

Influenza Surveillance Weekly Report

Week 40: 30 September to 6 October 2019

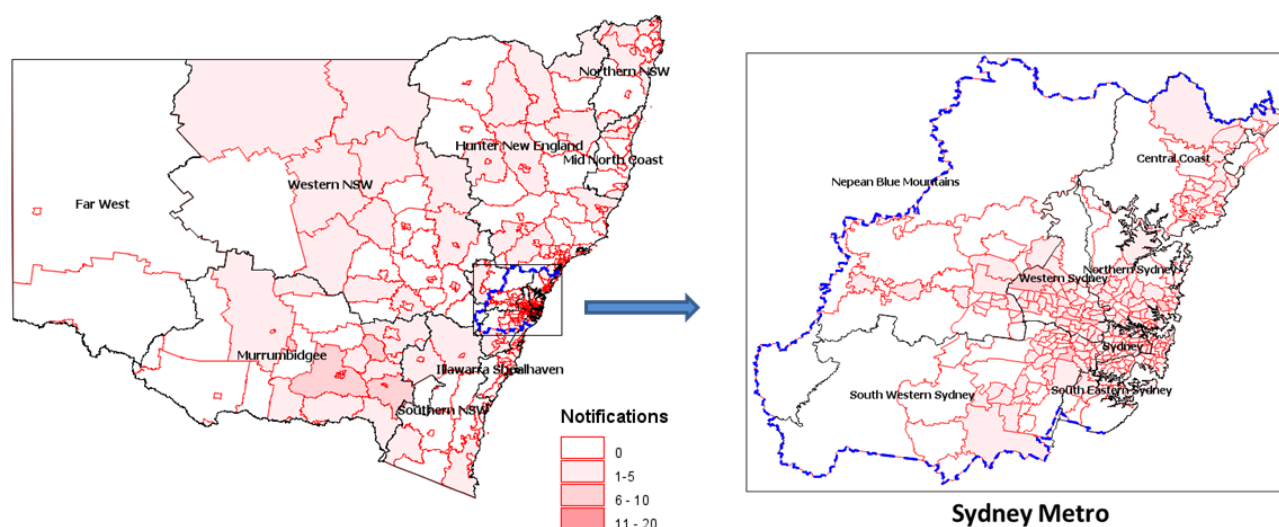
Key Points

- ▶ Influenza activity continues to decrease across NSW, consistent with the end of the winter influenza season in most areas and a return to inter-seasonal activity levels.
- ▶ Respiratory presentations to NSW emergency departments continue to decrease and are within the usual range for this period.
- ▶ Both influenza A and B strains continue to decline and the overall influenza positive test rate is approaching inter-seasonal levels.

Activity compared to the previous week – NSW local health districts

Local Health District	Confirmed Influenza Notifications		NSW Emergency Departments (67) <i>All Respiratory/Fever/Unspecified infections</i>		
	Cases	Trend ¹	Presentations	Trend ¹	% of LHD ED presentations ²
Central Coast	60	▶	375	▶	14%
Far West	0	▶	58	▶	13%
Hunter New England	80	▼	924	▶	14%
Illawarra Shoalhaven	51	▶	442	▶	14%
Mid North Coast	32	▶	308	▶	14%
Murrumbidgee	118	▶	321	▶	16%
Nepean Blue Mountains	43	▼	268	▶	13%
Northern NSW	37	▶	284	▶	13%
Northern Sydney	114	▼	516	▶	13%
South Eastern Sydney	111	▶	775	▶	13%
South Western Sydney	66	▶	855	▶	15%
Southern NSW	27	▶	253	▶	14%
Sydney	47	▼	408	▶	13%
Western NSW	41	▶	380	▶	15%
Western Sydney	103	▼	834	▶	16%
New South Wales	930	▼	7001	▶	14%

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



Summary for this reporting week:

- ▶ [Hospital surveillance](#) – ILI presentations to EDs decreased and are within the usual range for this time of year.
- ▶ [Laboratory surveillance](#) – overall respiratory testing and the influenza laboratory test positive rate (8.4%) both declined.
- ▶ [Community surveillance](#) – influenza activity decreased across the State. One outbreak was reported from a residential aged care facility.
- ▶ [Death surveillance](#) – eleven influenza deaths were reported. People who die with influenza may have other underlying illnesses, and surveillance captures only a proportion of people who die from influenza.
- ▶ [National surveillance](#) – declining influenza activity; overall clinical severity rated as low.
- ▶ [2020 Southern Hemisphere influenza vaccine announced](#) – three vaccine strain changes.

Hospital Surveillance

NSW emergency department (ED) presentations for respiratory illness

Source: PHREDSS⁴

For the week ending 6 October 2019:

- Presentations for *All respiratory illness, fever and unspecified infections* decreased further this week but were above the usual range for this time of year (Figure 1, Table 1).
- The daily index of increase for *influenza-like illness* (ILI)⁵ presentations across NSW decreased further this week to 5.1, down from 7.9 in the previous week.
- ILI presentations resulting in admission decreased further this week and were within the usual range for this time of year (Figure 2, Table 1).
- ED presentations and admissions for pneumonia increased but both were within the usual range for this time of year (Table 1).
- *Pneumonia and ILI* presentations requiring admission to critical care also increased but were below the usual range for this time of year (Figure 3, Table 1).
- ED presentations for *bronchiolitis* remained steady and were above 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, 1 January – 6 October 2019 (black line), compared with the 5 previous years (coloured lines).

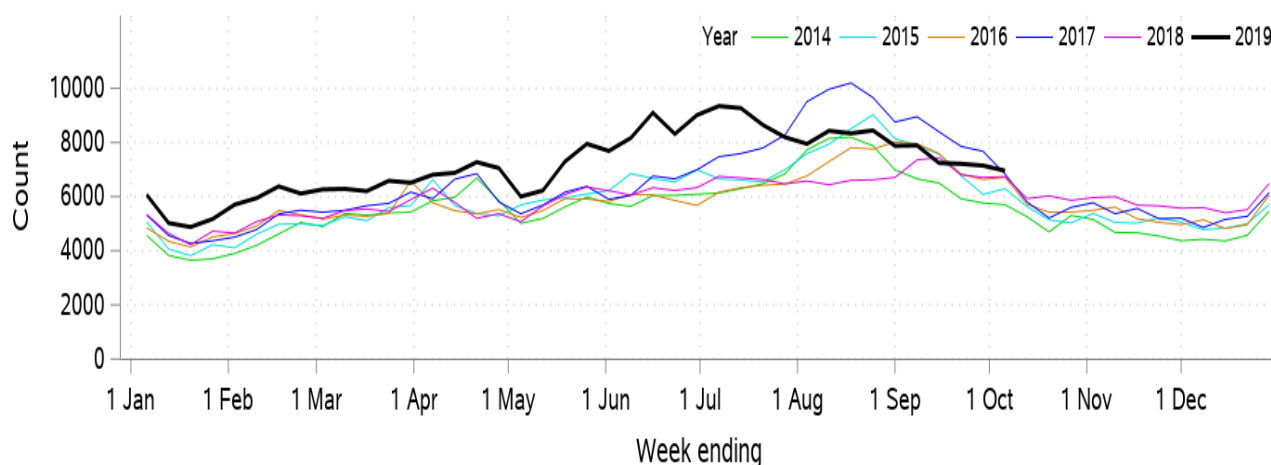


Figure 2: Total weekly counts of ED visits for *influenza-like-illness* that were admitted, all ages, 1 January – 6 October 2019 (black line), compared with the 5 previous years (coloured lines).

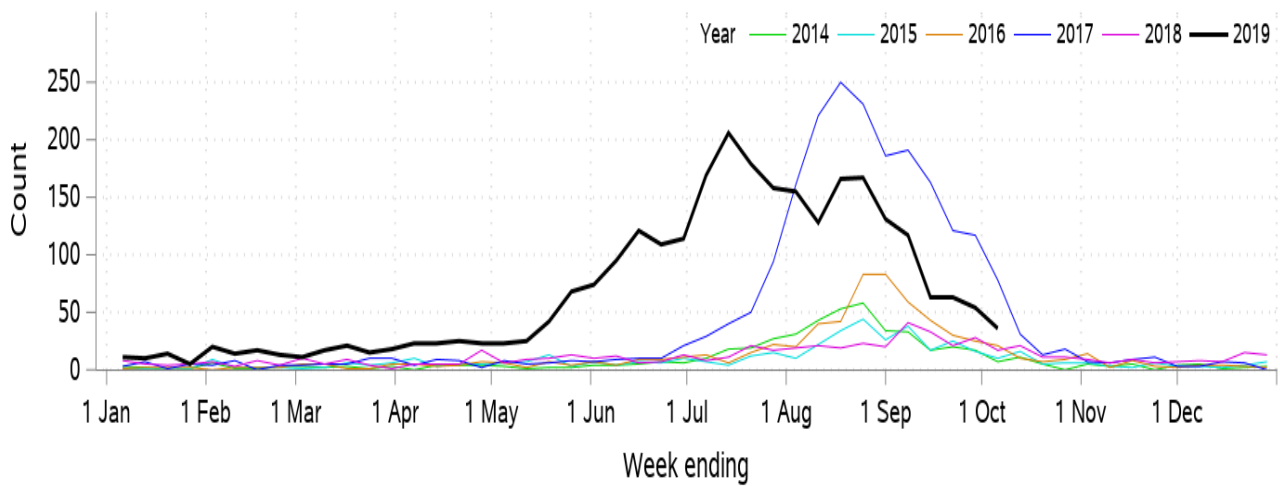


Figure 3: Total weekly counts of ED presentations for *influenza-like illness or pneumonia, that were admitted to a critical care ward*, all ages, 1 January – 6 October 2019 (black line), compared with the 5 previous years (coloured lines).

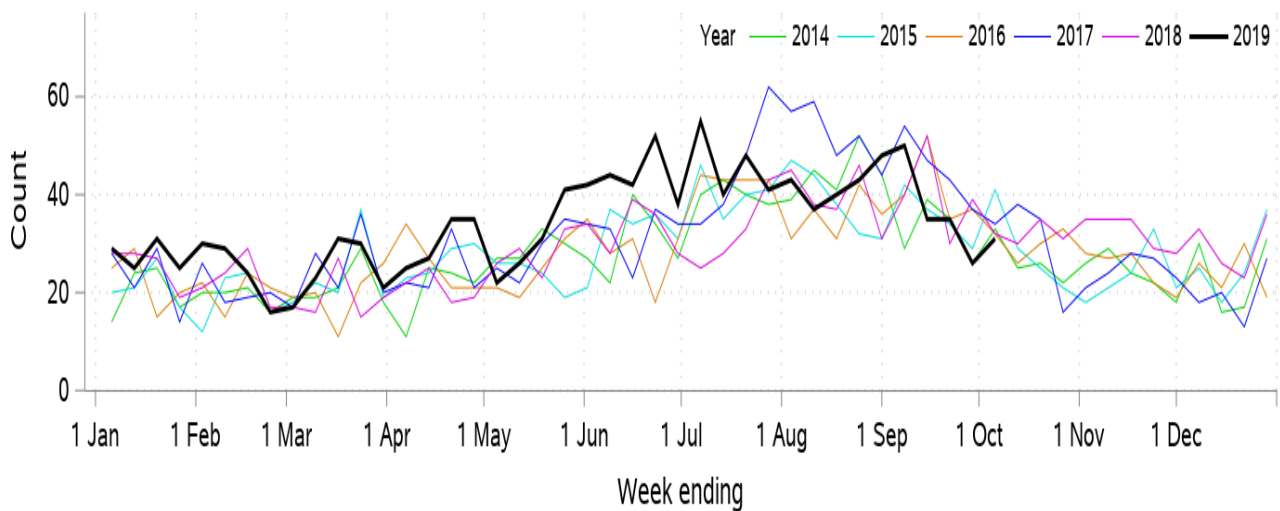


Figure 4: Total weekly counts of ED presentations for *bronchiolitis*, all ages, 1 January – 6 October 2019 (black line), compared with the 5 previous years (coloured lines).

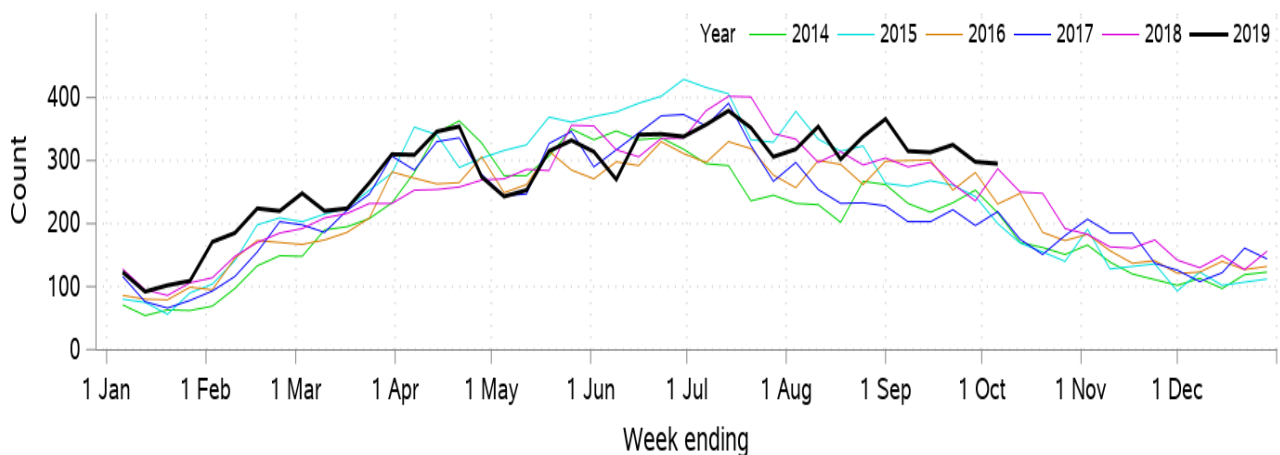


Table 1: Weekly emergency department respiratory illness summary, week ending 6 October 2019.⁶

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 (150)	Within (68–286)			The NSW daily index of increase for ILI presentations was (5.1).
	ILI admissions	Decreased (36)	Within (7–78)			
	Pneumonia	Increased (587)	Within (497–641)			
	Pneumonia admissions	Increased (423)	Within (358–480)			72% pneumonia admission rate
	Pneumonia and ILI critical care admissions	Increased (31)	Below (32–41)			
	Asthma	Decreased (341)	Below (346–449)			
	Bronchiolitis	Steady (295)	Above (200–287)			Bronchiolitis is a disease of infants.
	All respiratory illness, fever and unspecified infections	Decreased (6,957)	Above (5,700–6,834)	0-4 years (2427)		
Ambulance	Breathing problems	Increased (2,234)	Above (1,819–2,149)			

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.

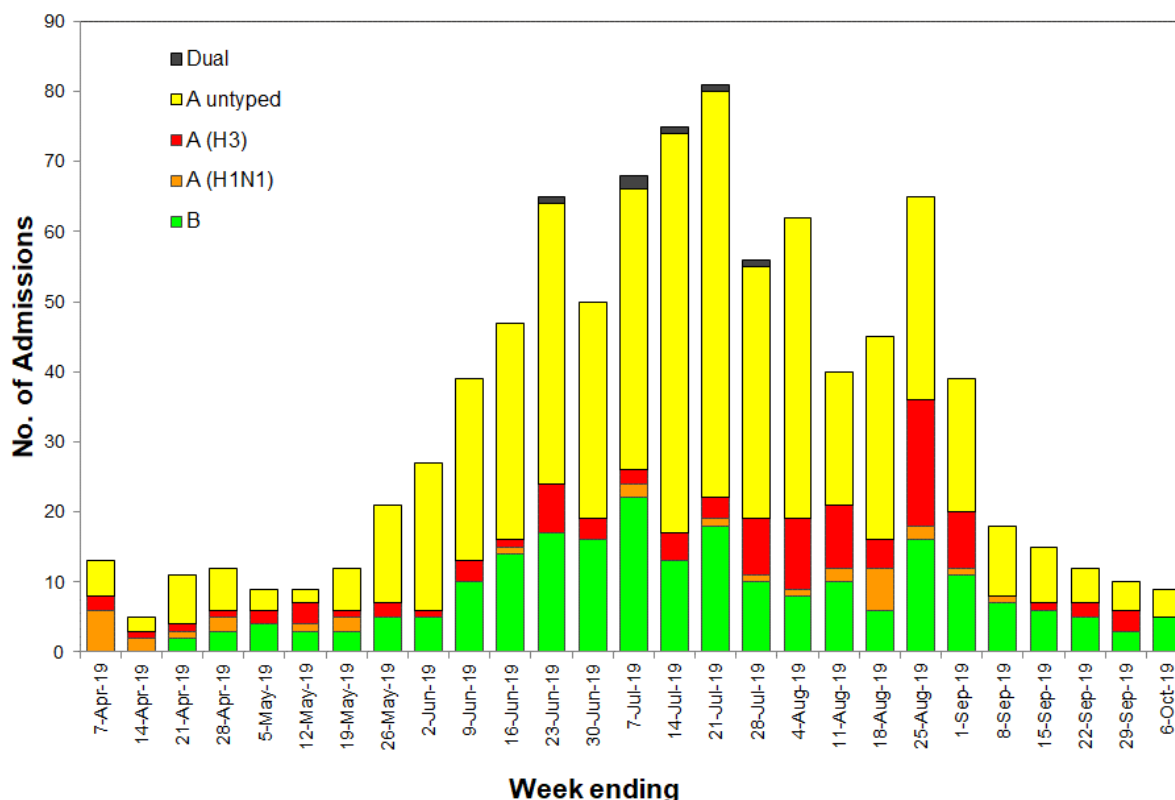
In NSW, three hospitals participate in providing weekly FluCAN data: Westmead Hospital, John Hunter Hospital and the Children’s Hospital at Westmead.

During week 40 there were nine influenza admissions to NSW sentinel hospitals, less than the previous week (10 admissions) and continuing a declining trend in admissions (Figure 5).

Since 1 April 2019, there have been 917 hospital admissions reported for influenza; 689 due to influenza A (including 32 A(H1N1) and 100 A(H3)), 222 due to influenza B and six due to dual infections and two unknown.

Of these admissions for influenza, 461 were paediatric cases (<16 years of age) and 456 were in adults. Fifty-seven adults and 15 children have been admitted to a critical care ward.

Figure 5: FluCAN – Confirmed influenza hospital admissions in NSW, 1 April – 6 October, 2019*.



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

Laboratory Surveillance

For the week ending 6 October 2019 the number and proportion of respiratory specimens reported by NSW sentinel laboratories⁷ which tested positive for influenza A or influenza B was again lower than the previous week (Table 2, Figure 6).

The total number of respiratory tests requested was lower than the previous week but testing levels remain higher than previous years. For the year up to week 40, there have been 570,595 respiratory virus tests, 124% more than for the same period in 2018 (254,285 tests).

Overall, 8.4 % of tests for respiratory viruses were positive for influenza (Figure 6), lower than the previous week (11.2%). Both influenza A and B strains are declining (Table 2, Figures 6-7).

Further characterisation was available for only 5.6% of influenza A strains, but this suggests that the influenza A(H3N2) strain was the predominant influenza A strain this week. Information on the lineage of influenza B strains is even less commonly available but indicate that B/Victoria continues to be the predominant B strain in the community.

Rhinovirus was the most common respiratory virus identified, followed by influenza, parainfluenza and Human metapneumoviruses (HMPV) (Table 2).

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 6 October 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%)	134	(5.0%)	202	(7.6%)	2328	(87.4%)	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
02/06/2019*	61942	6303	(10.2%)	265	(4.2%)	119	(1.9%)	5919	(93.9%)	2270	(3.7%)	1528	1337	4695	11729	312	1206
30/06/2019*	82219	15913	(19.4%)	530	(3.3%)	81	(0.5%)	15302	(90.0%)	6653	(8.1%)	1300	1023	4207	12526	214	662
04/08/2019*	127104	26862	(21.1%)	964	(3.6%)	198	(0.7%)	25700	(95.7%)	9460	(7.4%)	2080	1812	1818	13880	664	716
01/09/2019*	95125	16278	(17.1%)	873	(5.4%)	137	(0.8%)	15288	(93.9%)	7396	(7.8%)	2410	2411	3544	12485	1926	400
29/09/2019	74462	7401	(9.9%)	427	(5.8%)	74	(1.0%)	6956	(94.0%)	4513	(6.1%)	2317	4001	2688	10026	3291	429
Week ending																	
6/10/2019	13895	716	(5.2%)	35	(4.9%)	5	(0.7%)	676	(94.4%)	452	(3.3%)	533	914	463	1931	880	99

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

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

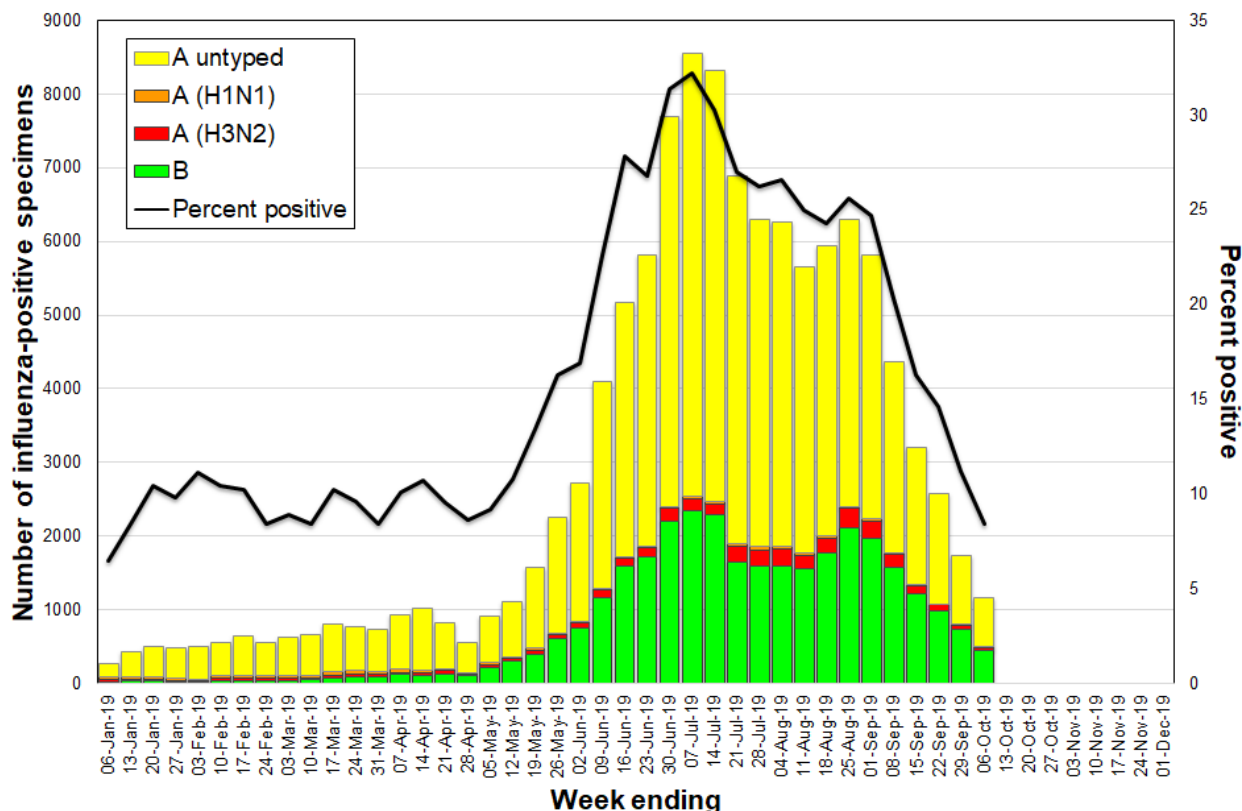
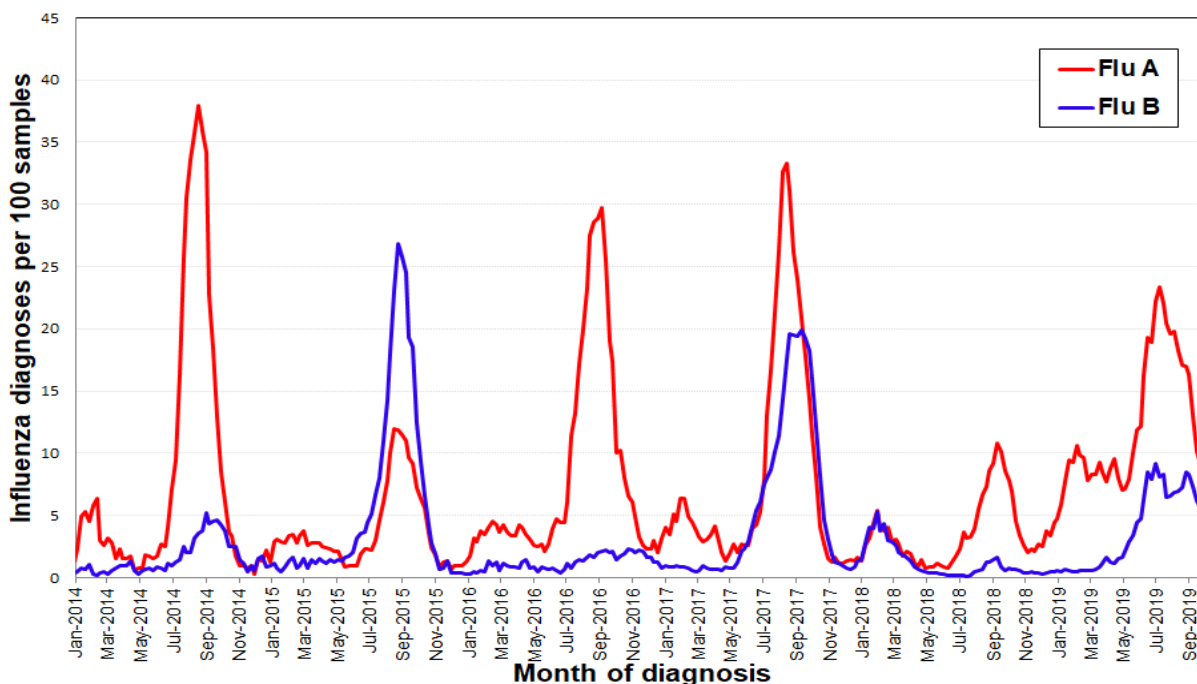


Figure 7: Percentage of laboratory tests positive for influenza A and influenza B by week, 1 January 2014 to 6 October 2019, New South Wales.



Community Surveillance

In the week ending 6 October there were 930 notifications of influenza, lower than the previous week (1,516, revised). There have been 111,453 influenza notifications so far this year.

Influenza notifications by Local Health District (LHD)

Influenza notifications and notification rates continued to decrease further across NSW districts. Notification rates remain highest although declining in Murrumbidgee LHD (Table 3).

Table 3: Weekly notifications of laboratory-confirmed influenza by local health district.*

Local Health District	Week ending 06 Oct 2019		Week ending 29 Sep 2019	
	Number of notifications	Rate per 100 000 population	Number of notifications	Rate per 100 000 population
Central Coast	60	17.22	80	22.96
Far West	0	0	2	6.65
Hunter New England	80	8.49	201	21.33
Illawarra Shoalhaven	51	12.26	74	17.78
Mid North Coast	32	14.33	44	19.7
Murrumbidgee	118	39.75	144	48.5
Nepean Blue Mountains	43	11.16	102	26.48
Northern NSW	37	12.06	54	17.6
Northern Sydney	114	12.06	203	21.47
South Eastern Sydney	111	11.71	129	13.61
South Western Sydney	66	6.47	88	8.63
Southern NSW	27	12.61	34	15.88
Sydney	47	6.84	113	16.46
Western NSW	41	14.46	80	28.21
Western Sydney	103	10.03	168	16.35

Notes: * All data are preliminary and subject to change. Significant delays in the registration of notifications may occur during the winter months. For further information see the [influenza notifications data page](#).

Influenza outbreaks in institutions

There were two influenza outbreaks in institutions reported this week. One was in a residential care facility and the other was in a hospital, Both were due to influenza A.

In the year to date there have been 438 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including 373 in residential care facilities (Table 4, Figure 8). There have been 411 outbreaks due to influenza A, 20 due to influenza B and seven involving both A and B strains.

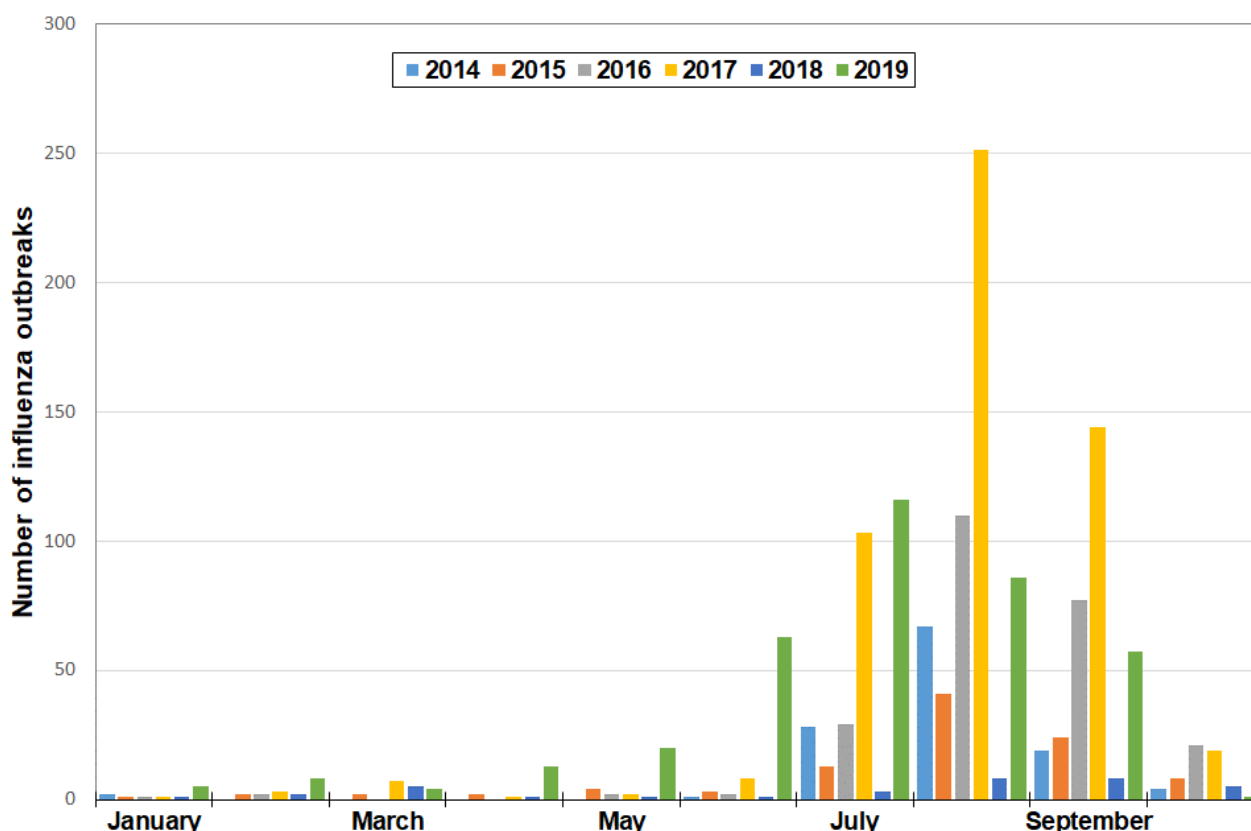
In the 373 influenza outbreaks affecting residential care facilities, at least 3835 residents were reported to have had ILI symptoms and 591 required hospitalisation. Overall, there have been 169 deaths¹ in residents reported which were linked to these outbreaks, all of whom were noted to have other significant co-morbidities.

Table 4: Reported influenza outbreaks in NSW residential care facilities, January 2014 to 6 October 2019.

Year	2014	2015	2016	2017	2018	2019*
Number of outbreaks	121	103	252	543	42	373

Note: * Year to date.

Figure 8: Reported influenza outbreaks in NSW residential care facilities by month, 2016 to 6 October 2019.



¹ Deaths associated with institutional outbreaks are also included in the [Deaths surveillance](#) section if laboratory-confirmed.

The Australian Sentinel Practices Research Network (ASPREN)

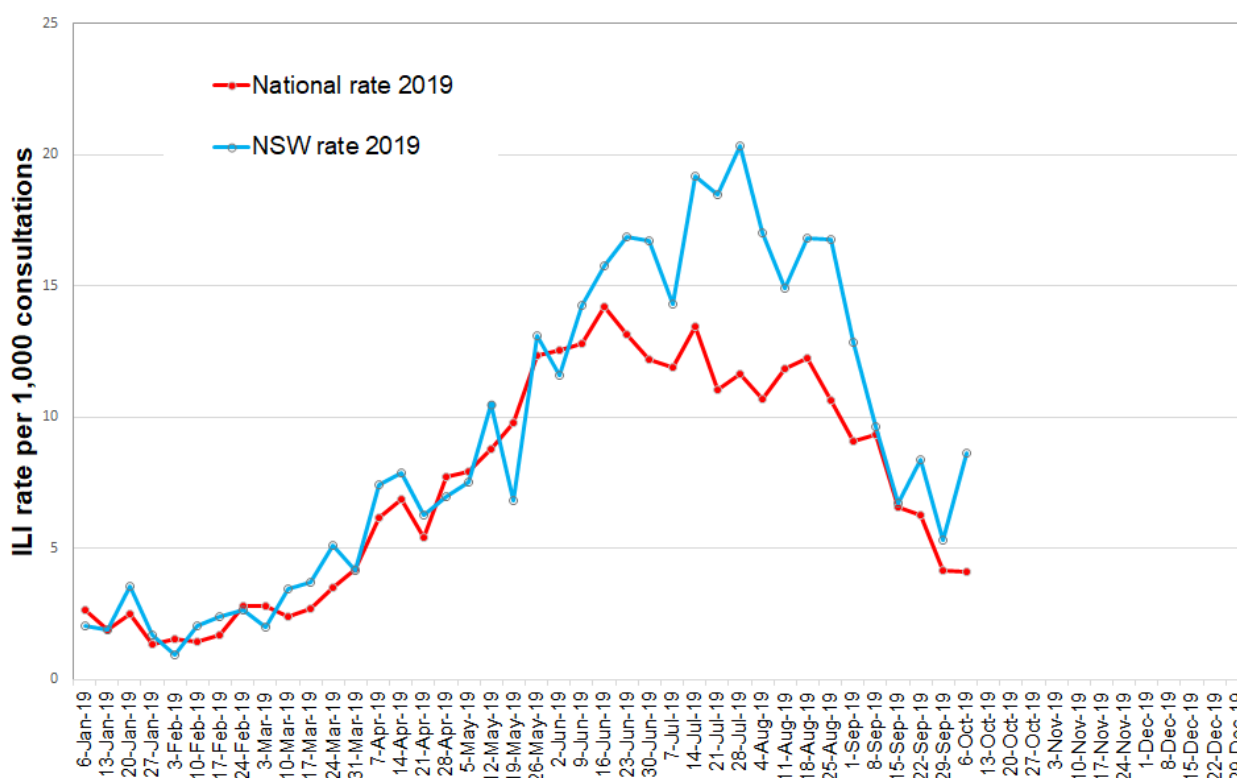
ASPREN is a network of sentinel general practitioners (GPs) run through the Royal Australian College of General Practitioners and the University of Adelaide which has collected de-identified information on influenza-like illness (ILI) and other conditions seen in general practice since 1991.

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 40 there were ASPREN reports received from 78 NSW GPs. The reported consultation rate for ILI per 1000 consultations was 8.65 (Figure 9), higher than the previous week (5.32, revised), and higher than the national level.

For further information see the [ASPREN website](#).

Figure 9: ASPREN – NSW and National weekly GP ILI rates per 1000 consultations – 2019 to the week ending 6 October.



FluTracking.net

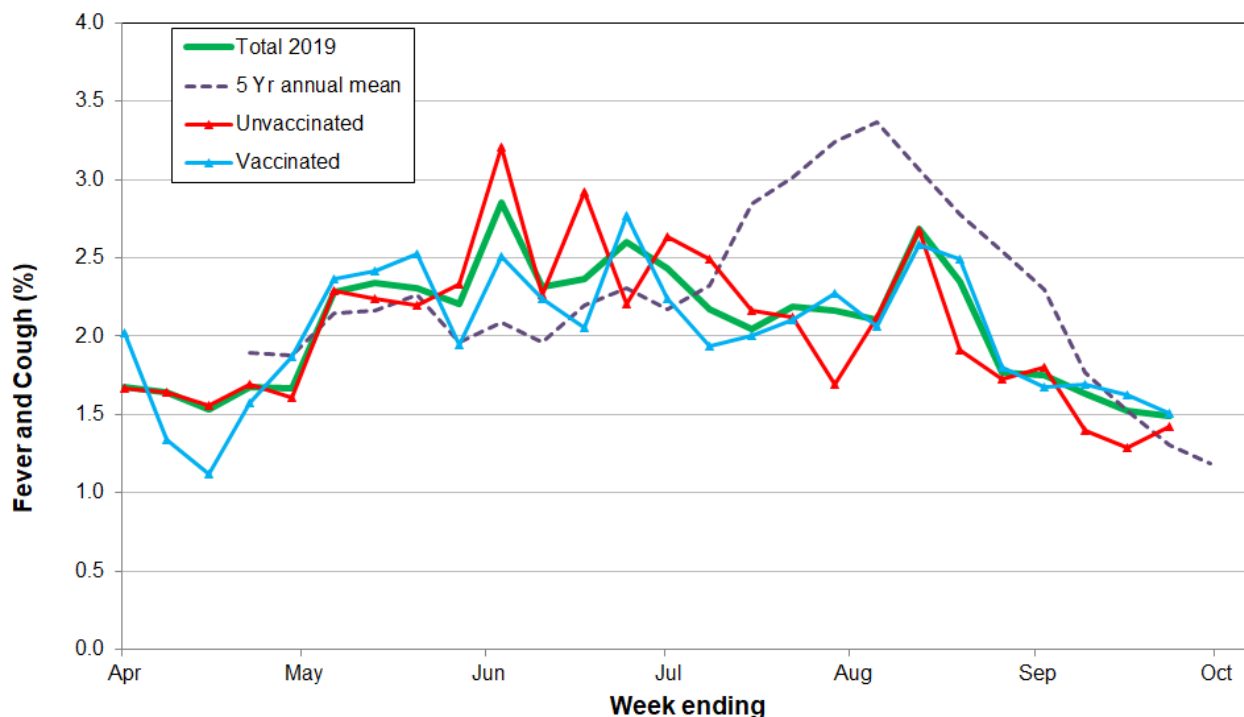
FluTracking.net is an online health surveillance system to detect epidemics of influenza. It is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute.

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

In week 40 FluTracking received reports for 11,813 people in NSW with the following results:

- 1.49% of respondents reported fever and cough, lower than the previous week (1.52%, revised) but higher than the five year annual mean (1.19%) (Figure 10).
- Among respondents who reported being vaccinated for influenza in 2019, 1.51% reported fever and cough compared to 1.42% among unvaccinated respondents (Figure 10).
- 0.71% of respondents reported fever, cough and absence from normal duties, lower than the previous week (1.12%).

Figure 10: FluTracking – Percent of NSW participants reporting fever and cough by vaccination status and week, April to the week ending 6 October 2019, compared to the age standardised 5 year mean.



Note: 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.

Deaths surveillance

Coded cause of death data is not timely enough for seasonal influenza surveillance. To provide rapid indicators of influenza and pneumonia mortality, death registrations from the NSW Registry of Births, Deaths and Marriages are used. A keyword search is applied, across any text field of the Medical Certificate Cause of Death (MCCD), to identify death registrations that mention influenza or pneumonia. The MCCD text includes conditions directly leading to the death, antecedent causes and other significant conditions contributing to the death. Two indicators are then reported:

1. Pneumonia and influenza mortality to provide a more complete picture of the impact of influenza, and
2. Influenza deaths with laboratory confirmation for a more specific measure.

NSW Health monitors the number of people whose deaths certificates report influenza and pneumonia, however the proportion of deaths accurately identified as being due to influenza likely varies over time as influenza testing has become more readily available, and so trends need to be interpreted with caution.

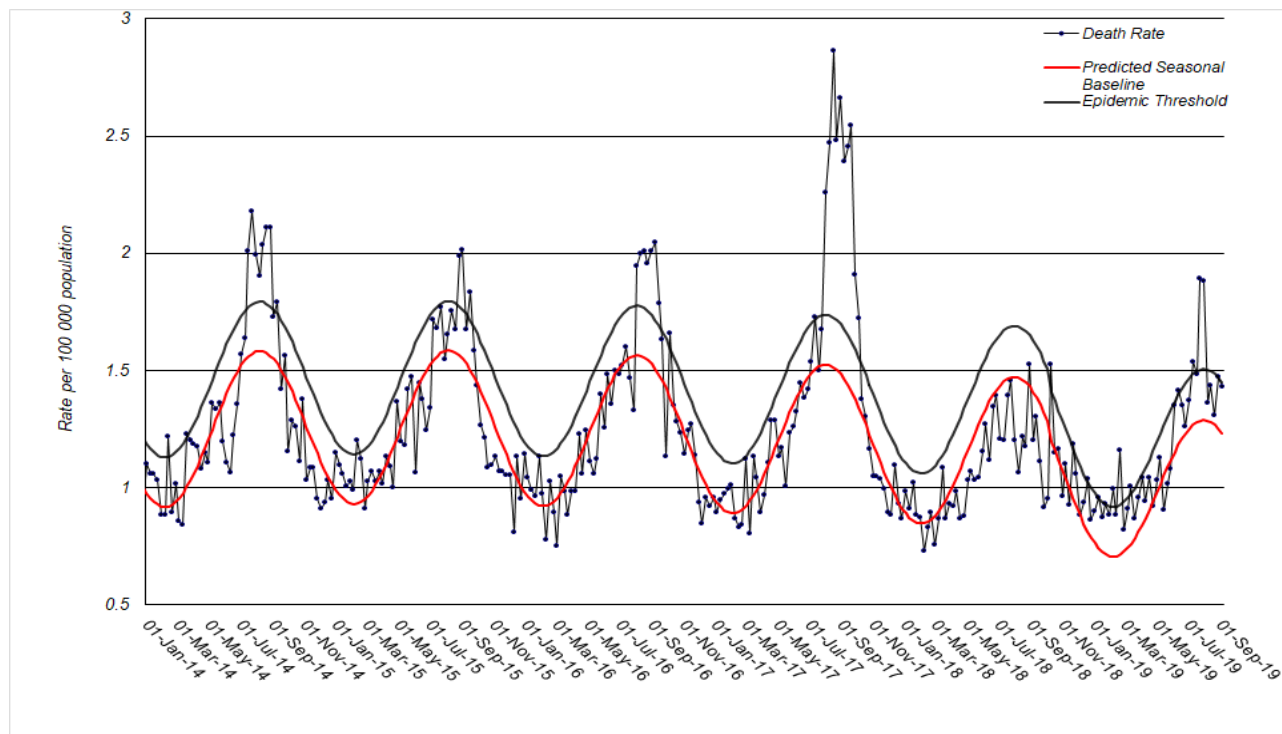
Pneumonia and influenza mortality

Due to delays in the death registration process, death data for recent weeks are underestimated. For this reason, *pneumonia or influenza* mortality data from the three most recent weeks are not included.

For the week ending 13 September 2019, the rate of deaths attributed to *pneumonia or influenza* was 1.21 per 100,000 NSW population, lower than reported in the previous week (1.47 per 100,000, revised) and below the epidemic threshold of 1.42 per 100,000 population (Figure 11).

Among the 38,618 death registrations in 2019, 307 (0.79%) mentioned influenza. An additional 3279 (8.49%) death registrations mentioned pneumonia.

Figure 11: Rate of death registrations classified as *pneumonia or influenza* per 100,000 NSW population, 2014 – 6 September, 2019



Source: NSW Registry of Births, Deaths and Marriages.

* Notes on interpreting death data:

- Deaths registration data is routinely reviewed for deaths mentioning 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 pneumonia or influenza 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 and may be more severe.
- The number of deaths mentioning “Pneumonia or influenza” is reported as a rate per 100,000 NSW population (rather than a rate per total deaths reported).
- Deaths referred to a coroner during the reporting period may not be available for analysis, particularly deaths in younger people which are more likely to require a coronial inquest. Influenza-related deaths in younger people may be under-represented in these data as a result.
- The interval between death and death data availability is usually at least 14 days, and so these data are at least two weeks behind reports from emergency departments and laboratories and subject to change.

Influenza deaths with laboratory confirmation

For the year to 6 October 2019, there have been 293 influenza deaths identified using Coroner’s reports and death registrations with laboratory confirmation. (Table 5). This includes the deaths of 11 people reported this week all of whom were aged 70 years and over.

Deaths data are subject to change as new information is received.

Table 5: Laboratory-confirmed influenza deaths by age-group and year, NSW, 2017 to 29 September 2019 (by date of death).

Age-group	Year		
	2017	2018	2019*
0-4 years	2	2	0
5-19 years	4	0	0
20-64 years	44	6	29
65+ years	509	32	264
Total	559	40	293

Notes: *Year to date.

National and International Influenza Surveillance

National Influenza Surveillance

The fortnightly *Australian Surveillance Report No. 11*, with data up to 22 September 2019, noted:

- **Activity** – Currently, influenza and influenza-like illness (ILI) activity is lower than average for this time of year compared to previous years, and is consistent with past activity following a peak in notifications. At the national level, notifications of laboratory-confirmed influenza have decreased in the past fortnight; however, this may be due in some measure to data entry backlogs.
- **Impact** – Impact for the season to date, as measured through the number of sentinel hospital beds occupied by patients with influenza and the rate of FluTracking respondents absent from normal duties, is low to moderate.
- **Severity** – Clinical severity for the season to date, as measured through the proportion of patients admitted directly to ICU, and deaths attributed to influenza, is low.
- **Virology** – The majority of confirmed influenza cases reported nationally were influenza A in the year to date (77%) and past fortnight (61%). The proportion of cases attributed to influenza B has increased in the past fortnight (39%), following a steady increase August.
- **Vaccine match and effectiveness** – Antigenic analysis of circulating influenza viruses in Australia in 2019 shows that the influenza A(H1N1)pdm09 and influenza B/Yamagata-lineage viruses are well matched to the 2019 influenza vaccine while some A(H3N2) and B/Victoria-lineage viruses are less well matched. Overall vaccine effectiveness appears good and as expected based on preliminary estimates from general practice (ASPREN) and sentinel hospitals (FluCAN-PAEDS), noting that effectiveness typically ranges from around 40-60% each year.

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

Global Influenza Update

The latest [WHO global update on 30 September 2019](#) provides data up to 15 September 2019. In the temperate zones of the southern hemisphere, influenza activity continued to decrease in most countries. In summary:

- In the temperate zones of the southern hemisphere, influenza activity was low in most countries, except Chile where a second wave of influenza activity of predominately B viruses was reported.
- In the Caribbean, and tropical South American countries, influenza activity was low overall. In Central American countries, influenza activity continued to increase in El Salvador.

- In tropical Africa, influenza activity was low across reporting countries.
- In Southern Asia, influenza activity was low across reporting countries except in Bhutan where influenza activity continued to be reported above alert threshold.
- In South East Asia, influenza activity was low in most reporting countries and continued to be reported at moderate level in Malaysia and Myanmar.
- In the temperate zone of the northern hemisphere, influenza activity remained at inter-seasonal levels overall.

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 24 June 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, one new human infection with an influenza A(H1N1) variant virus was reported. There were no new reports of human cases of avian influenza A(H5) or A(H7) 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 2020 Australian influenza vaccines

The WHO Consultation on the Composition of Influenza Vaccines for the 2020 Southern Hemisphere was held in Geneva on 23-26 September 2019.

Following the consultation, WHO announced its recommendations for the composition of the vaccines for use in the 2020 Southern Hemisphere influenza season, which includes three changes from the 2019 Southern Hemisphere influenza vaccines and two changes from the 2019-20 Northern Hemisphere influenza vaccines.

The recommended components of the 2020 Southern Hemisphere influenza vaccines are listed below:

- an A/Brisbane/02/2018 (H1N1)-like virus [Changed from 2019]
- an A/South Australia/34/2019 (H3N2)-like virus [Changed from 2019]
- a B/Washington/02/2019-like (B/Victoria lineage) virus [Changed from 2019]
- a B/Phuket/3073/2013-like virus (B/Yamagata lineage) virus. [Unchanged from 2019]

The B/Victoria lineage virus was recommended for trivalent vaccines with only one B component.

More details about the most recent influenza vaccine recommendations can be found at:

https://www.who.int/influenza/vaccines/virus/recommendations/2020_south/en/

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 lineage)
- a B/Phuket/3073/2013-like virus (B/Yamagata lineage).

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 the B/Victoria/2/87-lineage virus.

More details about the most recent influenza vaccine recommendations can be found at:

<https://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 67 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 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.

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

⁷ 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, Lavery Pathology, Medlab, SydPath, VDRLab (up to 2017), Austech, 4cyte.