Influenza Monthly Epidemiology Report, NSW

December 2012 (including a summary for the year 2012)

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

In December 2012:

- The rate of influenza like illness (ILI) presentations to selected emergency departments was low and was within the normal range expected for December.
- 19 cases with laboratory-confirmed influenza A (predominantly H3N2) and 4 cases with influenza B were identified by sentinel laboratories.
- Rhinovirus was the most common respiratory virus identified by sentinel laboratories.

From 1 January to 28 December 2012:

- ILI presentations to selected emergency departments remained low overall, but increased during the period June to September. During this period presentations were above the normal expected range with the exception of 2007.
- 4365 cases of laboratory confirmed influenza A were reported in NSW, of which 2518 (58%) were H3 and 59 (1%) were pH1N1. The remaining 1788 cases all tested negative to pH1N1 and were assumed to be due to A(H3).
- 1263 cases of influenza B were reported in NSW.
- At least 54 patients with confirmed influenza were admitted to intensive care units
- 30 deaths were reported in association with confirmed influenza, including four children.

2. Emergency Department (ED) presentations

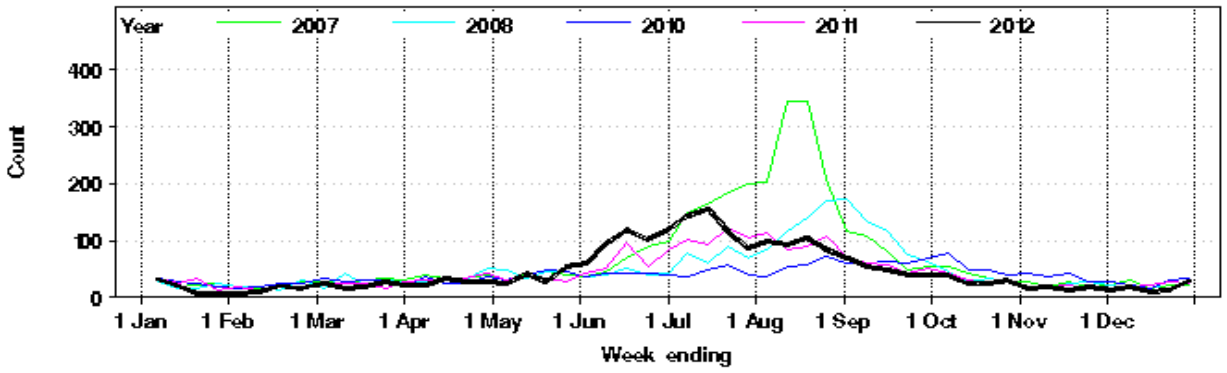
Data from 59 NSW emergency departments are included. Comparisons are made with data for the preceding six years. Recent counts are subject to change.

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 (Figure 1):

- In December 2012 there were 67 presentations with influenza-like illness (ILI) (rate 0.4 per 1,000 presentations). This is similar to the previous month and the historical average.
- For 2012, presentations to EDs for influenza-like illness were highest in mid July at around 130 presentations per week. ILI presentations were higher than the previous two years and similar to the peak in 2008 but lower than the peak in 2007.

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

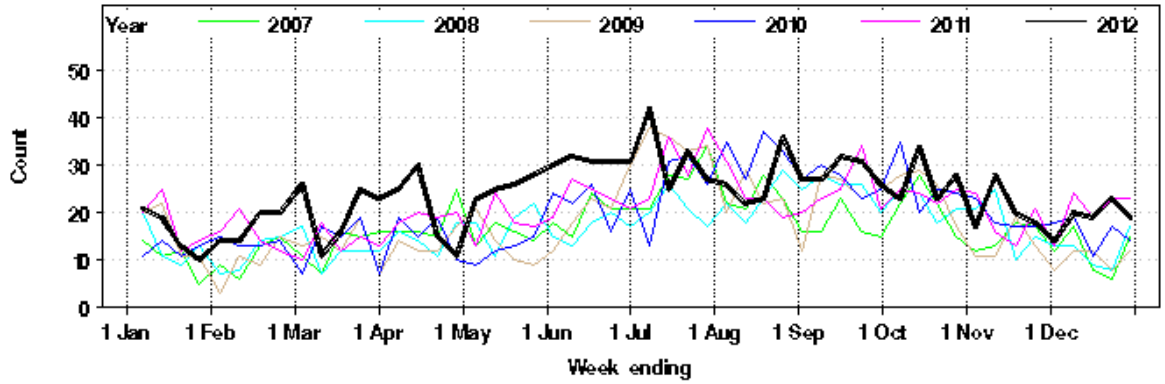


* Excludes 2009 data to enable comparison of 2012 data with data from previous non-pandemic years

Admissions to hospital critical care units from emergency departments for influenza-like illness (Figure 2):

- In December 2012, total admissions from ED to critical care units for influenza-like-illness were slightly higher than the usual range for this time of year.
- For 2012, critical care admissions from ED departments peaked in early July and overall throughout the year were above previous historical averages.

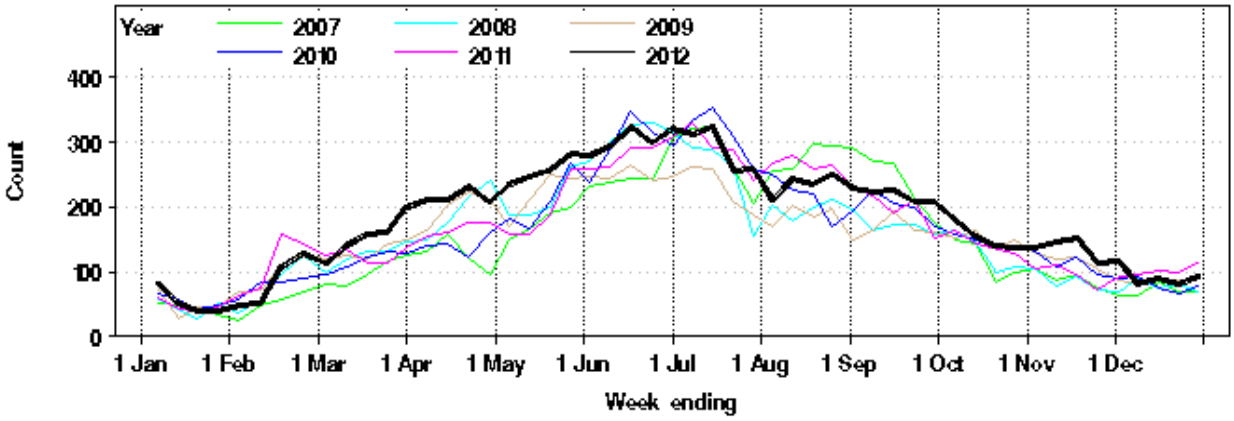
Figure 2: Total weekly counts of Emergency Department visits for pneumonia and influenza-like illness, which were subsequently admitted to a critical care ward, from January – December 2012 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.



Bronchiolitis presentations (Figure 3):

- In December 2012, total ED presentations for bronchiolitis were similar to the usual range for this time of year.
- For 2012, the number of presentations to EDs for bronchiolitis was highest in June and July, and remained within the usual range for the remainder of the year.

Figure 3: Total weekly counts of Emergency Department visits for bronchiolitis, from January – December 2012 (black line), compared with each of the 5 previous years (coloured lines), for 59 NSW hospitals.



3. Laboratory testing summary for influenza

In December 2012:

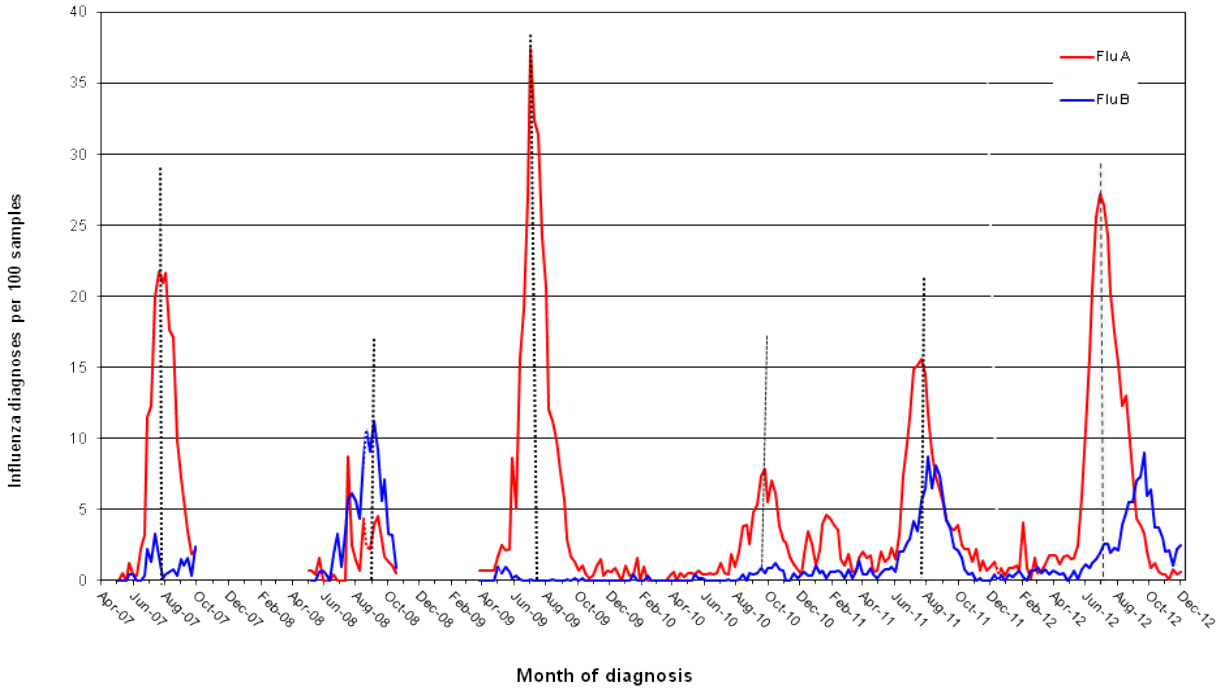
- 2206 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1)
- 25 specimens tested positive for influenza A – 11 of these have tested positive for A(H3N2), 13 tested positive for influenza A(pH1N1) and one sample was untyped. (Table 1, Figure 4).
- 20 cases of influenza B were reported. A small number of cases continue to occur in far north NSW (Table 1, Figure 4).

In December 2012, laboratory testing suggested influenza activity continued to decline and was circulating at low levels. A higher than usual number of case with influenza A(pH1N1) occurred, with the majority of these believed to have been associated with overseas travel. A small number of cases of influenza B continued to occur in far north NSW. Other respiratory viruses circulated at higher levels than influenza, including rhinovirus, parainfluenza, adenovirus, respiratory syncytial virus, and human metapneumovirus.

From 1 January to 28 December 2012:

- 48, 314 tests for respiratory viruses were performed at sentinel NSW public hospital and private laboratories (Table 1).
- 4365 tests were positive for influenza A and 1265 positive for influenza B (Table 1, Figure 4).
    - 2518 of the confirmed influenza A samples were positive for H3 and of these, 178 were further characterised as A/Victoria/361/2011-like.
    - 59 samples were positive for pH1N1 and of these, 5 were further characterised as A/California/7/2009-like.
    - 1788 samples were negative for pH1N1 and are assumed to be H3.
    - 55 confirmed influenza B samples were further characterised as 50 B/Brisbane/60/2008-like and 5 B/Wisconsin/1/2010-like.
- At least 54 patients with confirmed influenza were admitted to intensive care units (ICU)
- Thirty deaths were reported in association with confirmed influenza in NSW and four of these were in children.
- There were 44 respiratory outbreaks reported across NSW.
    - 34 were confirmed influenza outbreaks in aged care facilities.
    - 2 confirmed influenza outbreaks in military facilities.
    - 2 confirmed influenza outbreaks in residential intellectual disability care
    - 1 confirmed influenza outbreak in a hospital ward
    - 5 other respiratory outbreaks in aged care facilities (no virus identified)

Figure 4: Percent of laboratory tests positive for influenza A and influenza B, 1 January 2006 – 28 December 2012, New South Wales.



Notes

- 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), 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 .

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.

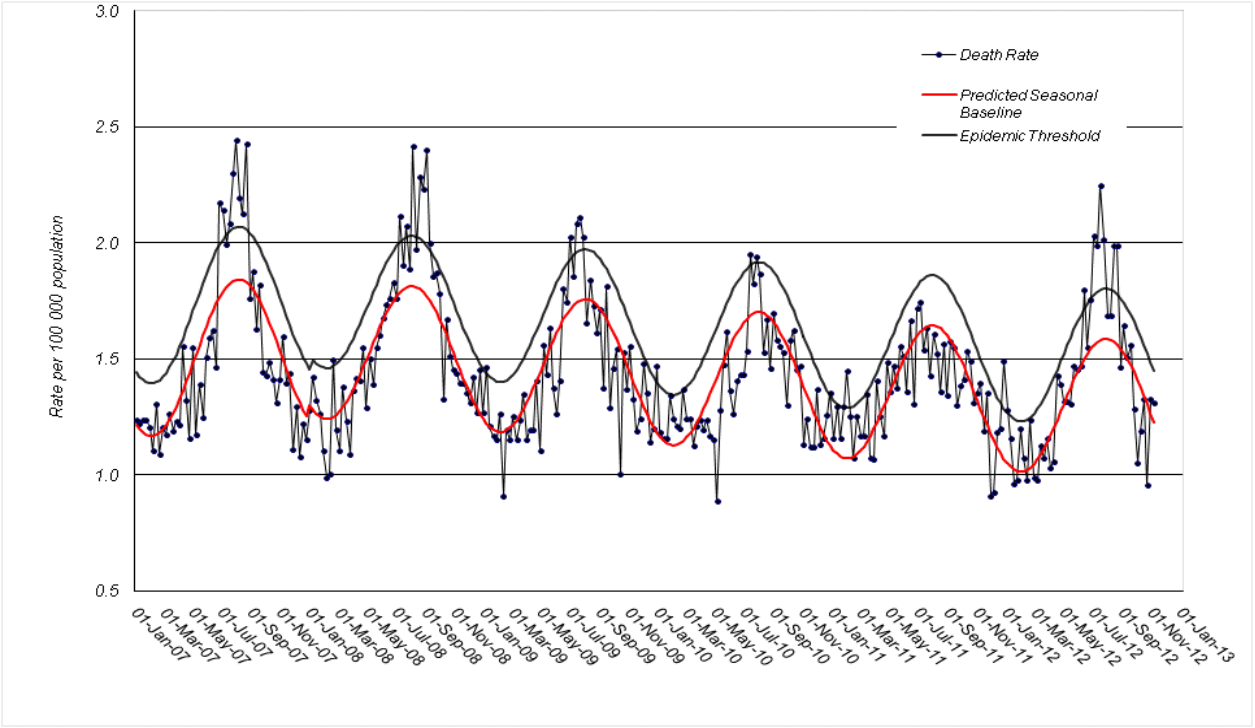
The predicted seasonal baseline estimates the predicted rate of influenza or pneumonia deaths in the absence of influenza epidemics. If deaths exceed the epidemic threshold, then it may be an indication that influenza is beginning to circulate widely.

For the week ending 28 December:

- There were 0.64 pneumonia or influenza deaths per 100,000 NSW population, which is below the epidemic threshold of 1.23 per 100,000 population (Figure 5).
- For 2012, out of 49,722 deaths there were 33 death certificates mentioning influenza, and 5,036 mentioning pneumonia. The majority of these influenza and pneumonia deaths were in persons aged greater than 65 years.
- The updated data on pneumonia and influenza deaths indicate 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 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:

- 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.
- 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.
- 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. Immunisation reporting from the NSW Population Health Survey 2010-2012

The New South Wales Population Health Survey (NSWPHS) is an ongoing telephone survey of state residents that is one of the main mechanisms through which NSW Health monitors population health and reports on performance indicators. Its objectives are to:

- monitor changes over time in self-reported health behaviours, health status, health service use, satisfaction with health services, and other factors that influence health;
- support the planning, implementation, and evaluation of health services;
- collect health information that is not available from other sources;
- respond quickly to emerging needs for health information

- promote research.

For 2012, results from the NSWPHS questions related to influenza vaccination are presented in Table 2, and indicate that influenza vaccine uptake:

- was highest among people aged 65 years and older
- has remained relatively constant over the three year period
- is usually highest during the months of June and July
- showed no clear rising trend in women in the 16-44 year age-group despite recommendations for pregnant women to be vaccinated.

6. 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-2012.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

Table 1: Summary of testing for respiratory viruses and influenza at NSW public hospital laboratories, 1 January to 28 December 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
31/08/2012*	7781	915	(11.8%)	556	(60.8%)	10	(1.1%)	344	(4.4%)	165	145	515	577	34	189
28/09/2012	5096	178	(3.5%)	94	(52.8%)	6	(3.4%)	373	(7.3%)	162	201	239	477	24	203
02/11/2012*	3920	29	(0.7%)	12	(41.4%)	4	(13.8%)	150	(3.8%)	139	256	108	475	16	154
30/11/2012*	2828	14	(0.5%)	10	(71.4%)	4	(28.6%)	56	(2.0%)	102	177	59	504	24	86
28/12/2012	2206	25	(1.1%)	11	(44.0%)	13	(52.0%)	20	(0.9%)	76	105	55	368	22	57
Week ending															
07/12/2012	512	5	(1.0%)	1	(20.0%)	4	(80.0%)	4	(0.8%)	9	31	13	105	7	10
14/12/2012	650	10	(1.5%)	5	(50.0%)	5	(50.0%)	4	(0.6%)	23	30	14	100	5	17
21/12/2012	586	6	(1.0%)	2	(33.3%)	3	(50.0%)	8	(1.4%)	26	28	15	93	6	19
28/12/2012	458	4	(0.9%)	3	(1.0%)	1	(25.0%)	4	(0.9%)	18	16	13	70	4	11

* Equals a five week period ** Subset of influenza A cases *** HMPV = Human metapneumovirus

Notes

- Data is provided by laboratories on a weekly basis.
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- 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 .

Table 2: NSW Population Health Survey – Respondents reporting vaccination against influenza in the past 12 months, by age, survey month and year, all persons, and females 16 – 44 years, NSW, Jul 2010 – Sep 2012.

Age (years)	2010	2010	2010	2011	2011	2011	2012	2012	2012
	Apr-May	Jun-Jul	Aug-Sep	Apr-May	Jun-Jul	Aug-Sep	Apr-May	Jun-Jul	Aug-Sep
	N=2322	N=1925	N=2241	N=2911	N=3032	N=2800	N=1047	N=1815	N=2272
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
0 - 15	14 (10-18)	13 (9 - 17)	12 (9 - 16)	23 (19 - 27)	17 (14 - 21)	15 (12 - 19)	10 (5 - 16)	13 (8 - 17)	10 (7 - 14)
16 - 44, all	21 (18-25)	18 (14 - 22)	21 (17 - 24)	25 (22 - 29)	28 (24 - 31)	25 (22 - 29)	21 (15 - 27)	21 (16 - 25)	22 (18 - 26)
16 - 44, female	23 (18-28)	20 (15 - 25)	22 (17 - 27)	25 (20 - 29)	29 (24 - 33)	23 (19 - 28)	24 (16 - 32)	19 (13 - 25)	26 (20 - 31)
45 - 64	36 (32-39)	34 (31 - 38)	35 (31 - 38)	38 (35 - 41)	35 (32 - 38)	37 (34 - 40)	34 (29 - 39)	33 (30 - 37)	36 (32 - 39)
65 & over	69 (66-72)	74 (70 - 77)	75 (71 - 78)	72 (69 - 75)	76 (73 - 79)	72 (69 - 75)	67 (62 - 72)	72 (69 - 76)	72 (69 - 76)
Total*	30 (28-33)	29 (27 - 31)	30 (28 - 32)	35 (33 - 37)	34 (32 - 37)	33 (31 - 35)	29 (25 - 33)	30 (27 - 33)	31 (28 - 33)

*Age-standardised to the NSW population in each year.

Source: New South Wales Population Health Survey. Centre for Epidemiology and Evidence. NSW Ministry of Health

Notes

- For the complete analysis, estimates were based on 23160 interviews conducted from July 2010 to September 2012 for April through to September.
- Estimates do not include respondents with 'Refused' response, 'Don't know' response or were 'Not asked' (1.32 % combined). Estimates for the current year do not include interviews conducted in languages other than English.
- The question used to define the indicator was 'Were you vaccinated or immunised against flu in the last 12 months?', therefore, some vaccinations may have occurred in the previous year.
- Estimates in the 'Total' category were age-standardised to the NSW population.
- From February 2011, the survey sample was chosen by selecting persons from households located in Local Health Districts. Previously, sampling was from Area Health Service regions.
- For further information on the NSW Population Health Survey and its methods see: http://www.health.nsw.gov.au/publichealth/surveys/phs.asp and http://www.health.nsw.gov.au/resources/publichealth/surveys/health_survey_method.asp.