figure 5).*
- Between 1 and 20 July 2012, out of 3407 deaths there were 7 death certificates mentioning influenza, and 442 mentioning pneumonia. The majority of these influenza and pneumonia deaths were in persons aged >65 years.
- The updated data on pneumonia and influenza deaths indicates that the rate of deaths in this category was above the epidemic threshold for most of July. As expected, the increase in the death rate has mirrored the increases seen in laboratory isolations of influenza and Emergency Department ILI activity, but with a delay of one to two weeks.

Figure 5: Rate of deaths classified as influenza and pneumonia (by NSW Registered Death Certificates) per 100,000 NSW population, 2007 - 2012.



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 and Links

Novel Swine-Origin triple reassortant H3N2 viruses in the United States

On 3 August, the US CDC reported that multiple human infections with variant influenza A (H3N2v) viruses had been identified in three US states in recent weeks, bringing the total to 29 cases since it was first reported July 2011. A further 125 cases have since been reported, mainly from Indiana (see updated case counts at: http://www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm#table). Of note:

- This virus contains the matrix (M) gene segment from the pandemic 2009 H1N1 virus. This M gene may confer increased transmissibility to and among humans, compared to other variant influenza viruses.

- This virus type was first identified in a person in July 2011. Investigations into the human cases revealed infections with these viruses followed contact with swine as well as some limited human-to-human transmission.
- There is no evidence at this time that sustained human-to-human transmission is occurring.
- The severity of illnesses associated with this virus in people has been similar to the severity of illnesses associated with seasonal flu virus infections.
- Limited serologic studies indicate that adult age-groups have varying levels of cross-reactive immunity to this virus, while children have minimal evidence of protection.
- There have been no reports of this virus in Australia through human or animal surveillance.
- While the direct threat to Australia appears low, influenza reference laboratories in NSW and around the country are updating their testing capacity to detect this novel virus.
- All unusual and untypable influenza viruses should continue to be referred to influenza reference laboratories with relevant clinical and epidemiological data.

Australian Influenza Surveillance Reports:
http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-ozflu-2012.htm

World Health Organization Influenza Updates:
http://www.who.int/csr/disease/influenza/en/index.html

WHO Collaborating Centre for Reference and Research on Influenza (Melbourne):
http://www.influenzacentre.org/index.htm