

Influenza Surveillance Weekly Report

Week 19: May 6 to May 12, 2019

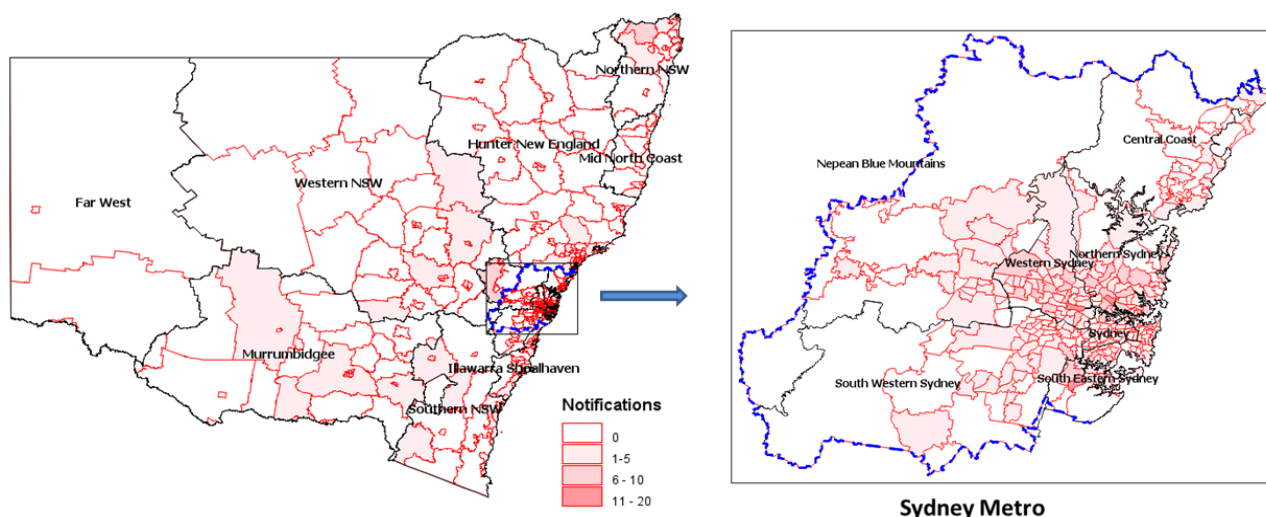
Key Points

- ▶ Influenza activity continued to be higher than expected across all NSW local health districts for this time of year, and is consistent with an early start to the 2019 influenza season.
- ▶ Respiratory presentations to NSW emergency departments increased and remain above the usual range.
- ▶ Influenza continued to circulate above the usual range seen for this time of year; influenza A strains predominated.

Activity compared to the previous week – NSW local health districts

Local Health District	Confirmed Influenza		NSW Emergency Departments (60) All Respiratory/Fever/Unspecified infections		
	Cases	Trend ¹	Presentations	Trend ¹	% of LHD ED presentations ²
Central Coast	21	▶	322	▶	13%
Far West	0	▶	24	▶	7%
Hunter New England	66	▶	696	▶	11%
Illawarra Shoalhaven	32	▶	352	▲	13%
Mid North Coast	4	▶	224	▶	11%
Murrumbidgee	23	▶	247	▶	13%
Nepean Blue Mountains	52	▶	228	▶	12%
Northern NSW	35	▶	193	▶	9%
Northern Sydney	158	▲	514	▲	13%
South Eastern Sydney	120	▶	774	▶	13%
South Western Sydney	54	▶	807	▶	14%
Southern NSW	5	▶	197	▶	13%
Sydney	93	▶	411	▶	13%
Western NSW	22	▶	284	▶	12%
Western Sydney	192	▲	855	▲	17%
New South Wales	856	▶	6128	▶	13%

Confirmed influenza by NSW local health district and local area (SA2)³



Summary for this reporting week:

- ▶ [Hospital surveillance](#) – ILI presentations to EDs were above the seasonal threshold
- ▶ [Laboratory surveillance](#) – the influenza laboratory test positive rate was higher (10.8%)
Influenza A strains remained more common than B strains
- ▶ [Community surveillance](#) – influenza activity was above the usual range across all LHDs
- ▶ [National surveillance](#) – high influenza activity nationally for this time of year

Hospital Surveillance

NSW emergency department (ED) presentations for respiratory illness

Source: PHREDSS⁴

For the week ending May 12, 2019:

- The daily index of increase for *influenza-like illness* (ILI)⁵ presentations across NSW decreased to 17.4 (down from 18.6 last week) but remains above the seasonal threshold of 15.
- Presentations for *All respiratory illness, fever and unspecified infections* increased and were above the usual range for this time of year (Figure 1, Table 1). Presentations were significantly elevated in people aged 17 - 64 years and in Western Sydney and South Western Sydney local health districts (LHD).
- The proportion of *All respiratory illness, fever and unspecified infections* presentations to all unplanned ED presentations was low at 12.8 per 100 presentations and steady.
- ILI presentations resulting in admission remained steady but were above the usual range for this time of year (Figure 2, Table 1).
- Both ED presentations and admissions for *pneumonia* decreased but both remain above the usual range for this time of year (Table 1).
- *Pneumonia* and ILI presentations requiring admission to critical care increased but were within the usual range for this time of year (Figure 3, Table 1).
- ED presentations for *Bronchiolitis* increased but were within the usual range for this time of year (Figure 4, Table 1).

Figure 1: Total weekly counts of ED visits for *All respiratory illness, fever and unspecified infections*, all ages, from January 1 – May 12, 2019 (black line), compared with the 5 previous years (coloured lines).

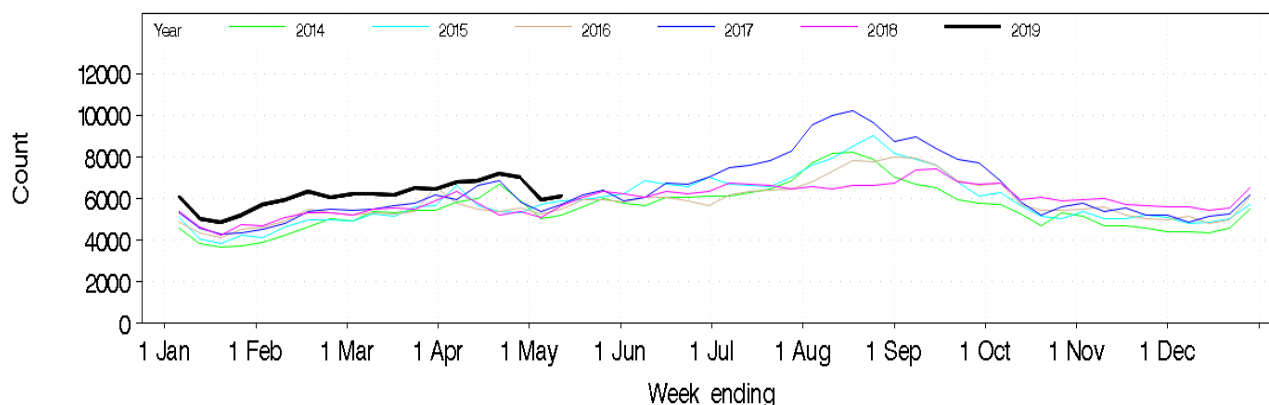


Figure 2: Total weekly counts of ED visits for *influenza-like-illness* that were admitted, all ages, from January 1 – May 12, 2019 (black line), compared with the 5 previous years (coloured lines).

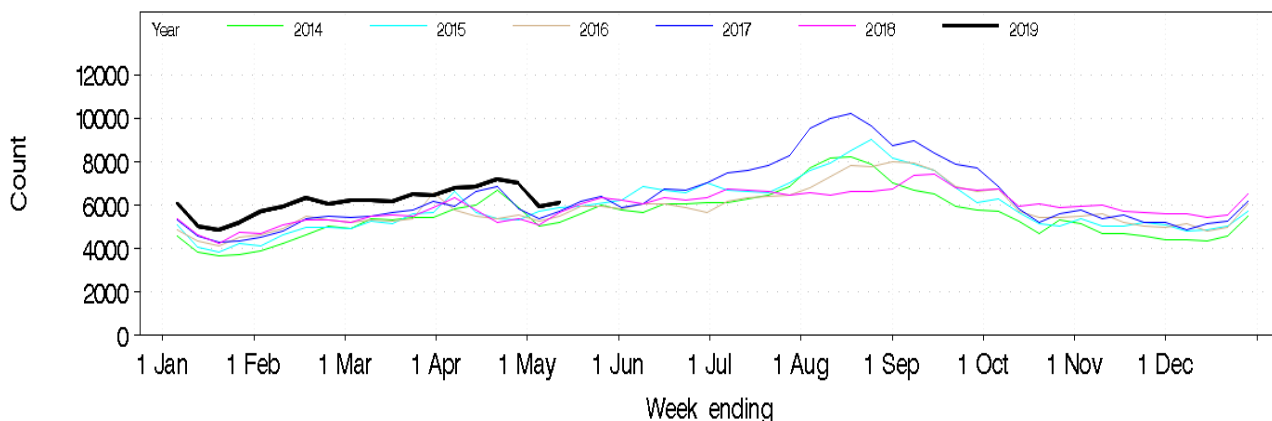


Figure 3: Total weekly of ED presentations for influenza-like illness and pneumonia, *that were admitted to a critical care ward*, all ages, from January 1 – May 12, 2019 (black line), compared with the 5 previous years (coloured lines).

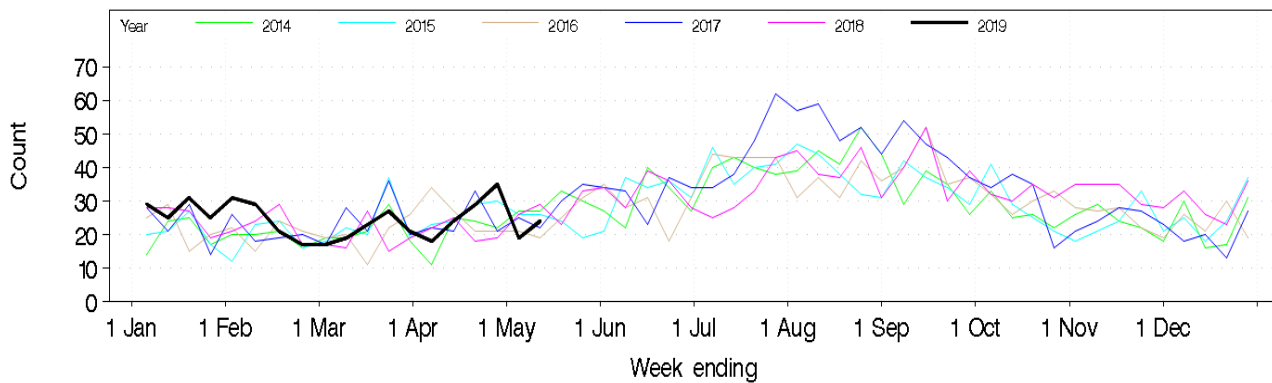


Figure 4: Total weekly counts of ED visits for *bronchiolitis*, all ages, from January 1 – May 12, 2019 (black line), compared with the 5 previous years (coloured lines).

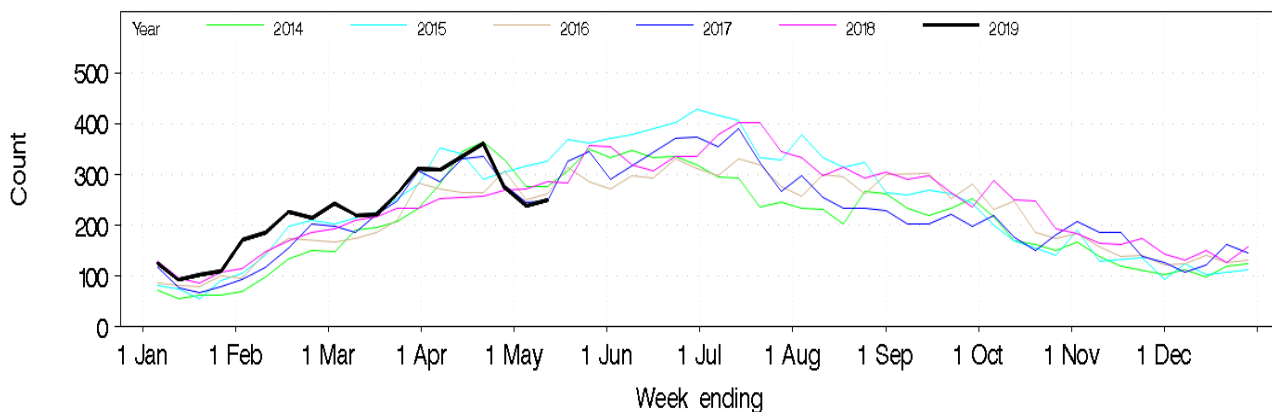


Table 1: Weekly emergency department respiratory illness summary, week ending May 12, 2019.

Data source	Diagnosis or problem category	Trend since last week	Comparison with usual range*	Significantly elevated age groups	Significant elevated severity indicators**	Comment
ED presentations 60 NSW hospitals	Influenza-like illness (ILI)	Decreased (108)	Above (23-53)	5-16 (17) 65+ (21) 17-34 (35) 0-4 (8)		The NSW daily index of increase for ILI presentations was 17.4.
	ILI admissions	Steady (24)	Above (1-9)	0-4 (3)		
	Pneumonia	Decreased (502)	Above (336-470)	17-34 (65)		
	Pneumonia admissions	Decreased (332)	Above (258-325)			
	Pneumonia and ILI critical care admissions	Increased (24)	Within (19-29)			
	Asthma	Increased (502)	Below (512-692)			
	Bronchiolitis	Increased (249)	Within (247-325)			Bronchiolitis is a disease of infants.
	All respiratory illness, fever and unspecified infections	Increased (6,124)	Above (5,195-5,878)	17-34 (825) 35-64 (1,019)		
Ambulance	Breathing problems	Decreased (2,014)	Above (1,530-1,925)	65+ years (1,119)		

Notes:*The usual range is the range of weekly counts for the same week in the previous five years for ED presentations and for ambulance Triple (000) calls.

Key for trend since last week: Non-bold and green=decreased or steady; Non-bold and orange=increased

Key for comparison with usual range: Non-bold and green =usual range; Non-bold and orange=above usual range, but not significantly above five-year mean; **Bold** and yellow=within usual range, but significantly above five-year mean; **Bold** and red = above the usual range and significantly above five-year mean (ED).

Counts are statistically significant (shown in bold) if they are at least five standard deviations above the five-year mean.

The 'daily index of increase' is statistically significant above a threshold of 15. LHD = Local Health District.

**Severity indicators include: Admission or admission to a critical care ward (CCW); Triage category 1; Ambulance arrival and Death in ED.

FluCAN (The Influenza Complications Alert Network)

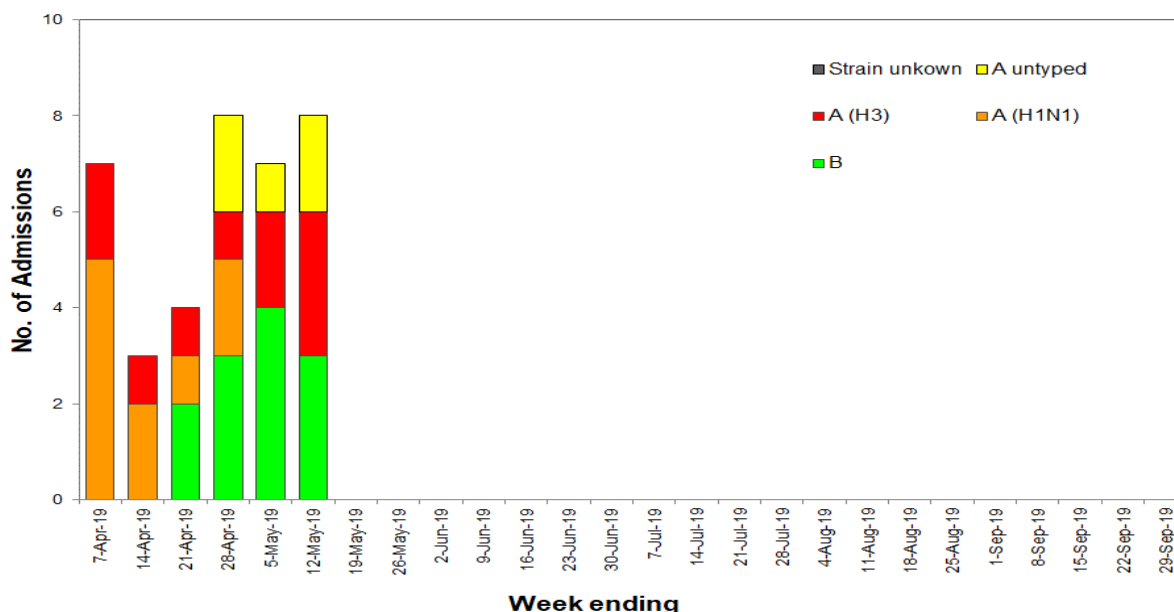
In 2009, the FluCAN surveillance system was created to be a rapid alert system for severe respiratory illness requiring hospitalisation. Data is provided on patients admitted with influenza confirmed by polymerase chain reaction (PCR) testing.

In NSW, three hospitals participate in providing weekly FluCAN data: Westmead Hospital, John Hunter Hospital and the Children's Hospital at Westmead.

During week 19 there were eight influenza admissions to NSW sentinel hospitals (Figure 5).

Since April 1, 2018, there have been 37 hospital admissions reported for influenza; 25 due to influenza A (including 10 A (H1N1) and 10 A (H3)) and 12 due to influenza B (Figure 5). Of these admissions, 33 were paediatric cases (<16 years of age) and four were in adults. No cases have been admitted to a critical care ward.

Figure 5: FluCAN – Confirmed influenza hospital admissions in NSW, April 1 – May 12, 2019.



Note: Admissions data are subject to change as new information is received.

Laboratory Surveillance

For the week ending May 12, 2019 the number and proportion of respiratory specimens reported by NSW sentinel laboratories ⁶ which tested positive for influenza A or influenza B was higher than expected for this time of year (Table 2, Figure 6).

Overall, 10.8% of tests for respiratory viruses were positive for influenza (Figure 6), higher than the previous week (9.2%) and already above the seasonal threshold (5%). Influenza A strains remained more common than B strains, with influenza A(H3N2) strains now more common than A(H1N1) strains (Table 2, Figures 6-7).

The influenza positive rate fell in the last two weeks of April after the unusually high influenza activity seen over summer. However, the recent rise in activity appears consistent with an early start to the 2019 influenza season.

Rhinovirus was again the most common respiratory virus identified, followed by influenza then respiratory syncytial virus (RSV), which is a common cause of bronchiolitis in infants (Table 2).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, January 1 to May 12, 2019.

Month ending	Total Tests	TEST RESULTS															
		Influenza A								Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Entero
		Total		H3N2		H1N1 pdm09		A (Not typed)		Total							
		Total	(%)	Total	(%A)	Total	(%A)	Total	(%A)	Total	(%)	Total	Total	Total	Total	Total	Total
3/02/2019*	23496	2055	(8.7%)	111	(5.4%)	161	(7.8%)	1777	(86.5%)	129	(0.5%)	730	902	920	3171	270	485
3/03/2019*	25351	2232	(8.8%)	144	(6.5%)	134	(6.0%)	1954	(87.5%)	145	(0.6%)	710	926	1448	5053	162	693
31/03/2019	31863	2664	(8.4%)	132	(5.0%)	198	(7.4%)	2334	(87.6%)	302	(0.9%)	967	1408	2583	5866	172	843
28/04/2019	34720	2957	(8.5%)	144	(4.9%)	158	(5.3%)	2652	(89.7%)	491	(1.4%)	1003	1422	3799	7148	208	1109
Week ending																	
5/05/2019	9906	700	(7.1%)	49	(7.0%)	24	(3.4%)	627	(89.6%)	208	(2.1%)	274	261	899	1531	51	225
12/05/2019	10336	815	(7.9%)	36	(4.4%)	17	(2.1%)	762	(93.5%)	297	(2.9%)	279	271	828	1703	54	232

Notes: * Five-week reporting period. ** Human metapneumovirus

Figure 6: Weekly influenza positive test results by type and sub-type reported by NSW sentinel laboratories, January 1 to May 12, 2019

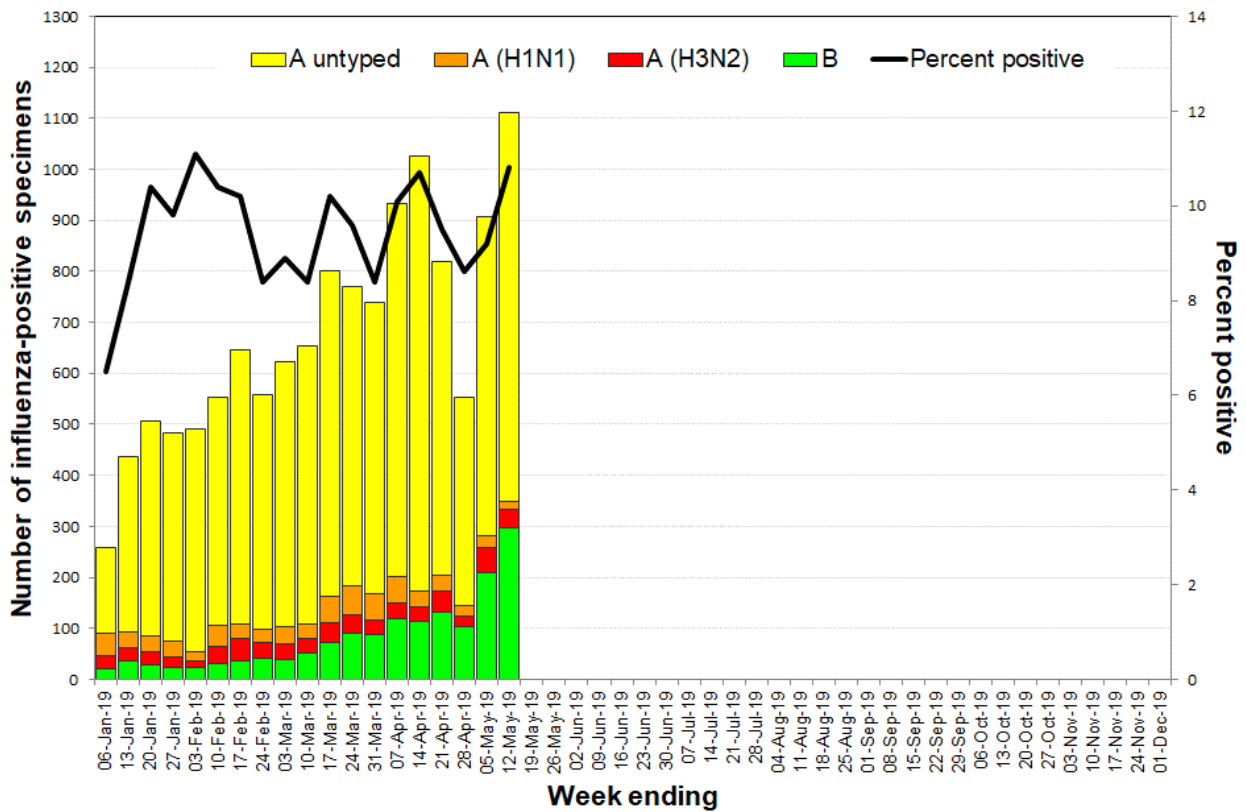
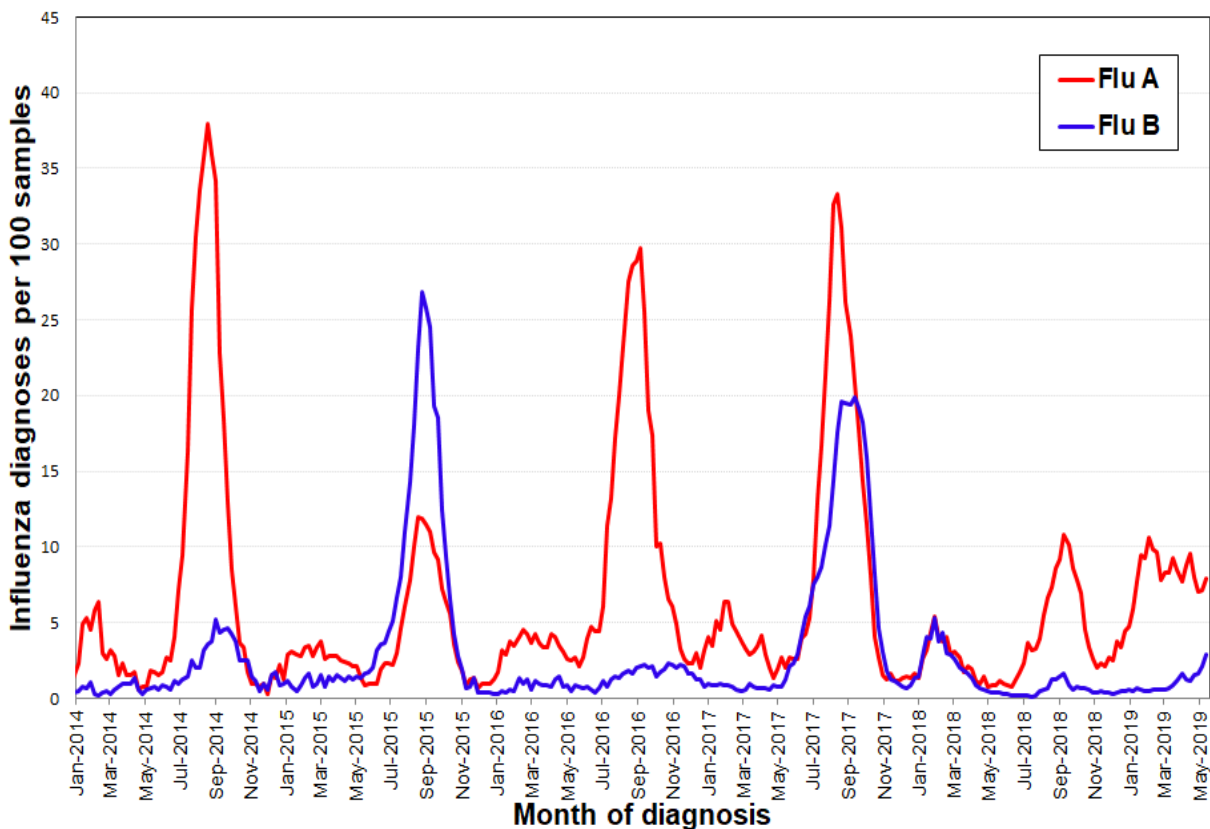


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, January 1 2013 to May 12, 2019, New South Wales.



Influenza notifications by Local Health District (LHD)

In the week ending May 12 there were 856 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 812 notifications reported in the previous week.

Influenza notification rates were elevated across the majority of NSW LHDs. Rates were highest in metropolitan NSW with Western and Northern Sydney having the highest rates overall (Table 3).

Table 3: Weekly notifications of laboratory-confirmed influenza by Local Health District.

Local Health District	Week ending 12 May 2019		Week ending 5 May 2019	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	21	6.03	27	7.75
Far West	0	0	5	16.63
Hunter New England	66	7	50	5.31
Illawarra Shoalhaven	32	7.69	29	6.97
Mid North Coast	4	1.79	5	2.24
Murrumbidgee	23	9.45	41	16.85
Nepean Blue	52	13.5	44	11.42
Northern NSW	35	11.4	31	10.1
Northern Sydney	158	16.71	125	13.22
South Eastern Sydney	120	12.66	107	11.29
South Western Sydney	54	5.29	85	8.33
Southern NSW	5	2.34	6	2.8
Sydney	93	13.54	66	9.61
Western NSW	22	7.76	22	7.76
Western Sydney	192	18.69	169	16.45

Notes: * All data are preliminary and may change as more notifications are received. Excludes notifications based on serology. For further information see the [influenza notifications data page](#).

Influenza outbreaks in institutions

There were three influenza outbreaks in institutions reported this week. All were in residential care facilities; two were due to influenza A and one was due to influenza B. In the year to date there have been 44 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including 34 in residential care facilities (Table 4, Figure 8). Forty-two of the outbreaks have been due to influenza A, one was due to influenza B and one involved both A and B strains.

In the 34 influenza outbreaks affecting residential care facilities, at least 159 residents were reported to have had ILI symptoms and 25 required hospitalisation. Overall, there have been nine deaths in residents reported which were linked to these outbreaks, all of whom were noted to have other significant co-morbidities.

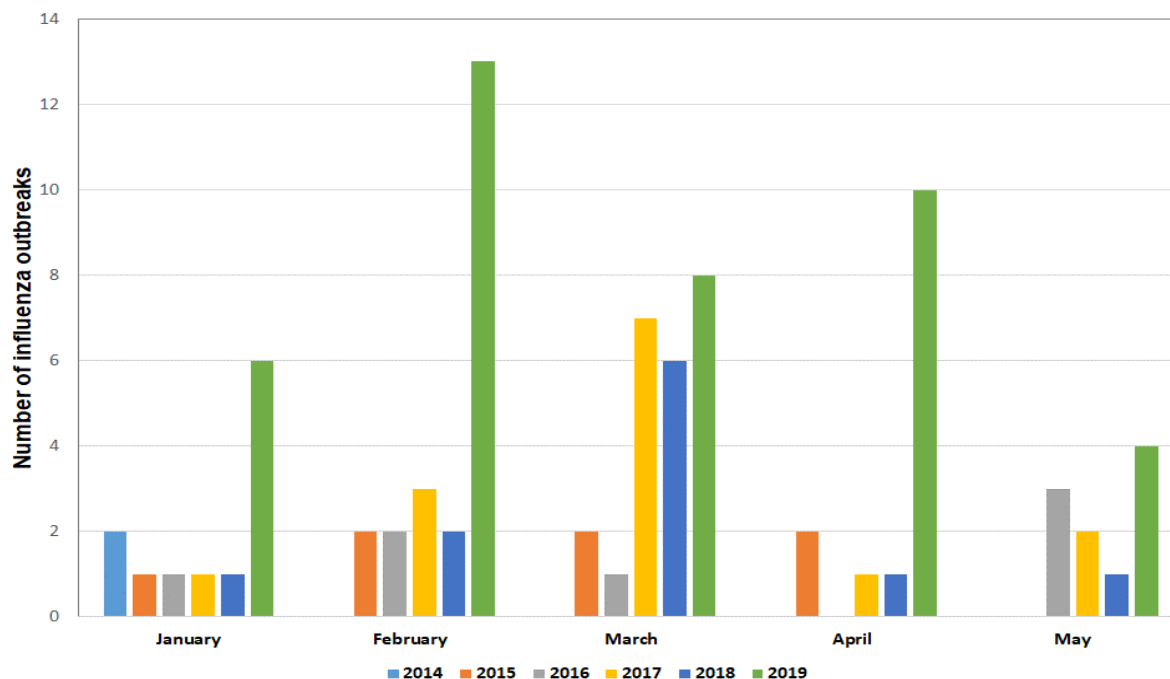
NSW public health units advise institutions on how to manage their influenza outbreaks. NSW Health also provides influenza antivirals to help control outbreaks when requested and appropriate. This week NSW Health provided 30 courses of oseltamivir to one institution with an influenza outbreak, and have provided 556 courses so far this year.

Table 4: Reported influenza outbreaks in NSW institutions, January 2012 to May 12, 2019.

Year	2012	2013	2014	2015	2016	2017	2018	2019*
No. of outbreaks	39	12	120	103	279	588	11	44

Notes: * Year to date.

Figure 8: Reported influenza outbreaks in NSW residential care facilities by month, 2014 to May 12, 2019.



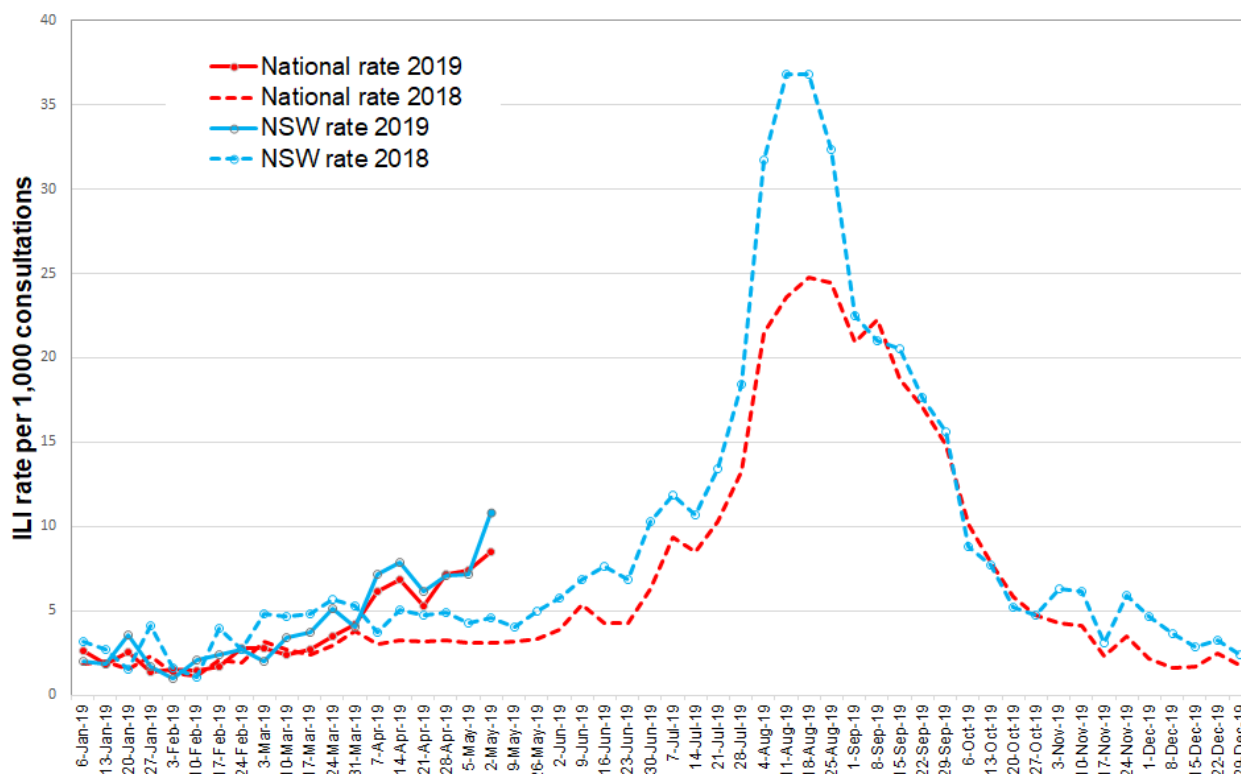
The Australian Sentinel Practices Research Network (ASPREN)

ASPREN is a network of sentinel general practitioners (GPs) run through the Royal Australian College of General Practitioners and the University of Adelaide which has collected de-identified information on influenza-like illness (ILI) and other conditions seen in general practice since 1991.

Participating GPs in the program report on the proportion of patients presenting with an ILI. The number of GPs participating on a weekly basis may vary.

In week 19 there were ASPREN reports received from 70 NSW GPs. The reported consultation rate for ILI per 1000 consultations was increased at 10.84 (Figure 9), higher than for the previous week (7.16) and higher than usual for this time of year. For further information see the [ASPREN website](#).

Figure 9: ASPREN – NSW and National GP ILI rates per 1000 consultations – 2019 to the week ending May 12, compared to 2018 weekly rates.



FluTracking.net

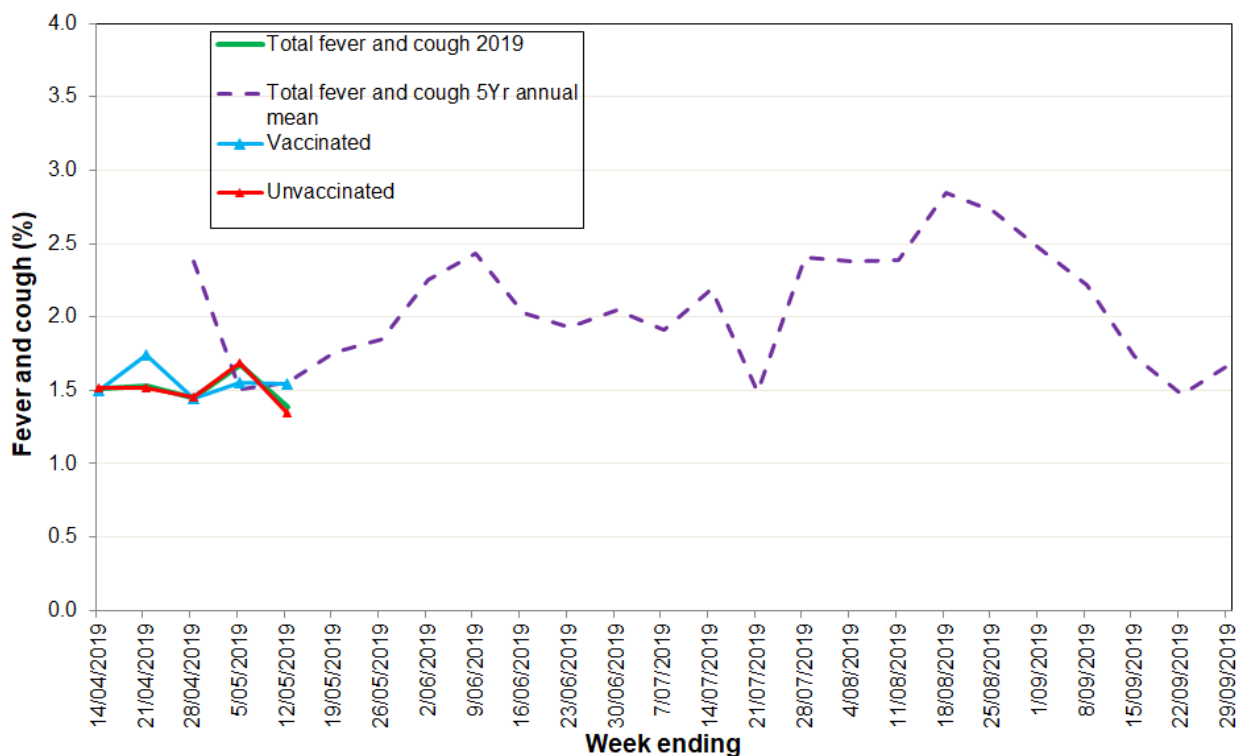
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

Participants complete a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

In week 19 FluTracking received reports for 13,194 people in NSW with the following results:

- 1.4% of respondents reported fever and cough, lower than the previous week (1.7%) but higher than the five year annual mean (1.1%) (Figure 10).
- Among respondents who reported being vaccinated for influenza in 2019, 1.5% reported fever and cough compared to the 1.3% rate reported among unvaccinated respondents (Figure 10).
- 0.8% of respondents reported fever, cough and absence from normal duties, lower than the previous week (1.1%).

Figure 10: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status and week, 2019 to the week ending May 12, 2019 compared to the 5 year mean.



Notes: Participants are not considered vaccinated until at least two weeks has elapsed since their recorded time of vaccination.

For further information on the project and how to participate, please see the [FluTracking](#) website.

Government-funded vaccine distribution

NSW Health commenced distributing National Immunisation Program and NSW Government Program influenza vaccines on April 1 2019. National Immunisation Program (NIP) vaccines include vaccines for people aged 65 years and over, pregnant women, Aboriginal people aged 6 months and over, and people 6 months and over with medical conditions pre-disposing them to severe influenza. NSW Government Program vaccines are for health care workers in NSW Health facilities and all children from 6 months to under 5 years of age not covered under the NIP.

As of May 12, 1.3 million doses had been distributed to general practitioners, Aboriginal medical services, hospitals, aged care facilities, and childhood vaccination clinics across NSW.

For more information about the 2019 Influenza Vaccination Program see: <https://www.health.nsw.gov.au/immunisation/Pages/flu.aspx>.

National and International Influenza Surveillance

National Influenza Surveillance

The fortnightly *Australian Surveillance Report No.1*, with data up to May 5 2019, noted the following:

- **Activity** – Currently, influenza and influenza-like illness (ILI) activity are high for this time of year compared to previous years. At the national level, notifications of laboratory-confirmed influenza have decreased in the past fortnight, however it is likely these figures will be revised

upwards due to backlogs in data entry. Influenza A was the most common respiratory virus detected in patients presenting with ILI to sentinel general practices this fortnight.

- **Severity** – There is no indication of the potential severity of the 2019 season at this time.
- **Impact** – There is no indication of the potential severity of the 2019 season at this time.
- **Virology** – In the year to date and in the past fortnight, the majority of confirmed influenza cases reported nationally were influenza A (93%). Where subtyping data were available, influenza A(H3N2) was the dominant influenza A subtype in the past fortnight.

For further information see the [Australian Influenza Surveillance Reports](#).

Global Influenza Update

The latest [WHO global update on 13 May 2019](#) provides data up to 28 April. In the temperate zone of the northern hemisphere influenza activity decreased overall.

- In North America and Europe, influenza activity was low overall.
- In North Africa, influenza detections were low across reporting countries.
- In Western Asia, influenza activity decreased overall, with exception of Saudi Arabia where activity remained elevated.
- In East Asia, although decreasing influenza activity was reported in some countries, and in Southern Asia, influenza activity was low overall.
- In the Caribbean, Central American countries, and the tropical countries of South America, influenza and RSV activity were low in general.
- In West and Middle Africa, influenza activity was low across reporting countries. Influenza activity continued to be reported from Eastern Africa although in decreasing trend with predominantly influenza A(H1N1)pdm09 followed by A(H3N2) detections.

In the temperate zones of the southern hemisphere, influenza detections increased in southern Australia and South Africa. The influenza activity in South America remained at inter-seasonal levels. Worldwide, seasonal influenza A viruses accounted for the majority of detections.

Follow the link for the [WHO influenza surveillance reports](#).

Influenza at the human-animal interface

WHO publishes regular updated risk assessments of human infections with avian and other non-seasonal influenza viruses at [Influenza at the human-animal interface](#), with the most recent report published on 9 April 2019. These reports provide information on human cases of infection with non-seasonal influenza viruses, such as H5 and H7 clade viruses, and outbreaks among animals.

Since the previous update, new human infections with avian influenza A(H7N9) and A(H9N2) viruses were reported. The overall risk assessment for these viruses remains unchanged.

Other sources of information on avian influenza and the risk of human infection include:

- US CDC [Avian influenza](#)
- European CDC (ECDC) [Avian influenza](#)
- Public Health Agency of Canada [Avian influenza H7N9](#).

Composition of influenza vaccines in 2019

WHO influenza vaccine strain recommendations – Southern Hemisphere, 2019

The WHO Consultation on the Composition of Influenza Vaccines for the 2019 Southern Hemisphere Influenza Season was held in Atlanta on 24-26 September 2018. The WHO recommendations for the composition of trivalent vaccines included changes in the influenza A(H3N2) component and the influenza B (Victoria lineage), as follows:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus
- an A/Switzerland/8060/2017 (H3N2)-like virus ¹
- a B/Colorado/06/2017-like virus (B/Victoria lineage) ²

It was recommended that quadrivalent vaccines also contain a second B component, a B/Phuket/3073/2013-like virus (B/Yamagata lineage)².

More details about the most recent influenza vaccine recommendations can be found at: http://www.who.int/influenza/vaccines/virus/recommendations/2019_south/en/.

Australian influenza vaccine strain recommendations – 2019 influenza season

While WHO makes recommendations for the influenza vaccine, it is up to national authorities to decide on the final composition for their individual countries.

The Australian Influenza Vaccine Committee (AIVC) recommendation for the Australian trivalent vaccine includes a B/Yamagata lineage virus (a B/Phuket/3073/2013-like virus), rather than a B/Victoria lineage virus. This is because in Australia, the vast majority of recently circulating influenza B viruses have been of the B/Yamagata lineage and few B/Victoria lineage viruses have been detected.

The Therapeutic Goods Administration (TGA) has accepted the [AIVC recommendations](#) for 2019.

Information on NSW seasonal influenza vaccination activities in 2019, including free vaccine for all children aged 6 months to less than 5 years can be found at:

<https://www.health.nsw.gov.au/immunisation/Pages/flu.aspx> .

WHO influenza vaccine strain recommendations – Northern Hemisphere, 2019-20

The WHO Consultation on the Composition of Influenza Vaccines for Use in the 2019-20 Northern Hemisphere Influenza Season was held in Beijing on 18-20 February 2019.

From this meeting it was recommended that egg based quadrivalent vaccines for use in the 2019-2020 northern hemisphere influenza season contain the following:

- an A/Brisbane/02/2018 (H1N1)pdm09-like virus;
- an A/Kansas/14/2017 (H3N2)-like virus;
- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage); and
- a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage).

¹ Replaces A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus used in the 2018 influenza vaccines.

² The B/Colorado/06/2017-like virus replaces the B/Brisbane/60/2008-like virus in the B/Victoria lineage. It is also now the preferred B strain component for 2019 Southern Hemisphere trivalent influenza vaccines, replacing the B/Yamagata lineage strain, B/Phuket.

The B/Phuket strain remains the recommended B/Yamagata lineage strain for 2019 quadrivalent vaccines.

It was also recommended that the influenza B virus component of trivalent vaccines for use in the 2019-2020 northern hemisphere influenza season should be a B/Colorado/06/2017-like virus of the B/Victoria/2/87-lineage.

In light of recent changes in the proportions of genetically and antigenically diverse A(H3N2) viruses, the recommendation for the A(H3N2) component was announced on 21 March. More details about the most recent influenza vaccine recommendations can be found at:

<http://www.who.int/influenza/vaccines/virus/en/> .

Report Notes:

¹ Notes for trend comparisons with the previous week:

		Trend in Cases	Trend in Presentations
▶	Stable	<10% change or <20 cases change	<10% change or <40 presentations change
▼	Decrease	10% or greater decrease	10% or greater decrease
▲	Increase	10-20% increase	10-20% increase
▲	Higher increase	>20% increase	>20% increase

² *All Respiratory, fever and unspecified infections* presentations as a percentage of all unplanned emergency department presentations in participating hospitals in the local health district.

³ NSW Local Health Districts and SA2: Influenza notification maps use NSW Local Health District Boundaries and Australian Bureau of Statistics (ABS) statistical area level 2 (SA2) of place of residence of cases are shown. Note that place of residence is used as a surrogate for place of acquisition for cases; the infection may have been acquired while the person was in another area.

⁴ NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance system, CEE, NSW Ministry of Health. Comparisons are made with data for the preceding 5 years. Includes unplanned presentations to 60 NSW emergency departments, which accounted for 83% of all NSW ED presentations in the 2016/2017 financial year. The coverage is lower in rural EDs. Data is continuously updated.

⁵ The ED 'ILI' syndrome includes provisional diagnoses selected by a clinician of 'influenza-like illness' or 'influenza' (including 'pneumonia with influenza'), avian and other new influenza viruses.

⁶ Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Point-of-care test results have been included since August 2012 but serological diagnoses are not included. Participating sentinel laboratories: Pathology North (Hunter, Royal North Shore Hospital), Pathology West (Nepean, Westmead), South Eastern Area Laboratory Services, Sydney South West Pathology Service (Liverpool, Royal Prince Alfred Hospital), The Children's Hospital at Westmead, Australian Clinical Labs, Douglas Hanly Moir Pathology, Laverty Pathology, Medlab, SydPath, VDRLab