

Influenza Surveillance Monthly Report

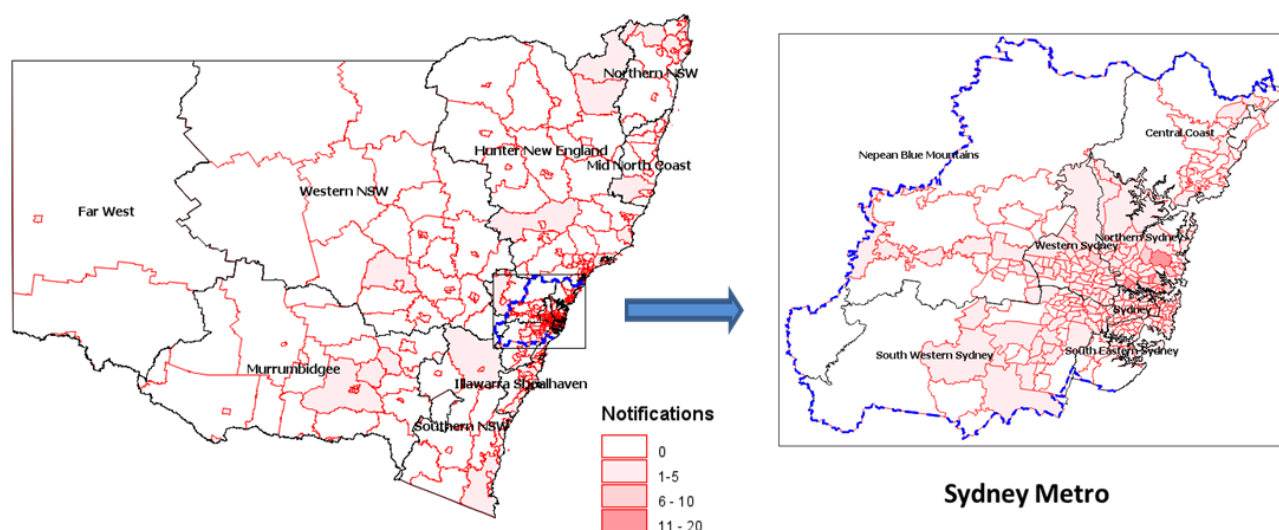
January 2020 (Weeks 1-5)

Key Points

- ▶ Influenza activity was high for this time of year and increased throughout the month. Activity was even higher than the unusually high activity seen in January 2019.
- ▶ Influenza A(H1N1) remained the predominant circulating influenza strain.
- ▶ Respiratory presentations to NSW emergency departments increased and 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 2 February 2020



Summary

- Influenza activity increased during January but 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 8.1%.
- Influenza activity was highest in the Northern Sydney, Western Sydney and South Eastern Sydney local health districts (LHD), activity increased across the majority of health districts.
- Presentations to emergency departments for respiratory illnesses and influenza-like illness were above the usual historical ranges for this time of year.
- Two influenza outbreaks were reported from residential aged care facilities both were caused by influenza A.

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.

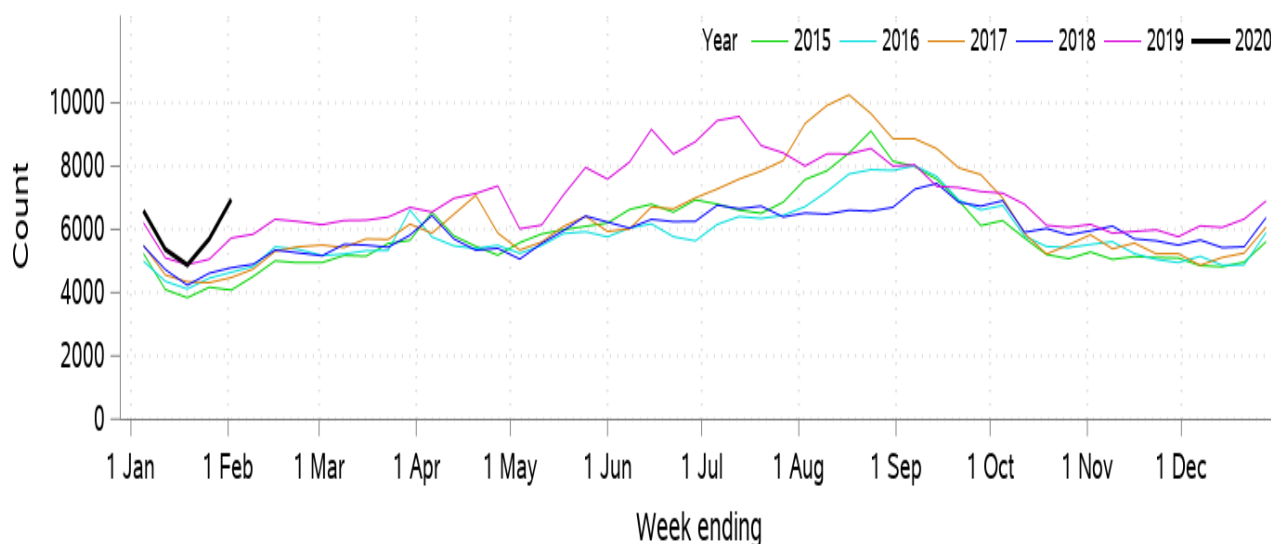
Hospital Surveillance

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

In January 2020:

- Presentations in the *All respiratory illness, fever and unspecified infections* category increased through the month and remained above the historical range for this time of year (Figure 1).
- ED presentations for ILI increased through the month and 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 (Figure 3).
- *ILI presentations* which resulted in admission increased whilst *pneumonia* admission were decreased, both were within the historical range for this time of year.
- *Bronchiolitis*⁴ presentations increased but were within 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 2 February, 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 2 February, compared with the 5 previous years (coloured lines).

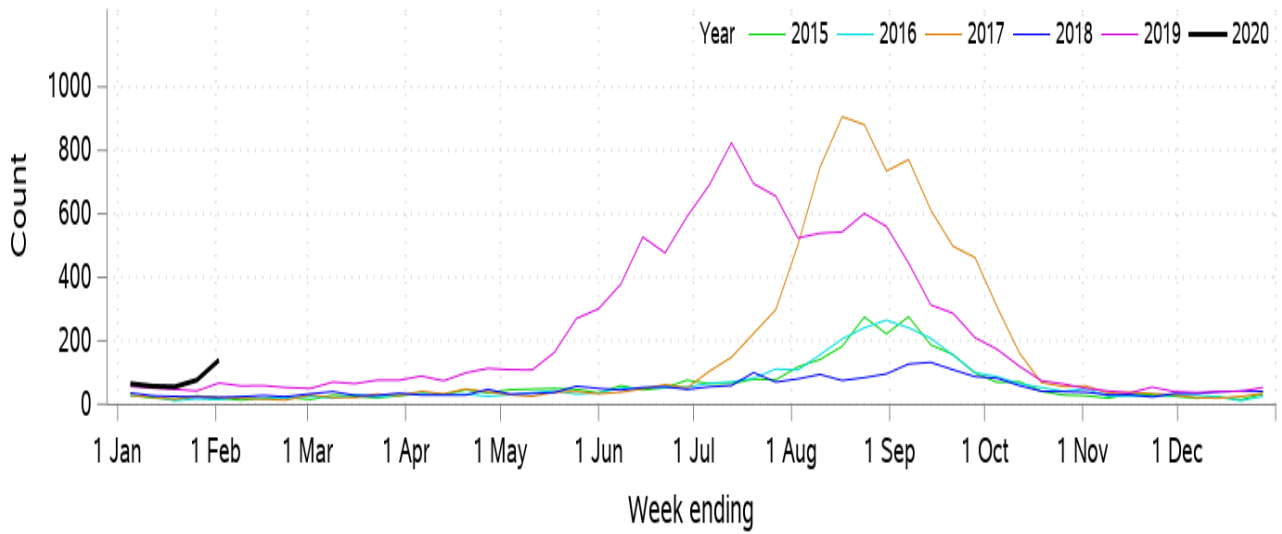


Figure 3: Total weekly counts of Emergency Department visits for pneumonia, all ages, 2020 (black line) to 2 February, compared with the 5 previous years (coloured lines).

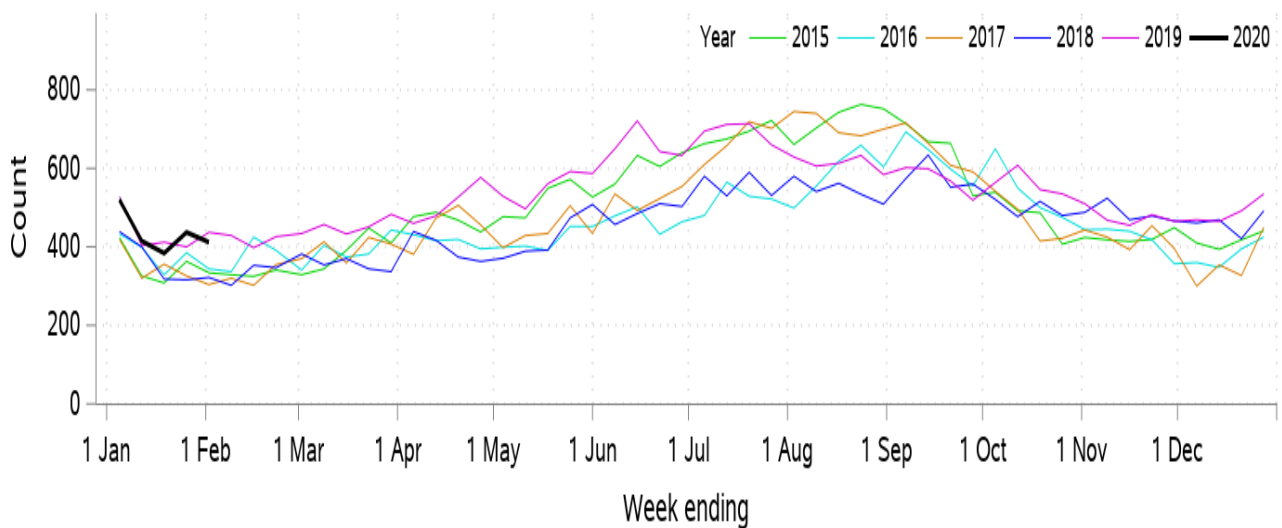
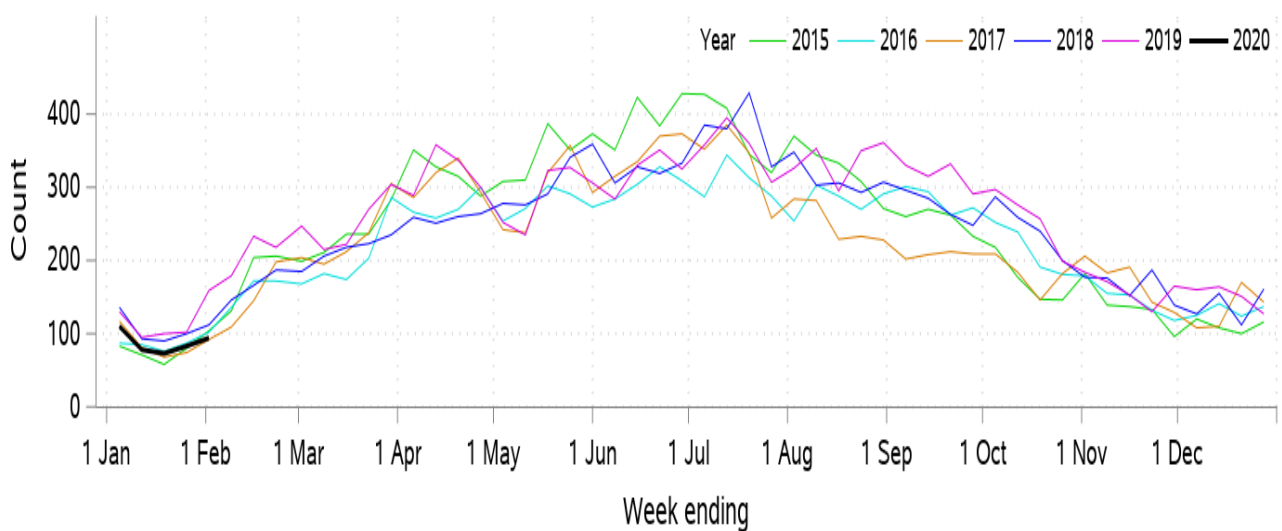


Figure 4: Total weekly counts of Emergency Department visits for bronchiolitis, all ages, 2020 (black line) to 2 February, compared with the 5 previous years (coloured lines).



Laboratory testing summary for influenza

Sentinel laboratory surveillance for influenza and other respiratory viruses is conducted throughout the year [5]. In the five week period to 2 February 2020:

- A total of 34,953 tests for respiratory viruses were performed at sentinel NSW laboratories (Table 1). The influenza percent positive rate overall was 8.1%, higher than the previous month (December 2019, 4.6%).
- Increased respiratory testing activity may also be partly as a result of concerns about the [novel coronavirus](#) (COVID-19) outbreak in China.
- Activity increased steadily throughout the month but remained within inter-seasonal levels.
- 2508 specimens tested positive for influenza A, of these 209 were influenza A (H1N1), 33 were A (H3) and 2230 were untyped (Table 1, Figures 5 & 6).
- 394 specimens tested positive for influenza B (Table 1, Figures 5 & 6).

Rhinovirus detections 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 2 February 2020.

Month ending	Total Tests	TEST RESULTS															
		Influenza A								Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	HMPV **	Enterov
		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*	34953	2508	(7.2%)	33	(1.3%)	209	(8.3%)	2230	(88.9%)	394	(1.1%)	846	1900	752	5036	593	335
Week ending																	
5/01/2020	5476	281	(5.1%)	3	(1.1%)	42	(14.9%)	236	(84.0%)	46	(0.8%)	167	375	97	886	140	42
12/01/2020	6655	460	(6.9%)	7	(1.5%)	17	(3.7%)	400	(87.0%)	54	(0.8%)	187	398	112	959	133	45
19/01/2020	6230	418	(6.7%)	7	(1.7%)	37	(8.9%)	374	(89.5%)	79	(1.3%)	137	331	124	779	94	54
26/01/2020	7108	594	(8.4%)	9	(1.5%)	50	(8.4%)	535	(90.1%)	95	(1.3%)	165	336	172	919	103	66
2/02/2020	9484	755	(8.0%)	7	(0.9%)	63	(8.3%)	685	(90.7%)	120	(1.3%)	190	460	247	1493	123	128

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 2 February 2020.

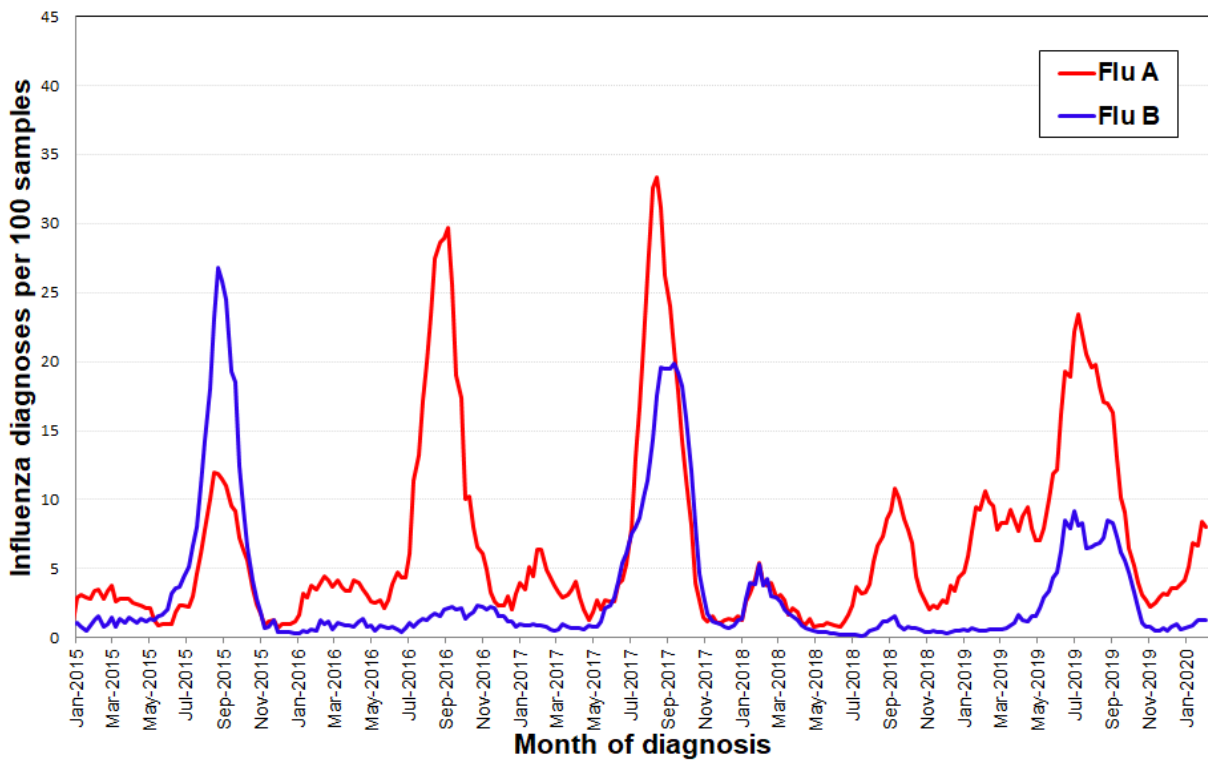
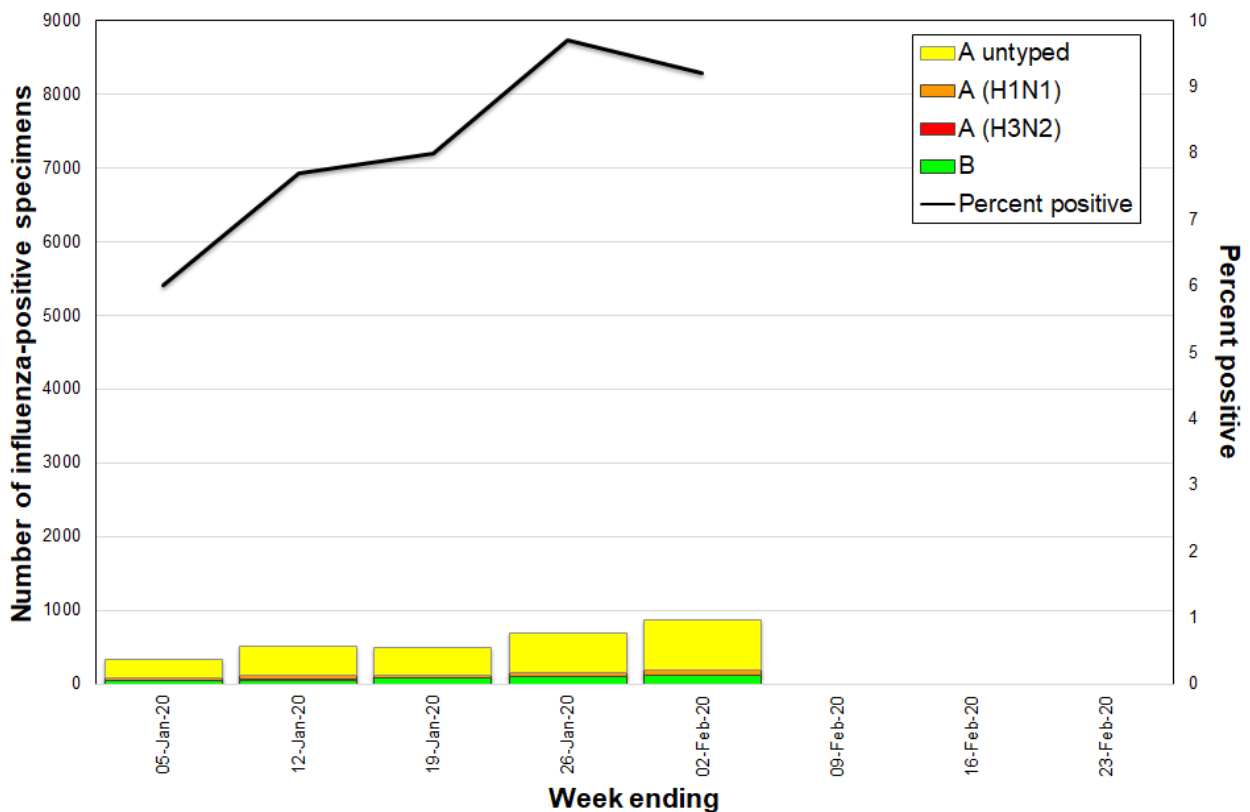


Figure 6: 2020 weekly influenza results by type, sub-type and percent positive reported by NSW sentinel laboratories, 1 January to 2 February 2020.



Influenza notifications by local health district (LHD)

In the five-week period to February 2020 there were 2490 notifications of influenza confirmed by polymerase chain reaction (PCR) testing, higher than the 2065 influenza notifications reported for January 2019, and higher than the number of notifications reported for December 2019 (954 – although a four-week period).

Notifications and rates increased across the majority NSW LHDs. Influenza notification rates were highest in Northern Sydney, Western Sydney and South Eastern Sydney LHDs (Table 2).

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

Local Health District	Week ending 02 Feb 2020		Previous 4 weeks	
	Number of notifications	Rate per 100 000 population	Average weekly number of notifications	Rate per 100 000 population
Central Coast	18	5.1	14	3.97
Far West	1	3.32	2	6.63
Hunter New England	30	3.15	26	2.68
Illawarra Shoalhaven	25	5.96	15	3.57
Mid North Coast	8	3.55	4	1.88
Murrumbidgee	7	2.35	6	2.1
Nepean Blue Mountains	22	5.63	19	4.73
Northern NSW	15	4.83	16	4.99
Northern Sydney	181	18.93	111	11.59
South Eastern Sydney	105	10.95	74	7.66
South Western Sydney	54	5.2	36	3.49
Southern NSW	10	4.61	4	1.73
Sydney	55	7.89	53	7.57
Western NSW	6	2.11	3	1.14
Western Sydney	124	11.77	78	7.36

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

Influenza outbreaks in institutions

There were seven respiratory outbreaks reported in January; four were due to influenza A and three were due to other respiratory viruses. Two influenza outbreaks were in residential care facilities and two were in hospital settings.

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

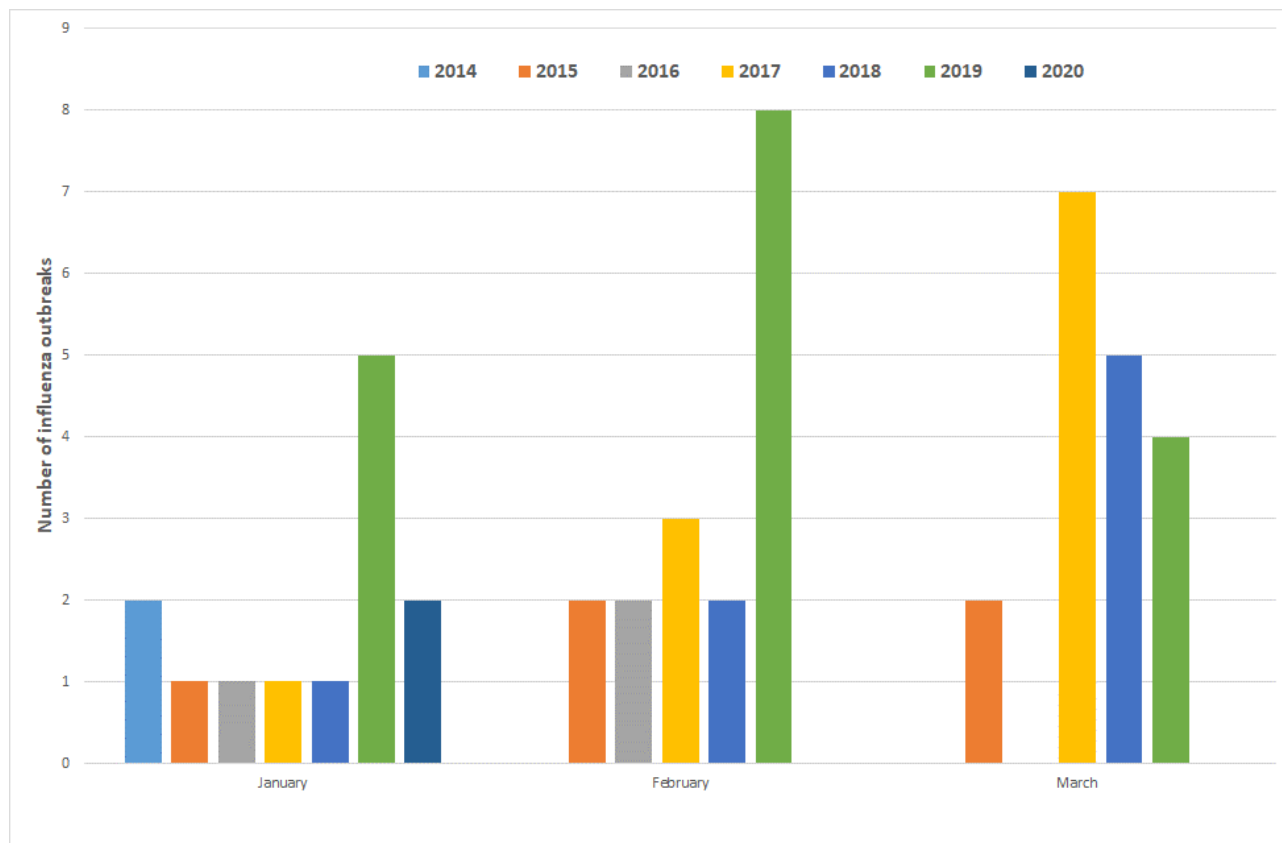
In the two influenza outbreaks affecting residential care facilities, at least 28 residents were reported to have had ILI symptoms and eight required hospitalisation. There has been one death⁶ in a resident linked to one of these outbreaks; this person was noted to have other significant co-morbidities.

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 January 2020.

Year	2014	2015	2016	2017	2018	2019	2020
No. of outbreaks	122	103	252	543	42	383	4

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

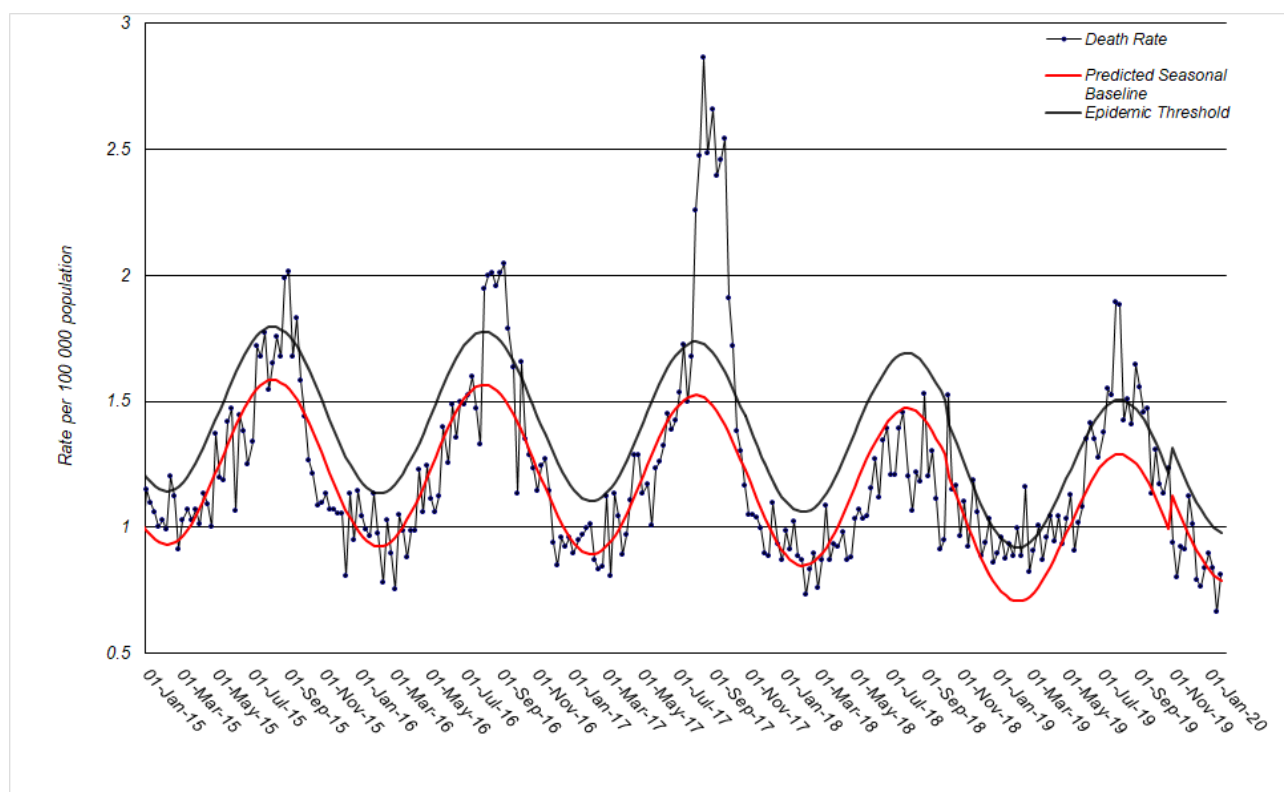
Pneumonia and influenza mortality

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 24 January 2020, the rate of deaths attributed to *pneumonia or influenza* was 0.81 per 100,000 NSW population below the epidemic threshold of 0.98 per 100,000 population (Figure 8).

Among the 3,398 death registrations in 2020, four (0.76%) mentioned influenza. An additional 259 (8.49%) death registrations mentioned pneumonia.

Figure 8: Rate of death registrations classified as *pneumonia or influenza* per 100,000 NSW population, 2015 – 24 January, 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

For the year to 2 February, there have been two influenza deaths identified using Coroner's reports and death registrations with laboratory confirmation (Table 4). Both deaths were in people aged in their 90's.

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 2 February 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	0
65+ years	509	32	301	2
Total	559	40	334	2

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 increased influenza activity, with national notifications in the past quarter (to 1 February) 2.9 times the quarterly rolling five year mean. Total national reports of laboratory-confirmed influenza in January were higher than 2019 and also 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 3 February 2020](#) provides data up to 19 January 2020. In the temperate zone of the northern hemisphere, respiratory illness indicators and influenza activity remained elevated overall.

- In North America, influenza activity remained elevated influenza A(H1N1)pdm09 and B viruses co-circulating.
- In Europe, influenza activity continued to increase across the region but appeared to decrease in some countries of Northern Europe.
- In Central Asia, influenza activity increased with influenza B viruses predominant.
- In Northern Africa, influenza activity appeared to decrease in Egypt after peaking in recent weeks.
- In Western Asia, influenza activity remained elevated overall and continued to increase in Lebanon and Turkey.
- In East Asia, influenza-like illness (ILI) and influenza activity remained elevated overall.
- In the Caribbean and Central American countries, influenza activity was low across reporting countries, except for Mexico with increased activity of influenza A(H1N1)pdm09 viruses. In tropical South American countries, increased influenza activity was reported in Peru.

- In tropical Africa, influenza activity was low across most reporting countries.
- In Southern Asia, influenza activity was low in most reporting countries, but increased in Afghanistan.
- In South East Asia, influenza activity continued to be reported in Lao People's Democratic Republic and Malaysia and increased in Singapore.

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](#).

In the United States, the CDC weekly influenza surveillance report ([FluView](#)) for Week 52/2019 noted that seasonal influenza activity was high and continues to increase. Activity has been elevated for eight weeks, with B/Victoria viruses predominating.

In Europe, the weekly influenza surveillance report ([Flu News Europe](#)) for Week 52/2019 noted seasonal influenza activity was still increasing, with influenza A strains predominating but with B/Victoria activity increasing.

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, no new human infections with avian or swine influenza 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 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 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).

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/en/> .