

Influenza Surveillance Monthly Report

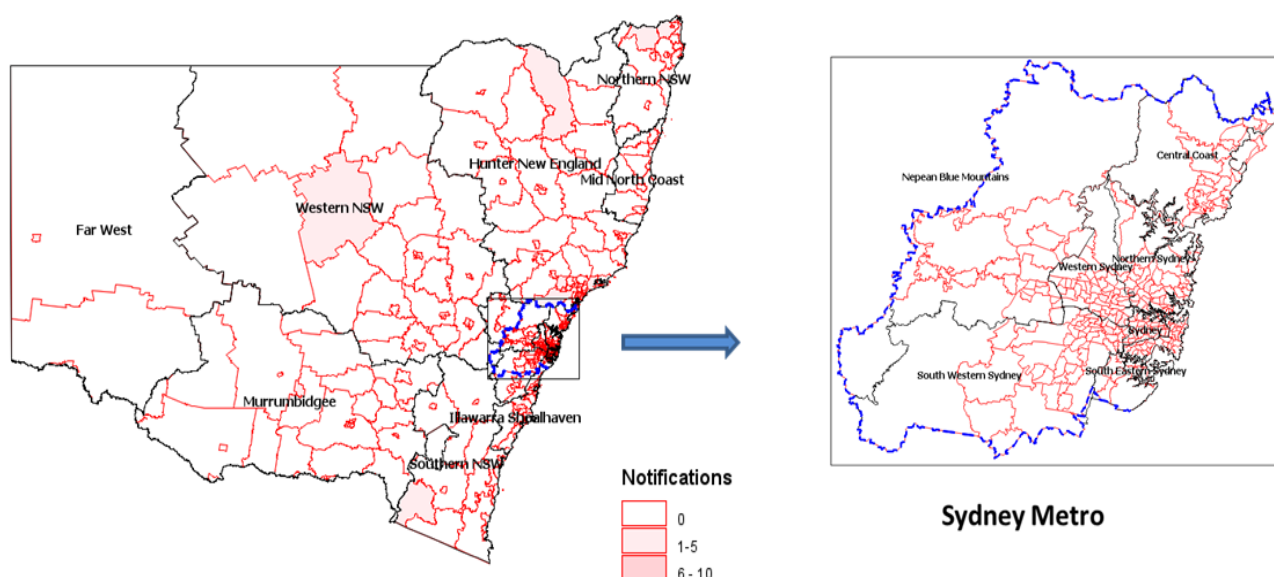
March 2020 (Weeks 10-13)

Key Points

- ▶ Influenza activity was low for this time of year and has continued to decrease throughout the month.
- ▶ Influenza A(H1N1) remained the predominant circulating influenza strain.
- ▶ Respiratory presentations to NSW emergency departments decreased but were above the historical range for this time of year.

Confirmed influenza by NSW local health district and local area (SA2)¹

Notifications for week ending 29 March 2020



Summary

- Influenza activity continue to decrease throughout March and remained within inter-seasonal levels.
- Influenza A strains, particularly influenza A (H1N1), remained predominant over influenza B strains, with an overall influenza percent positive rate of 2.1%.
- Respiratory testing was increased overall, likely reflecting the on-going COVID-19 outbreak.
- Influenza activity was low across all local health districts. Rates were highest in the Hunter New England LHD.

¹ 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.

- Presentations to emergency departments for respiratory illnesses and influenza-like illness were above the usual historical ranges for this time of year.
- Three influenza outbreaks were reported from residential aged care facilities, all caused by influenza A.

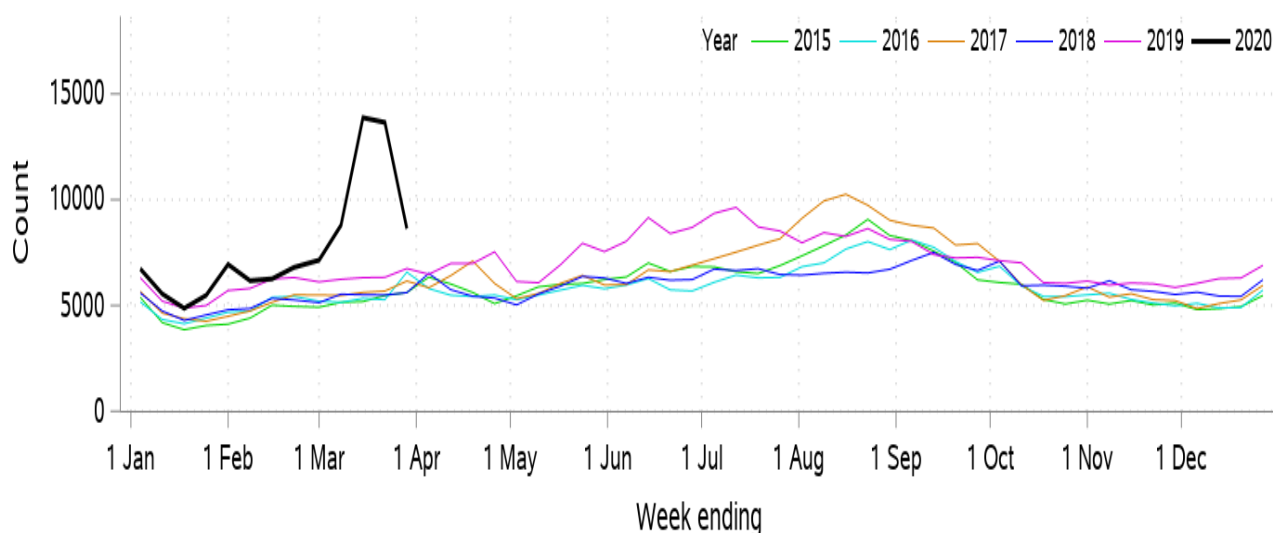
Hospital Surveillance

NSW emergency department (ED) surveillance for influenza-like illness (ILI) and other respiratory illnesses is conducted through PHREDSS².

In March 2020:

- Presentations in the *All respiratory illness, fever and unspecified infections* category decreased through the month but remained above the historical range for this time of year (Figure 1).
- ED presentations for ILI also decreased through the month but were above the historical range for this time of year (Figure 2).
- ED presentations for *pneumonia*³ decreased and were within the historical range for this time of year.
- *ILI and pneumonia* presentations which resulted in admission decreased and were within the historical range for this time of year.
- *ILI and pneumonia* presentations which resulted in a critical care admission increased but were within the historical range for this time of year (Figure 3).
- *Bronchiolitis*⁴ presentations decreased and were below the usual range for this time of year (Figure 4).

Figure 1: Total weekly counts of ED visits for any respiratory illness, fever and unspecified infections, all ages, 2020 (black line) to 29 March, compared with the 5 previous years (coloured lines).



² 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. The coverage is lower in rural EDs.

³ The ED '*Pneumonia*' syndrome includes provisional diagnoses selected by a clinician of 'viral, bacterial atypical or unspecified pneumonia', 'SARS', or 'legionnaire's disease'. It excludes the diagnosis 'pneumonia with influenza'

⁴ *Bronchiolitis* is a disease of infants most commonly linked to Respiratory Syncytial virus (RSV) infection.

Figure 2: Total weekly counts of ED visits for influenza-like illness, all ages, 2020 (black line) to 29 March, compared with the 5 previous years (coloured lines).

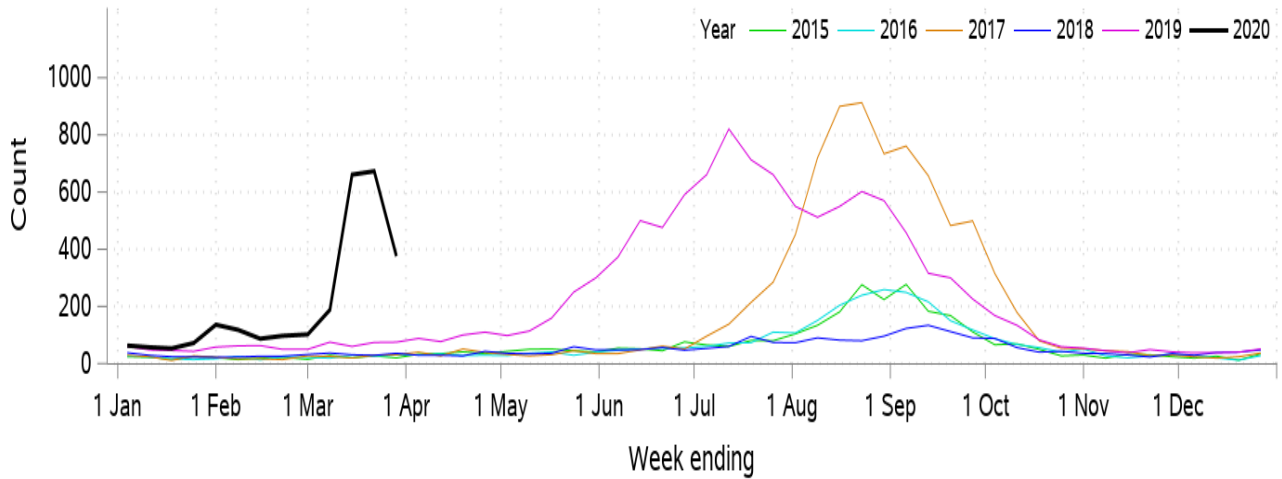


Figure 3: Weekly counts of ED presentations for influenza-like illness or pneumonia, that were admitted to a critical care ward, for 2020 (black line), compared with the 5 previous years (coloured lines).

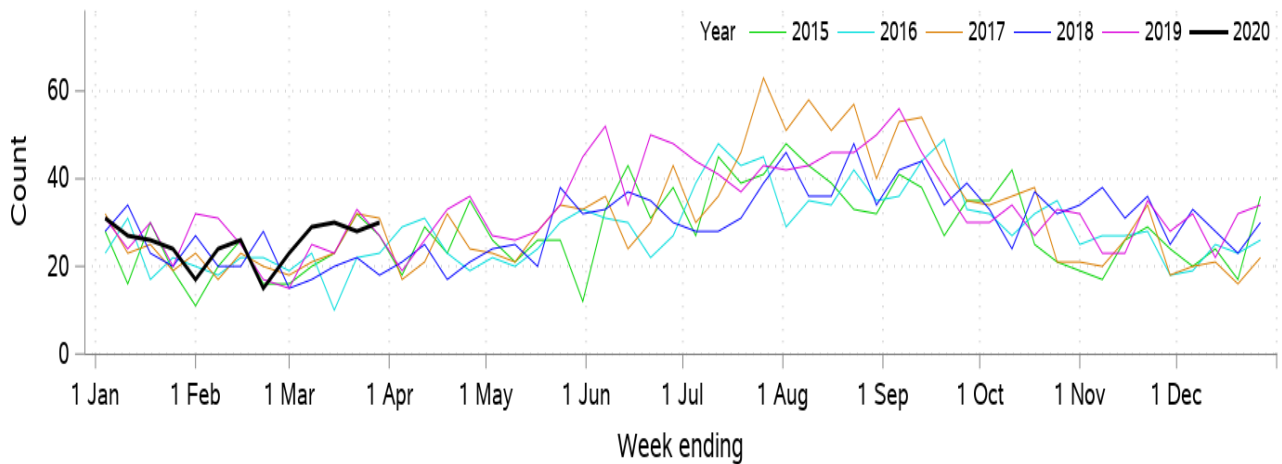
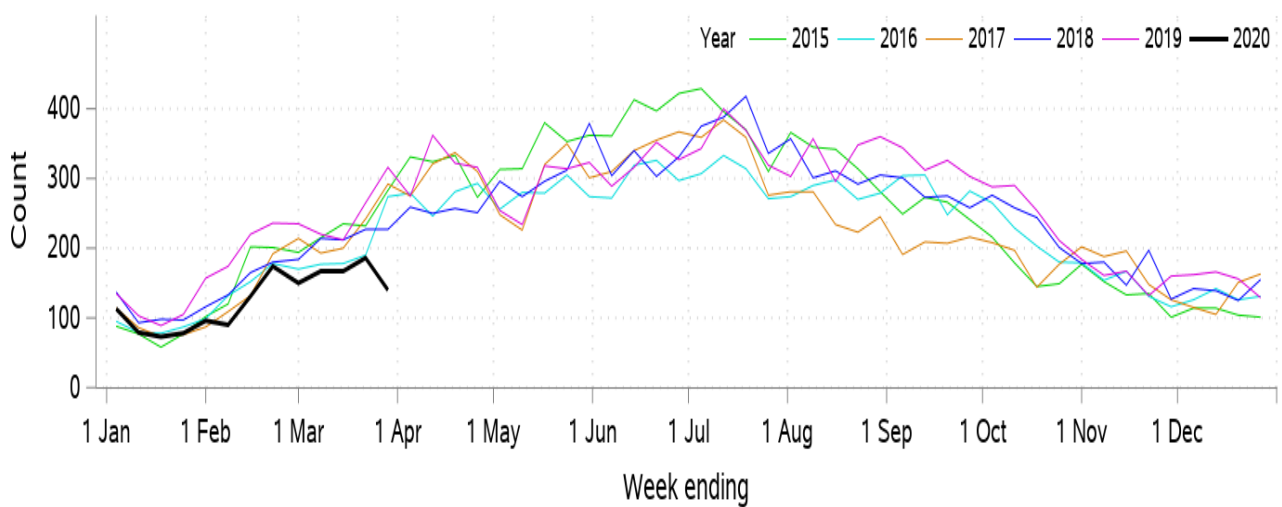


Figure 4: Total weekly counts of Emergency Department visits for bronchiolitis, all ages, 2020 (black line) to 29 March, compared with the 5 previous years (coloured lines).



Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year [5]. In the four-week period to 29 March 2020:

- A total of 80,234 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1). The influenza percent positive rate overall was 2.1%, lower than the previous month (February, 6.7%).
- There was an increase in respiratory testing activity overall for this time of year, likely partly as a result of concerns about the [COVID-19](#) outbreak.
- Activity continued to decrease throughout the month and remained within inter-seasonal levels.
- 1475 specimens tested positive for influenza A; of these 176 were influenza A (H1N1), 23 were A (H3) and 1270 were untyped (Table 1, Figures 5 & 6).
- 192 specimens tested positive for influenza B (Table 1, Figures 5 & 6).

Rhinovirus detections which were well above the usual range seen for this time of year were the leading respiratory virus identified by laboratories. Detections of other respiratory viruses were within the usual seasonal range for this time of year.

Table 1: Summary of testing for influenza and other respiratory viruses at sentinel NSW laboratories, 1 January to 29 March 2020.

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
3/02/2020*	34953	2508	(7.2%)	33	(1.3%)	209	(8.3%)	2230	(88.9%)	394	(1.1%)	846	1900	752	5036	593	335
1/03/2020	40272	2352	(5.8%)	27	(1.1%)	191	(8.1%)	2133	(90.7%)	315	(0.8%)	796	2421	1112	8190	431	999
29/03/2020	80234	1475	(1.8%)	23	(1.6%)	176	(11.9%)	1270	(86.1%)	192	(0.2%)	853	3636	1844	16876	617	1355
Week ending																	
8/03/2020	15684	501	(3.2%)	7	(1.4%)	43	(8.6%)	451	(90.0%)	73	(0.5%)	266	996	414	4002	140	432
15/03/2020	27965	557	(2.0%)	15	(2.7%)	53	(9.5%)	489	(87.8%)	82	(0.3%)	303	1399	654	6209	284	458
22/03/2020	23276	308	(1.3%)	0	(0.0%)	42	(13.6%)	266	(86.4%)	31	(0.1%)	194	905	502	4707	143	304
29/03/2020	13309	109	(0.8%)	1	(0.9%)	38	(34.9%)	64	(58.7%)	6	(0.0%)	90	336	274	1958	50	161

Notes:

* Five-week period; ** HMPV - Human metapneumovirus.

All samples are tested for influenza viruses but not all samples are tested for all of the other viruses listed.

[5]: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included. Preliminary data are provided by participating sentinel laboratories on a weekly basis and are subject to change.

Figure 5: Percent of laboratory tests positive for influenza A and influenza B reported by NSW sentinel laboratories, 1 January 2015 to 29 March 2020.

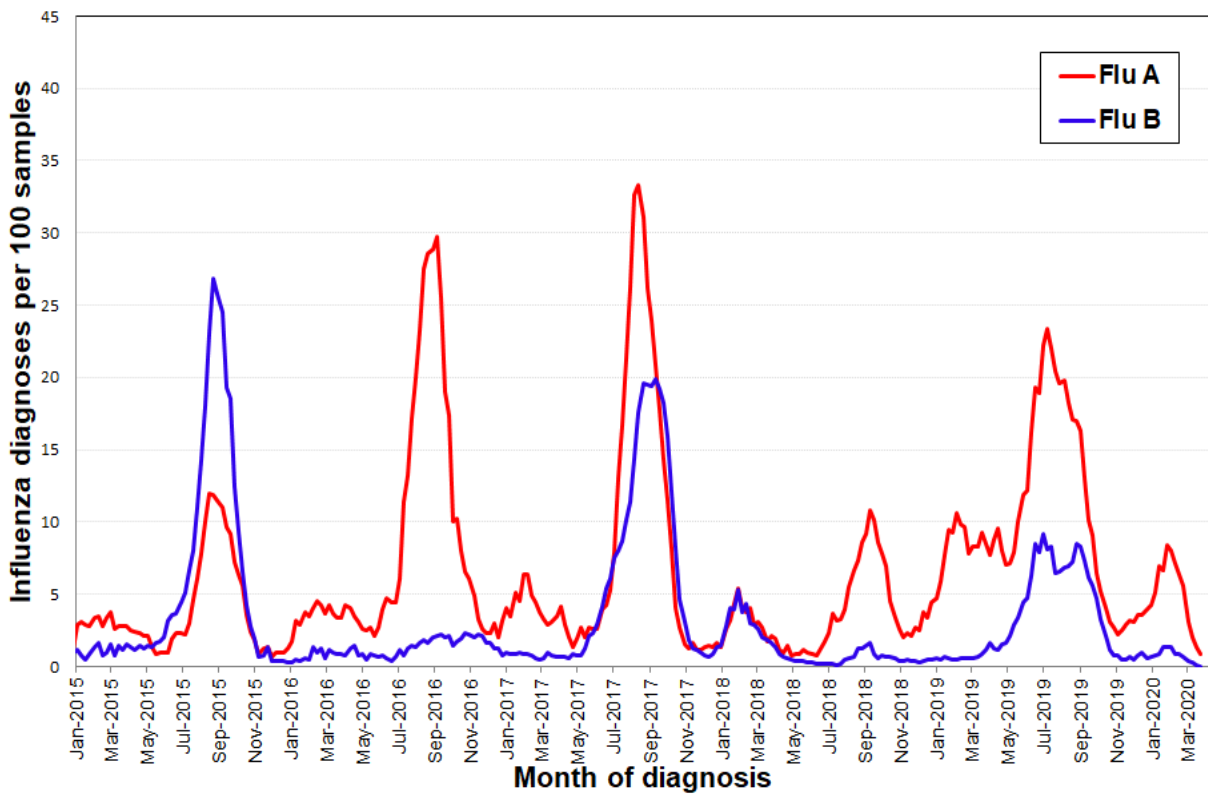
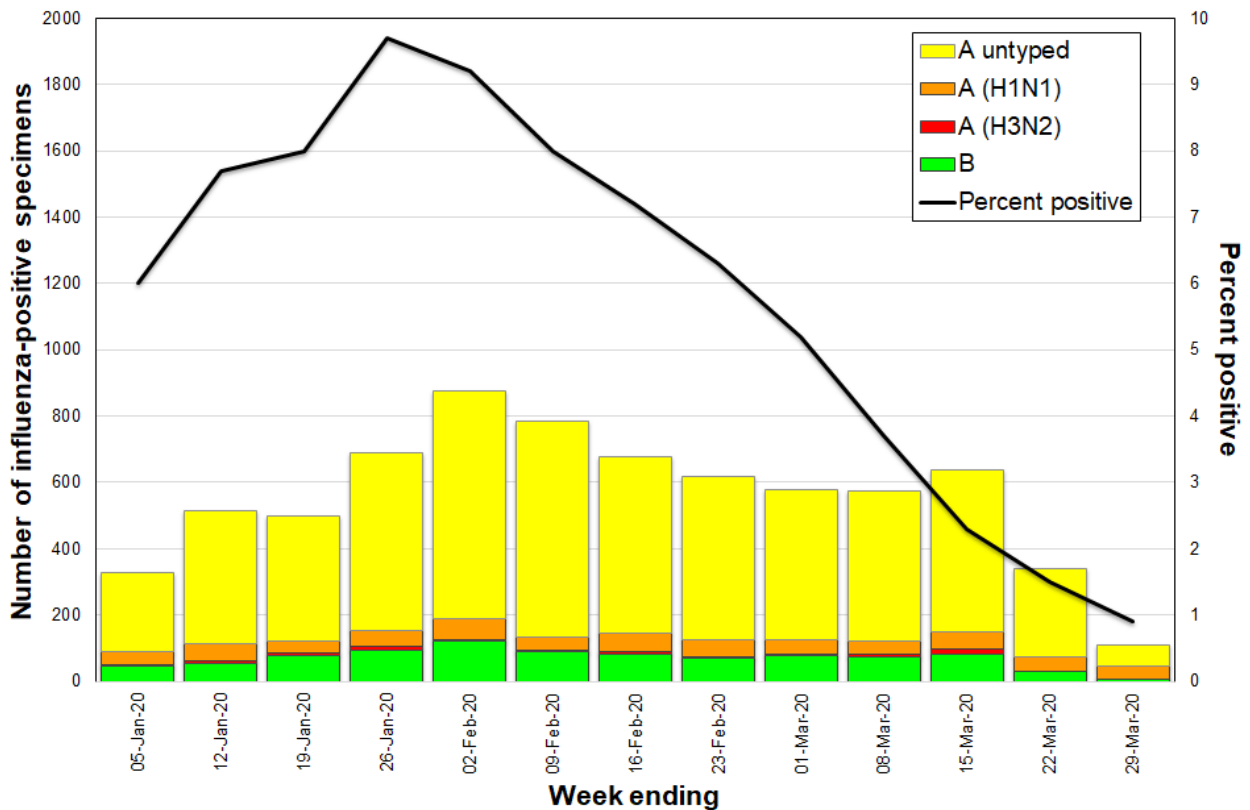


Figure 6: 2020 weekly influenza results by type, sub-type and percent positive reported by NSW sentinel laboratories, 1 January to 29 March 2020



Influenza notifications by local health district (LHD)

In the four-week period to 29 March 2020 there were 1559 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, lower than the 2481 influenza notifications reported for March 2019, and lower than the number of notifications reported for February 2020 (2673).

Notifications and notification rates decreased or remained stable across NSW LHD's. Influenza notification rates were highest in the Hunter New England LHD (Table 2).

Table 2: Weekly notifications of laboratory-confirmed influenza by local health district.

Local Health District	Week ending 29 Mar 2020		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average number of notifications	Rate per 100 000 population
Central Coast	0	0	24	6.73
Far West	2	6.63	2	4.98
Hunter New England	41	4.3	37	3.91
Illawarra Shoalhaven	12	2.86	33	7.92
Mid North Coast	8	3.55	7	2.99
Murrumbidgee	2	0.82	9	3.69
Nepean Blue Mountains	14	3.58	30	7.67
Northern NSW	12	3.87	19	5.96
Northern Sydney	10	1.05	90	9.42
South Eastern Sydney	16	1.67	91	9.44
South Western Sydney	6	0.58	43	4.14
Southern NSW	9	4.15	9	4.03
Sydney	4	0.57	35	4.95
Western NSW	4	1.4	8	2.72
Western Sydney	36	3.42	68	6.48

Notes: All data are preliminary and may change as more notifications are received. Excludes notifications based on serology.

Influenza outbreaks in institutions

There were fourteen respiratory outbreaks reported in March; five were due to influenza A and the remainder were due to other respiratory viruses. Three influenza outbreaks were in residential care facilities and two were in hospital settings.

In the year to date there have been 14 laboratory confirmed influenza outbreaks in institutions reported to NSW public health units, including eight in residential care facilities, and all were due to influenza A (Table 3, Figure 7).

In the eight influenza outbreaks affecting residential care facilities, at least 78 residents were reported to have had ILI symptoms and 10 required hospitalisation. There has been one death⁶ in a resident linked to one of these outbreaks; this person was noted to have other significant co-morbidities.

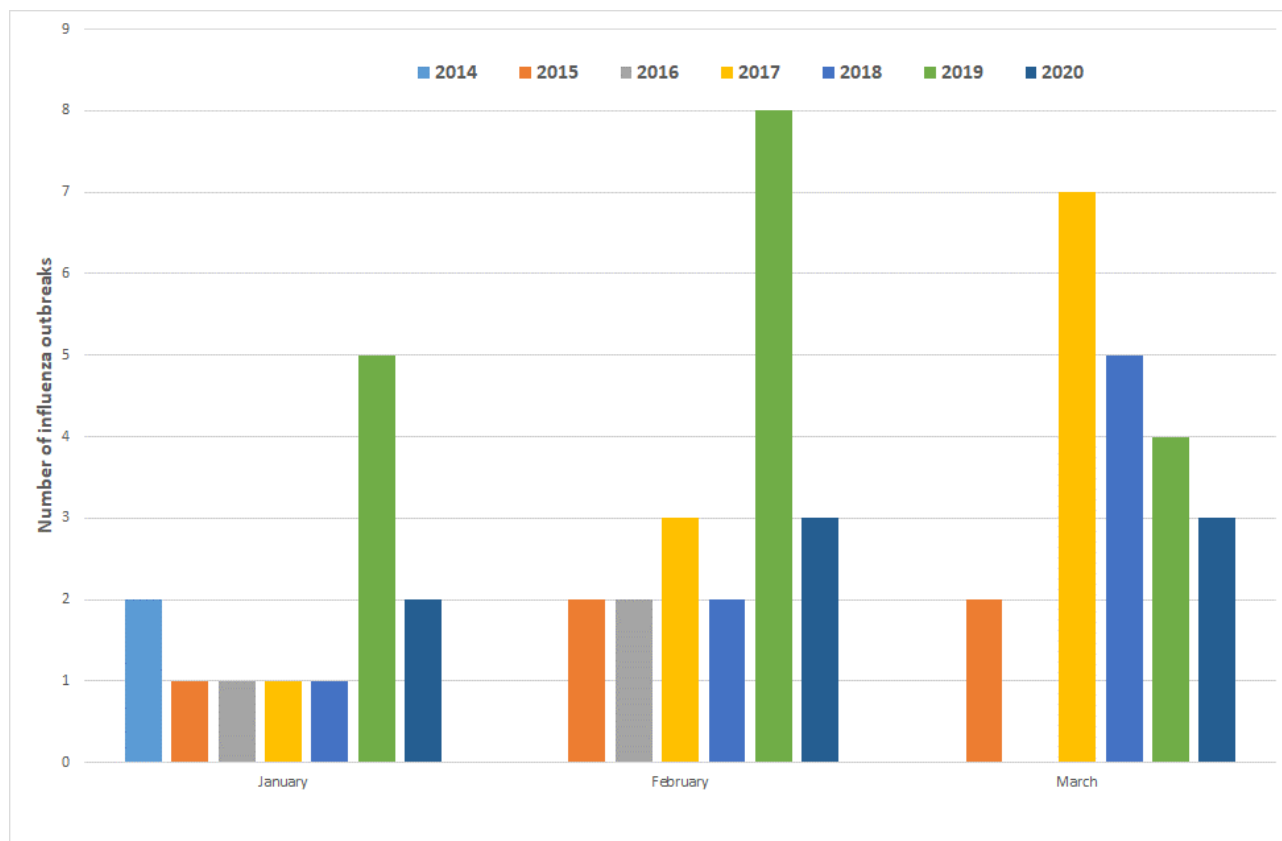
⁶ Deaths associated with institutional outbreaks are also included in the [Deaths surveillance](#) section if laboratory confirmed.

Table 3: Reported influenza outbreaks in NSW institutions, January 2014 to March 2020.

Year	2014	2015	2016	2017	2018	2019	2020*
No. of outbreaks	122	103	252	543	42	383	8

Notes: * Year to date.

Figure 7: Reported influenza outbreaks in NSW residential care facilities by month, 2014 to March 2020.



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.

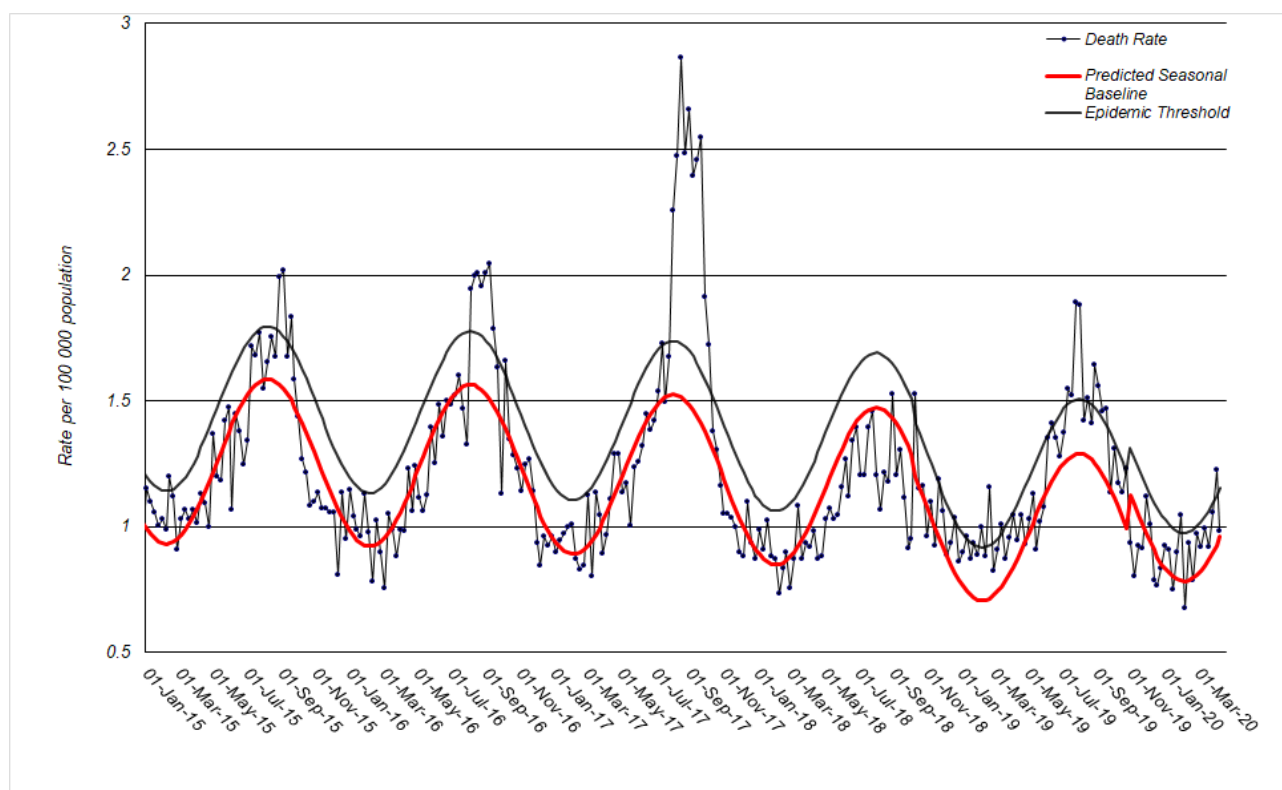
Pneumonia and influenza mortality

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 10 April 2020, the rate of deaths attributed to *pneumonia or influenza* was 0.98 per 100,000 NSW population below the epidemic threshold of 1.15 per 100,000 population. (Figure 8).

Among the 14,097 death registrations in 2020, 11 (0.08%) mentioned influenza. An additional 1134 (8.04%) death registrations mentioned pneumonia.

Figure 8: Rate of death registrations classified as *pneumonia or influenza* per 100,000 NSW population, 2015 – 10 April 2020



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

There were five new influenza deaths reported during April. Two of the deaths were in people one in their 30's and one in their 40's. The remaining three deaths were in people aged 75 years and over. There has been a total of eleven influenza deaths identified using Coroner's reports and death registrations with laboratory confirmation reported for the year to date (Table 4).

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

Table 4: Laboratory-confirmed influenza deaths by age-group and year, NSW, 2017 to 3 May 2020 (by date of death).

Age-group	Year			
	2017	2018	2019	2020*
0-4 years	2	2	0	0
5-19 years	4	0	0	0
20-64 years	44	6	33	4
65+ years	509	32	301	7
Total	559	40	334	11

Notes: *Year to date.

National and International Influenza Surveillance

National Influenza Surveillance

Although national influenza surveillance reports are not produced at this time of year, most jurisdictions are reporting slightly higher influenza activity. Total national reports of laboratory-confirmed influenza in March were lower than 2019 but higher than in earlier years.

For further information on the National Notifiable Disease Surveillance System, which includes laboratory-confirmed influenza reports, see: <http://www9.health.gov.au/cda/source/cda-index.cfm>.

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

Global Influenza Update

The latest [WHO global update on 30 March 2020](#) provides data up to 15 March 2020. In the temperate zone of the northern hemisphere, respiratory illness indicators and influenza activity remained elevated overall.

- In the temperate zone of the northern hemisphere, influenza activity appeared to decrease overall.
 - In North America, influenza activity continued to decline but influenza-like illness (ILI) levels remained elevated.
 - In Europe, influenza activity decreased in most countries, but increased ILI activity was reported in some countries.
 - In Central Asia, influenza activity was low.
 - In Northern Africa, decreasing influenza activity was reported in Tunisia.
 - In Western Asia, influenza activity was low in most reporting countries.
 - In East Asia, ILI and influenza activity returned to baseline levels.
- In the Caribbean and Central American countries, influenza activity was reported in some countries. In Mexico, influenza activity continued to decrease, with influenza A(H1N1)pdm09 and B-Victoria lineage viruses co-circulating.

- In tropical South American countries, influenza activity decreased from the previous reporting period.
- In tropical Africa, influenza detections were low in most reporting countries.
- In Southern Asia, increased ILI activity was reported in Bhutan.
- In South East Asia, influenza activity decreased across reporting countries.

In the temperate zones of the southern hemisphere, influenza activity 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 20 January 2020. 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, two new human infections with avian influenza A(H9N2) viruses and one new human infection with an influenza A(H1N1) variant virus 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 2020 Australian influenza season 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/.