

NSW Respiratory Surveillance Report - week ending 09 July 2022

COVID-19 Summary

- NSW is experiencing a new wave of transmission driven by BA.4 and BA.5 COVID-19 subvariants, with an increase in the number of notified cases in the last week. Reported rates of COVID-19 are likely to underestimate true incidence in the community.
- PCR testing for COVID-19 is stable, with 203,451 PCR tests reported this week, similar to the previous week. The proportion of PCR tests that were positive for COVID-19 has been stable at about 17%.
- The number of people in hospital has been increasing with 1,946 people in hospital with COVID-19 at the end of this week compared to 1,658 at the end of last week. There were 769 people with COVID-19 admitted to hospital and 75 admitted to ICU this week. The seven-day rolling average of daily hospital admissions decreased to an average of 110 daily admissions from 113 last week and ICU admissions increased to an average of 11 admissions by the end of this week, compared with 8 admissions at the end of last week. Hospital admissions include people with COVID-19 who are admitted for other reasons.
- There were 95 COVID-19 deaths reported this week. Of these, 95 were eligible for a third dose of a COVID-19 vaccine but only 62 (65%) had received three or more doses. Six of the deaths reported were in people aged under 65 years. Deaths may not have occurred in the week in which they were reported.
- BA.4 and BA.5 Omicron subvariants are currently the dominant strains, rising to 83% at the end of this week from 70% at the end of the previous week. There is no evidence of a difference in disease severity but this is being closely monitored. The timing of the peak is likely to sometime in late July or early August and will depend on a combination of factors, including the growth advantage, immunity levels in the population, and environmental and behavioural factors (e.g. social mixing, mask wearing, ventilation, isolation when unwell).
- To help reduce severe disease from Omicron BA.4 and BA.5 subvariant infections, adults aged 50 to 64 years are now recommended to receive a winter booster dose of a COVID-19 vaccine, and adults aged 30 to 49 years can receive a winter booster dose.
- NSW Health is monitoring the international situation in regard to the BA.2.75 subvariant which has recently emerged. Three cases have been reported in returned travelers in NSW which have been confirmed by whole genome sequencing.

Influenza summary

- Hospital and laboratory surveillance continues to show a high level of influenza activity across NSW.
- Notifications of influenza cases decreased this week. The recent trend in reported influenza cases suggests that the influenza season has peaked; however, there could be subsequent peaks given the early start to the 2022 influenza season. Influenza vaccination is strongly advised.
- Hospitalisations and the percentage of tests that are positive are the most useful indicators for comparison of influenza activity across years. These indicators are not impacted by overall testing in the community, which is currently elevated due to increased respiratory virus testing.
- Of the 76,684 tests conducted for influenza at sentinel laboratories, the proportion of positive tests remains stable at around 4%.
- Emergency department presentations for 'influenza-like illness' (ILI) requiring an admission have decreased to 84 compared to 113 admissions in the previous week; 17% of all ILI emergency department presentations required a hospital admission this week, which is a slight increase from 15% in the previous week.

Other respiratory viruses summary

- Detections of respiratory syncytial virus (RSV) have decreased this week. Data from sentinel laboratories show 3,183 cases detected this week, compared to 3,842 cases detected last week.
- Detections of RSV are likely impacted by increased levels of testing for respiratory viruses compared to previous years.

Data sources

The NSW Respiratory Surveillance Report consolidates data from a range of sources to provide an understanding of what is happening in the community. This data includes laboratory results, hospital administrative data, emergency department syndromic surveillance, death registrations and community surveys.

COVID-19 hospital admissions, intensive care unit admissions, and deaths

COVID-19 vaccines are very effective in preventing the severe impacts of infections with the virus. Over 95 per cent of people aged 16 and over in NSW have received two doses of a COVID-19 vaccine, while more than 68 per cent of people eligible for their third dose have received it. With such high vaccination coverage in the community, a greater proportion of people admitted to hospital or intensive care unit (ICU) with COVID-19 are now vaccinated with two or three doses. However, people who are not vaccinated remain far more likely to suffer severe COVID-19. The minority of the overall population who have not been vaccinated are significantly overrepresented among patients in hospitals and ICUs with COVID-19. Note that some people with COVID-19 who are admitted to hospital or ICU are admitted for conditions unrelated to their COVID-19 infection, and these admissions will not be prevented by vaccination. Despite the substantial protection from COVID-19 provided by vaccination, older age remains a significant risk factor for serious illness and death with COVID-19, particularly when combined with significant underlying health conditions.

Figure 1. Daily seven-day rolling average of people with COVID-19 admitted to hospital within 14 days of their diagnosis, NSW, 1 January to 09 July 2022

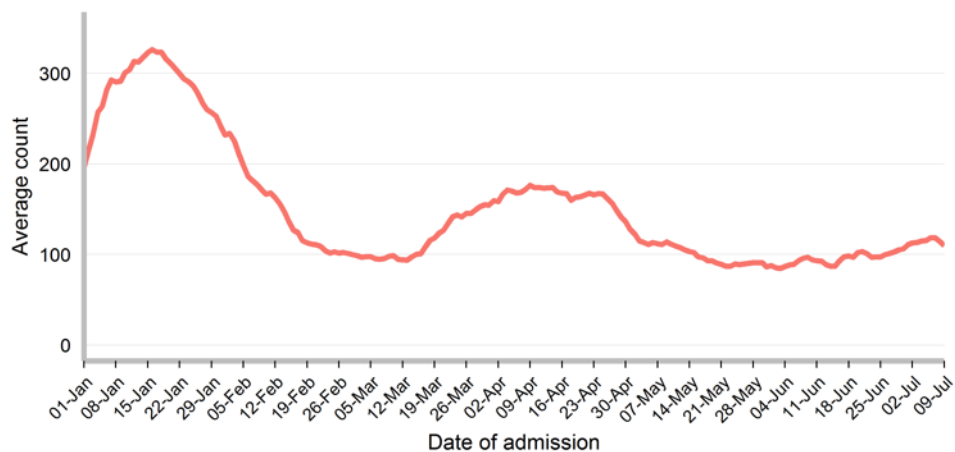
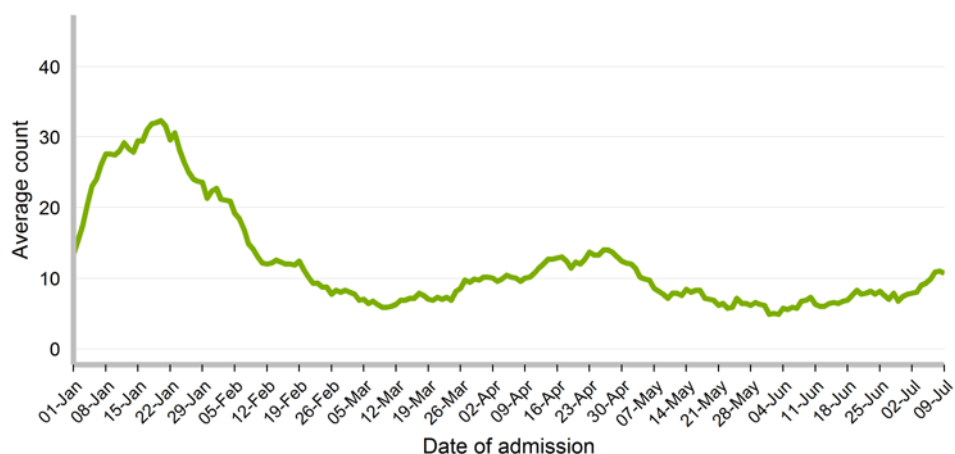
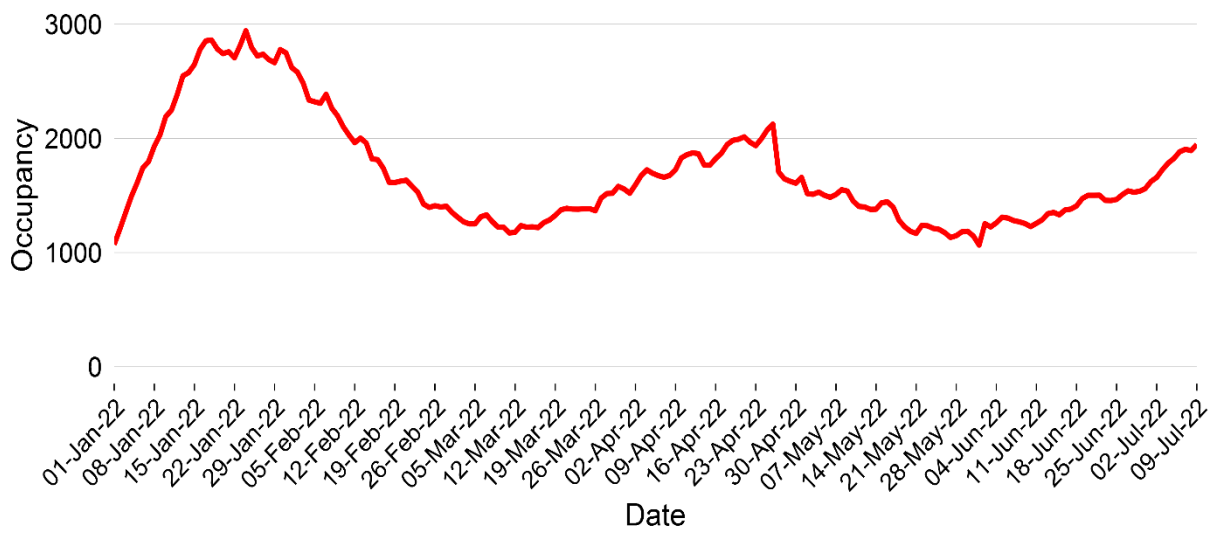


Figure 2. Daily seven-day rolling average of people with COVID-19 admitted to intensive care units, NSW, 1 January to 09 July 2022



- 769 people diagnosed with COVID-19 in the previous 14 days were admitted to a NSW public hospital. The seven-day rolling average of daily hospital admissions decreased to an average of 110 admissions by the end of this week, compared with 113 admissions at the end of the previous week.
- 75 people diagnosed with COVID-19 were admitted to ICU. The seven-day rolling average of daily ICU admissions increased to an average of 11 admissions by the end of this week, compared with 8 admissions at the end of the previous week.

Figure 3. Number of people in hospital with COVID-19 by day, NSW, 1 January to 09 July 2022

- The number of people in hospital with COVID-19 has increased to 1,946 at the end of this week compared to 1,658 at the end of last week.

Table 1. People notified with COVID-19 in the previous 14 days who were admitted to hospital, admitted to ICU or reported as having died in the week ending 09 July 2022

	Admitted to hospital (but not to ICU)	Admitted to ICU	Deaths
Gender			
Female	389	36	45
Male	379	39	50
Not stated / inadequately described	1	0	0
Age group (years)			
0-9	54	1	0
10-19	19	1	0
20-29	43	3	0
30-39	58	2	0
40-49	35	6	3
50-59	52	9	3
60-69	86	18	3
70-79	187	23	18
80-89	154	11	38
90+	81	1	30
Local Health District of residence*			
Central Coast	33	2	8
Illawarra Shoalhaven	54	5	10
Nepean Blue Mountains	27	2	2
Northern Sydney	68	9	8
South Eastern Sydney	114	3	9
South Western Sydney	113	9	11
Sydney	63	10	7
Western Sydney	84	8	7
Far West	4	0	2
Hunter New England	73	6	10
Mid North Coast	16	2	4
Murrumbidgee	27	2	5
Northern NSW	34	13	7
Southern NSW	17	2	2
Western NSW	37	1	3
Vaccination status[^]			
Four or more doses	149	17	15
Three doses	256	26	47
Two doses	152	14	19
One dose	10	2	3
No dose	2	1	11
Unknown	200	15	0
Total	769	75	95

*Excludes cases in correctional settings

[^]Vaccination status is determined by matching to Australian Immunisation Register (AIR) data. Name and date of birth need to be an exact match to that recorded in AIR. People with unknown vaccination status were unable to be found in AIR, though may have vaccination details recorded in AIR under a shortened name or different spelling.

- Of the 95 people who were reported to have died with COVID-19, all were eligible for a third dose of a COVID-19 vaccine but only 62 (65% of those eligible) had received a third dose.¹
- Forty-Five were aged care residents. Eleven of these people died in hospital and 34 died at an aged care facility.
- Five of the deaths occurred at home. Of these, none were diagnosed after death.
- Six people aged under 65 years died with COVID-19. All six cases had record of significant underlying health conditions that increase the risk of severe disease from COVID-19.
 - Four of these cases had received 3 doses of a vaccine.
 - Two of these cases had received 2 doses of a vaccine.

Reported deaths were classified as COVID-19 deaths if they met the surveillance definition in the Communicable Diseases Network of Australia's COVID-19 National Guidelines for Public Health Units. Under this definition, deaths are considered COVID-19 deaths for surveillance purposes if the person died with COVID-19, not necessarily because COVID-19 was the cause of death. Deaths may be excluded if there was a clear alternative cause of death that was unrelated to COVID-19 (e.g. major trauma).

COVID-19 related deaths are notified to NSW Health from a range of sources, including public and private hospitals, aged care facilities, and the Coroner. Not all deaths reported by NSW Health occurred in the week in which they are reported as there is sometimes a delay between a death occurring and it being reported to NSW Health. NSW Health does not report deaths under investigation by the Coroner until the Coroner issues their findings on the cause of death.

¹ The Australian Technical Advisory Group on Immunisation (ATAGI) recommends that everyone aged 16 years and over has three doses of a COVID-19 vaccine, with an additional winter dose recommended for other people at increased risk of severe illness.

Notifications of COVID-19 and Influenza

Table 2. Notifications of COVID-19 and Influenza, by gender, age group, Local Health District, NSW, reported in the week ending 09 July 2022

	Week ending 09 July 2022		Year total	
	COVID-19	Influenza	COVID-19 *	Influenza
Gender				
Female	39,819 (53.6%)	2,624 (54.5%)	1,286,891 (52.3%)	55,272 (52.6%)
Male	34,298 (46.2%)	2,181 (45.3%)	1,170,190 (47.6%)	49,707 (47.3%)
Not stated / inadequately described	104 (0.1%)	8 (0.2%)	3,565 (0.1%)	157 (0.1%)
Transgender	0 (0.0%)	0 (0.0%)	3 (0.0%)	0 (0.0%)
Age group (years)				
0-4	2,942 (4.0%)	840 (17.5%)	114,437 (4.7%)	14,591 (13.9%)
5-9	2,460 (3.3%)	664 (13.8%)	166,040 (6.7%)	18,330 (17.4%)
10-19	5,233 (7.1%)	502 (10.4%)	370,011 (15.0%)	20,473 (19.5%)
20-29	10,380 (14.0%)	575 (11.9%)	407,402 (16.6%)	12,297 (11.7%)
30-39	12,895 (17.4%)	753 (15.6%)	430,137 (17.5%)	14,540 (13.8%)
40-49	11,575 (15.6%)	555 (11.5%)	363,401 (14.8%)	10,129 (9.6%)
50-59	11,607 (15.6%)	338 (7.0%)	273,884 (11.1%)	5,980 (5.7%)
50-69	9,014 (12.1%)	308 (6.4%)	184,996 (7.5%)	4,373 (4.2%)
70-79	5,121 (6.9%)	172 (3.6%)	97,815 (4.0%)	2,685 (2.6%)
80-89	2,231 (3.0%)	75 (1.6%)	40,129 (1.6%)	1,304 (1.2%)
90+	757 (1.0%)	31 (0.6%)	12,265 (0.5%)	420 (0.4%)
Local Health District of residence[#]				
Central Coast	2,814 (3.8%)	243 (5.0%)	108,126 (4.4%)	6,892 (6.6%)
Illawarra Shoalhaven	4,264 (5.8%)	269 (5.6%)	136,426 (5.6%)	5,743 (5.5%)
Nepean Blue Mountains	3,210 (4.4%)	205 (4.3%)	123,050 (5.1%)	5,915 (5.6%)
Northern Sydney	11,175 (15.2%)	485 (10.1%)	290,004 (11.9%)	10,904 (10.4%)
South Eastern Sydney	8,526 (11.6%)	317 (6.6%)	284,077 (11.7%)	11,133 (10.6%)
South Western Sydney	7,497 (10.2%)	500 (10.4%)	302,809 (12.4%)	15,891 (15.1%)
Sydney	6,438 (8.8%)	198 (4.1%)	210,894 (8.7%)	6,714 (6.4%)
Western Sydney	9,009 (12.3%)	551 (11.4%)	327,259 (13.4%)	15,633 (14.9%)
Far West	173 (0.2%)	9 (0.2%)	8,181 (0.3%)	248 (0.2%)
Hunter New England	9,093 (12.4%)	1,053 (21.9%)	290,404 (11.9%)	13,115 (12.5%)
Mid North Coast	1,670 (2.3%)	118 (2.5%)	54,626 (2.2%)	1,462 (1.4%)
Murrumbidgee	2,394 (3.3%)	179 (3.7%)	83,265 (3.4%)	2,952 (2.8%)
Northern NSW	2,029 (2.8%)	153 (3.2%)	72,216 (3.0%)	2,022 (1.9%)
Southern NSW	2,651 (3.6%)	166 (3.4%)	59,614 (2.4%)	1,662 (1.6%)
Western NSW	2,443 (3.3%)	352 (7.3%)	84,630 (3.5%)	4,544 (4.3%)
Aboriginal status[^]				
Aboriginal and/or Torres Strait Islander	1,863 (2.5%)	168 (3.5%)	88,920 (3.6%)	3,307 (3.1%)
Not Aboriginal or Torres Strait Islander	62,482 (84.2%)	2,232 (46.4%)	1,980,556 (80.5%)	48,066 (45.7%)
Not Stated / Unknown	9,876 (13.3%)	2,413 (50.1%)	391,173 (15.9%)	53,763 (51.1%)
Total	74,221 (100%)	4,813 (100%)	2,460,649 (100%)	105,136 (100%)

*Excludes 180,433 positive RATs registered up to 19 January 2022 for whom demographic information is not available. #Excludes cases in correctional settings. ^Aboriginal status is reported by COVID-19 cases when completing their RAT registration or responding to a short text message survey sent to cases detected by PCR. Not all cases respond to the question. For influenza cases, Aboriginal status is only known if it is collected and reported by the laboratory, which is not routine.

Figure 4. People notified with COVID-19, by date of test and type of test performed, NSW, 1 January to 09 July 2022

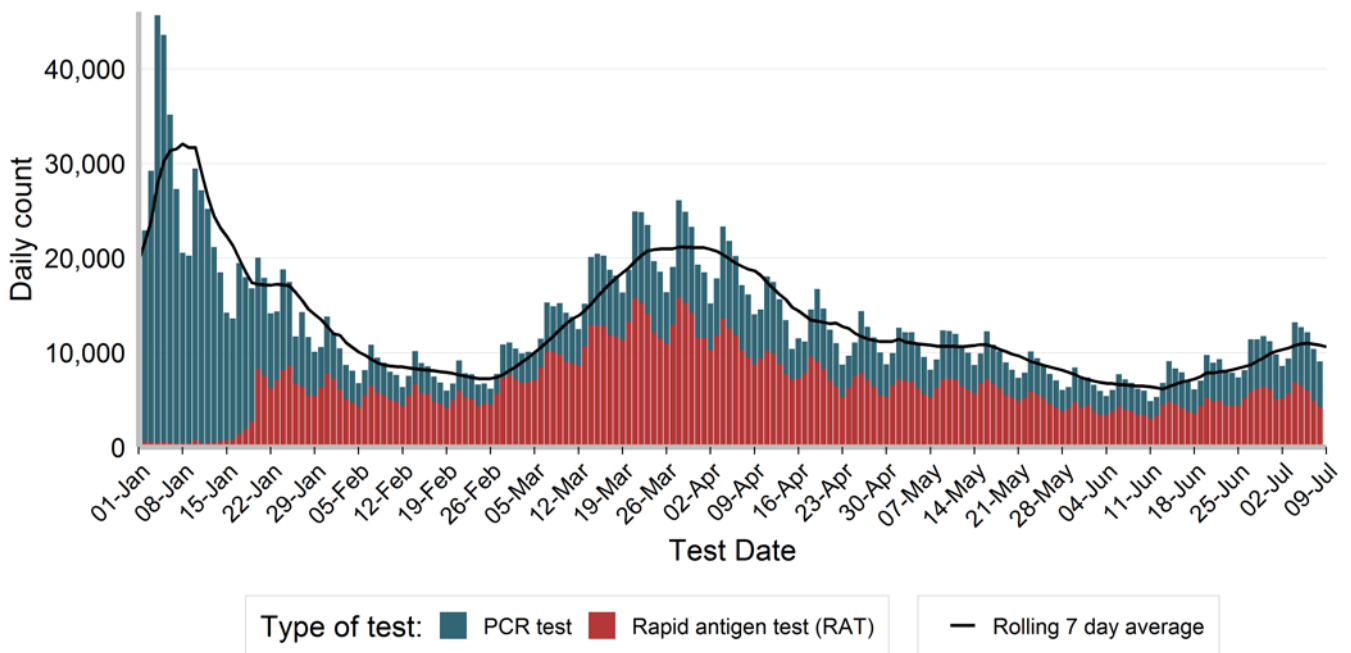
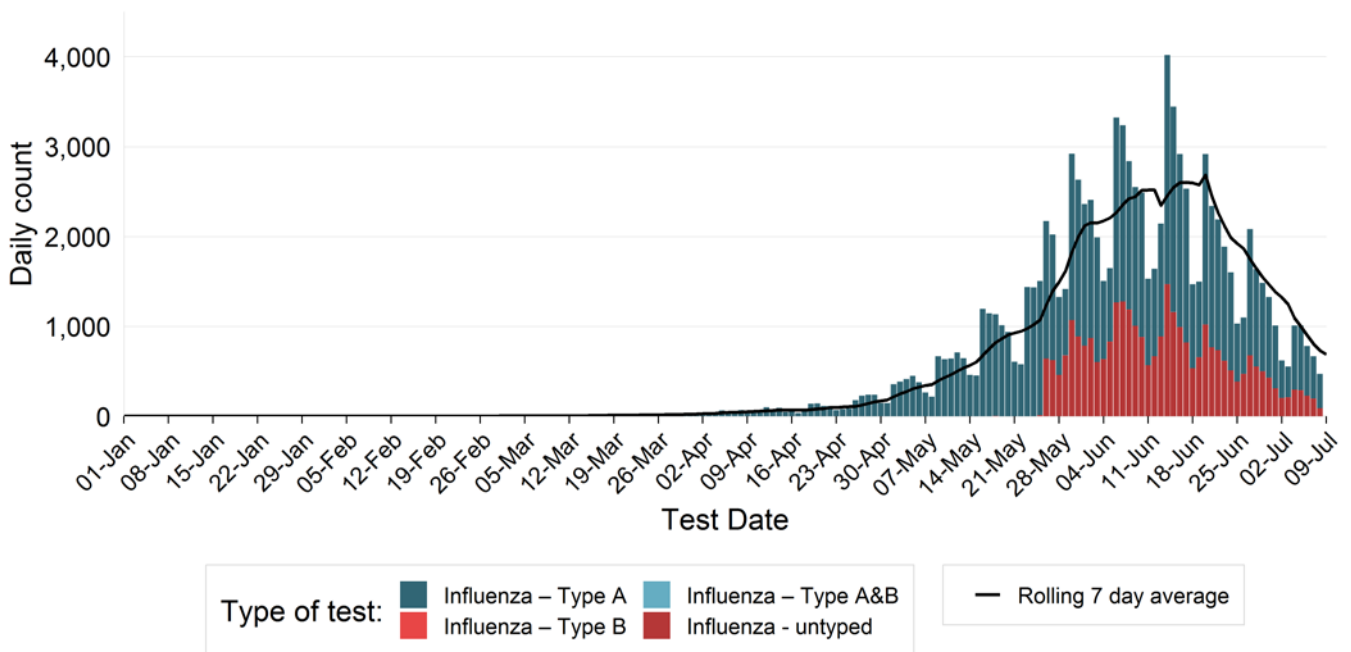


Figure 5. People notified with influenza, by date of test and virus type, NSW, 1 January to 09 July 2022



- There were 74,221 people notified with COVID-19 this week, an increase of 2.8% since the previous week.
- There were 4,813 people notified with influenza this week, a decrease of 48.1% since the previous week.

Figure 6. Daily seven-day rolling average rate of COVID-19 notifications per 100,000 population, by age group and test date, NSW, in the four weeks to 09 July 2022

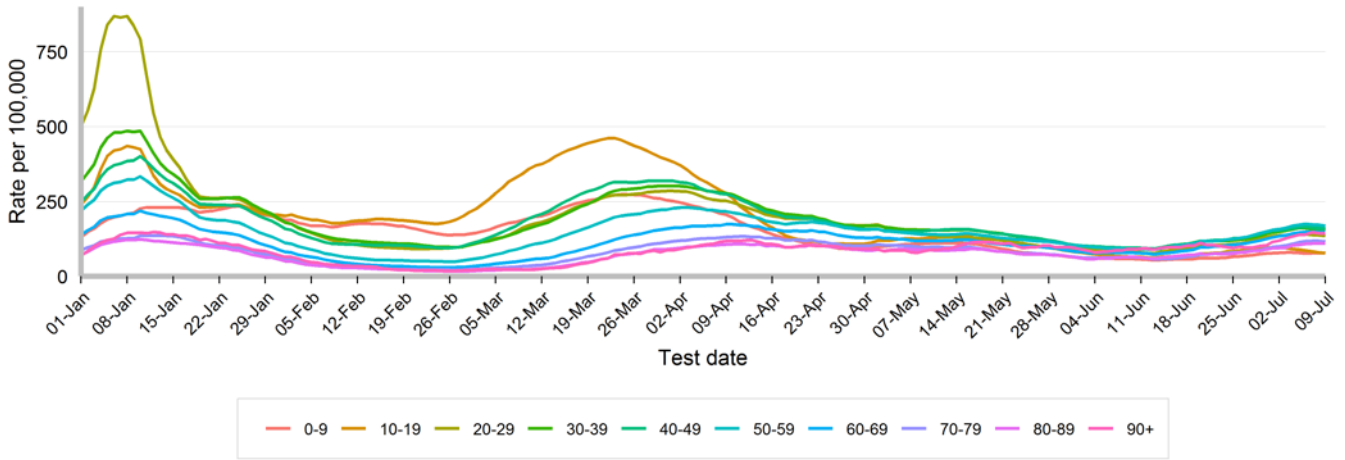


Figure 7. Daily seven-day rolling average rate of COVID-19 notifications per 100,000 population, by metropolitan Local Health District and test date, NSW, in the four weeks to 09 July 2022

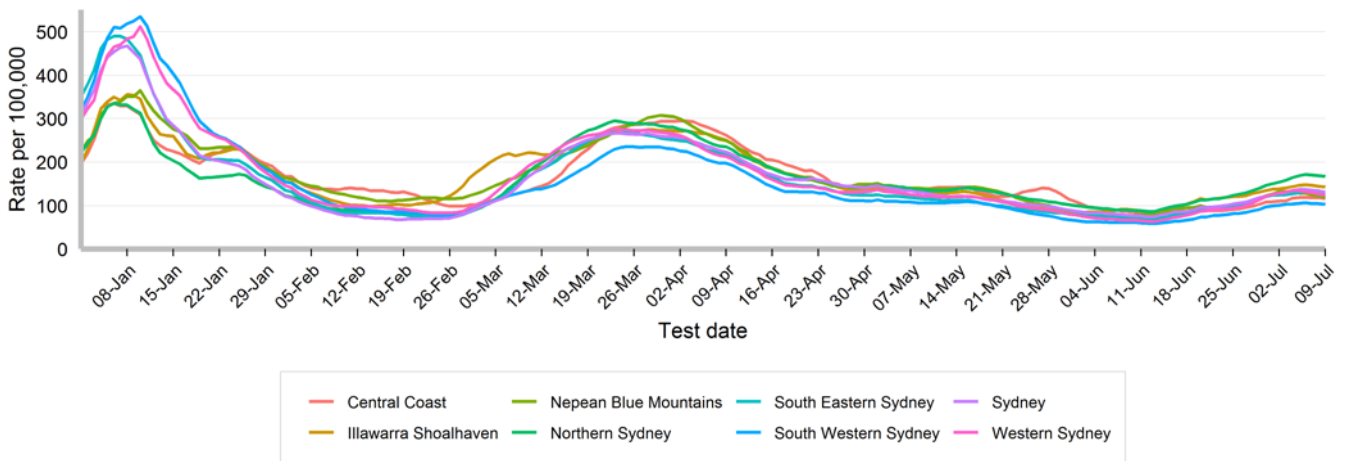


Figure 8. Daily seven-day rolling average rate of COVID-19 notifications per 100,000 population, by rural and regional Local Health District and test date, NSW, in the four weeks to 09 July 2022

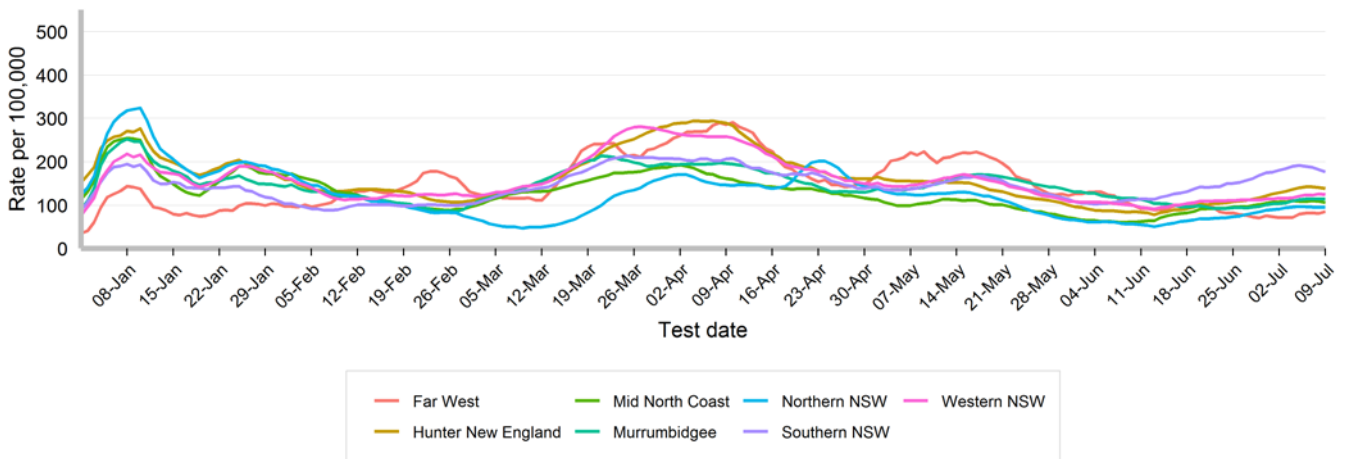


Figure 9. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by age group and test date, NSW, 1 January to 09 July 2022

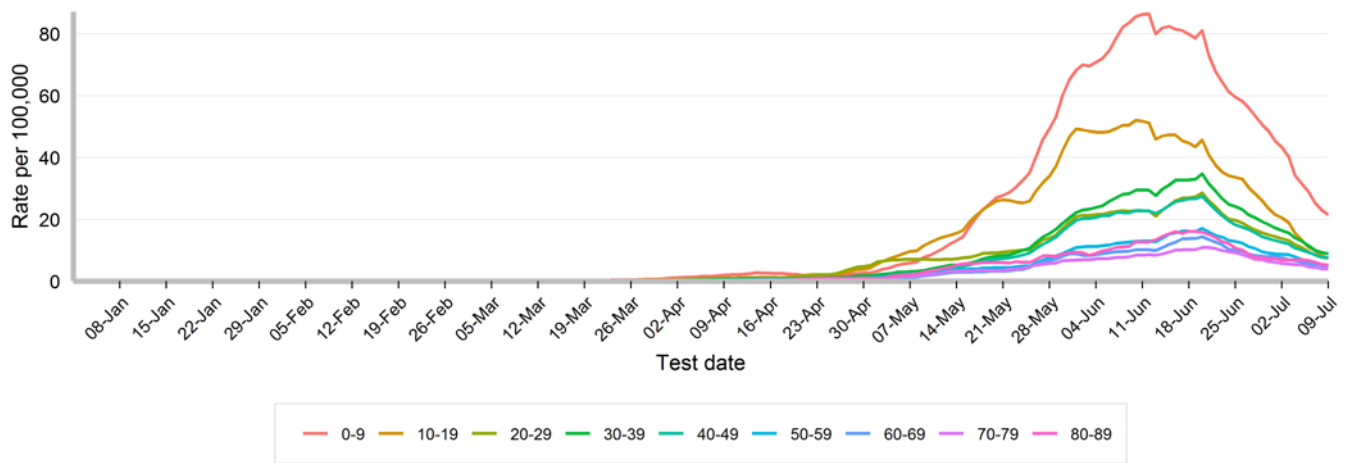


Figure 10. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by metropolitan Local Health District and test date, NSW, 1 January to 09 July 2022

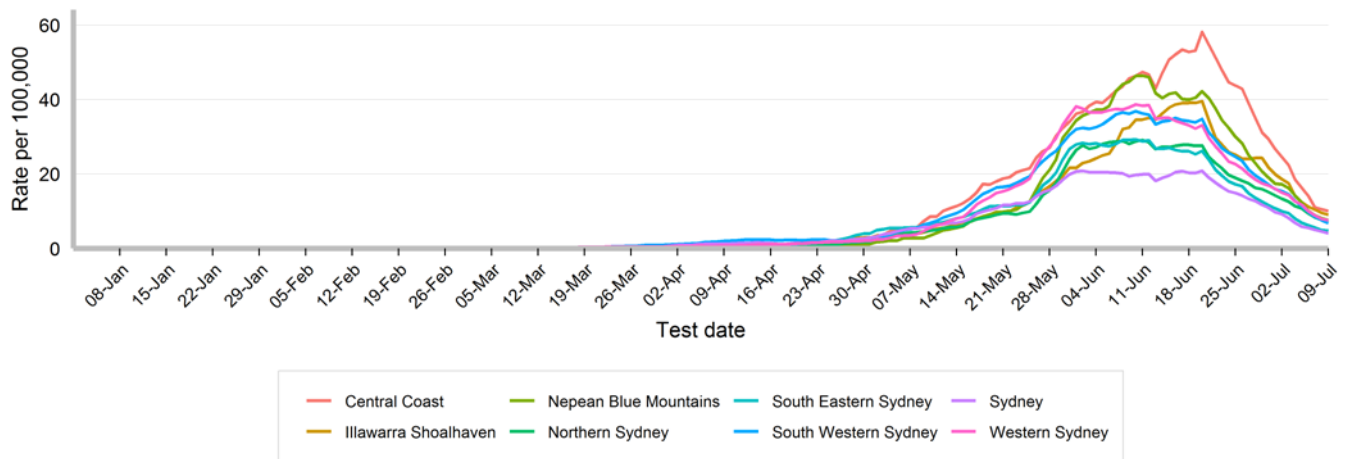
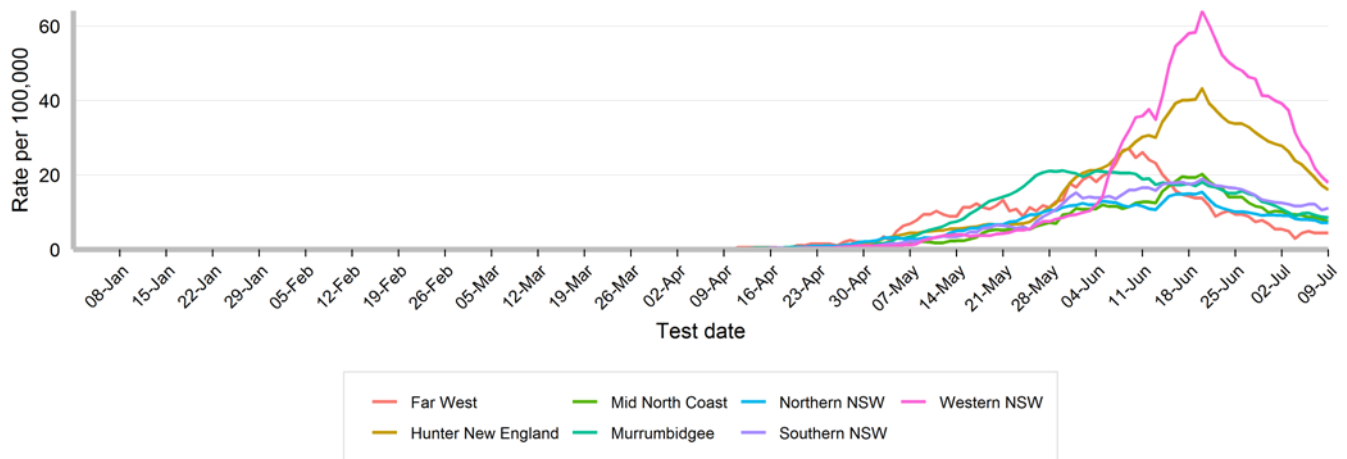


Figure 11. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by rural and regional Local Health District and test date, NSW, 1 January to 09 July 2022



Emergency department and community surveillance

Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS) system

The NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS) system provides daily monitoring of most unplanned presentations to NSW public hospital emergency departments (EDs) and all emergency Triple Zero (000) calls to NSW Ambulance. Emergency hospital presentations and ambulance calls are grouped into related acute illness and injury categories.

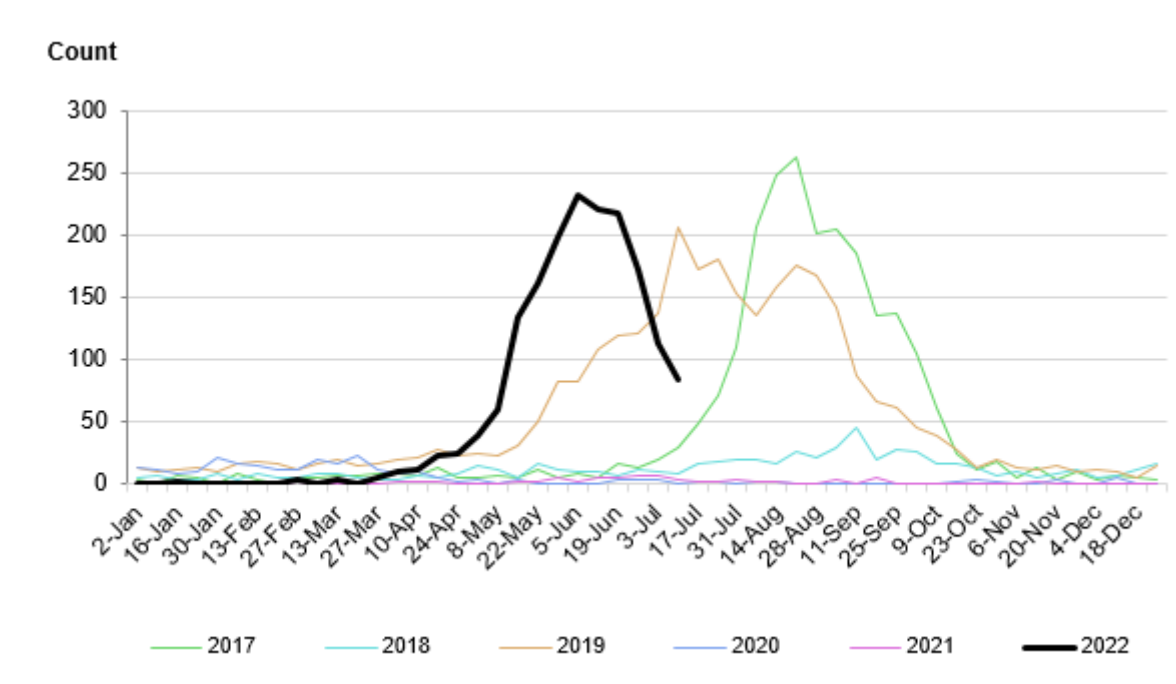
The number of presentations and calls in each category is monitored over time to quickly identify unusual patterns of illness. Unusual patterns could signify an emerging outbreak of disease or issue of public health importance in the population. PHREDSS is also useful for monitoring the impact of seasonal and known disease outbreaks, such as seasonal influenza or gastroenteritis, on the NSW population.

The 88 NSW public hospital EDs used in PHREDSS surveillance account for 95% of all ED activity in NSW public hospitals in 2020-2021, including most major metropolitan public hospitals (99%) and rural public hospitals (89%).

The emergency department 'influenza-like illness' surveillance syndrome includes provisional diagnoses of ILI, influenza, including pneumonia with influenza and avian and other new influenza viruses. Influenza-like illness does not include COVID-19. The number of emergency department presentations for ILI reflects only a fraction of the impact of influenza on emergency departments but it is a useful marker of seasonal timing and trends. The number of presenting patients requiring an admission also provides an indication of severity.

The emergency department 'coronaviruses/SARS' surveillance syndrome includes provisional diagnoses (SNOMEDCT and ICD-10-AM codes) for coronavirus infections SARS, MERS, COVID-19 or other coronaviruses, or clinical condition of Severe Acute Respiratory Syndrome (SARS). It excludes testing and suspected coronavirus codes. There are no IDC-9 codes for COVID-19, so COVID-19 ED presentations at Albury Hospital will be mapped to the fever/unspecified infection surveillance syndrome. A person with COVID-19 may be admitted for reasons other than COVID-19, and of this the number of admissions from ED with a diagnosis of coronaviruses/SARS will be less than the number of confirmed cases of COVID-19 who are in hospital.

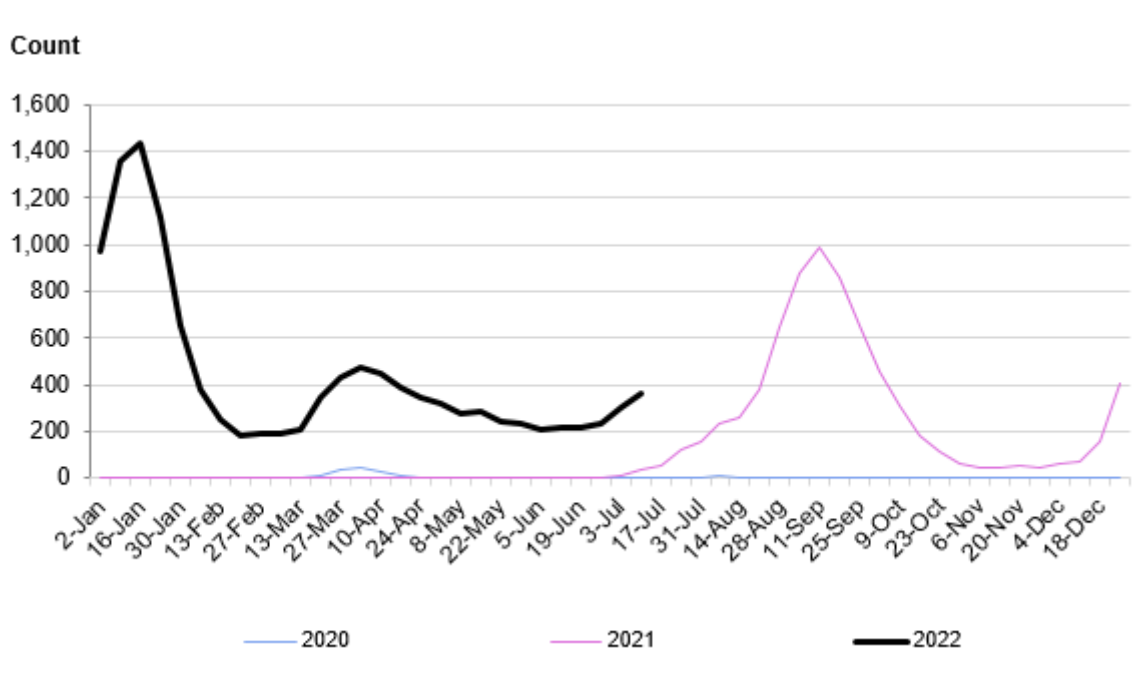
Figure 12. Weekly counts of unplanned emergency department (ED) presentations for 'influenza-like illness', that were admitted, for 2022 (black line), compared with the previous five years (coloured lines), persons of all ages, 88 NSW hospitals



- Emergency department presentations for 'influenza-like illness' (ILI) requiring an admission have decreased to 84 compared to 113 admissions in the previous week. This represents 17% of all ILI emergency department presentations this week, which is a slight increase from 15% in the previous week.

Epidemiological week 27, ending 09 July 2022

Figure 13. Weekly counts of unplanned emergency department (ED) presentations for 'coronaviruses/SARS', that were admitted, for 2022 (black line), compared with the previous two years (coloured lines), persons of all ages, 88 NSW hospitals

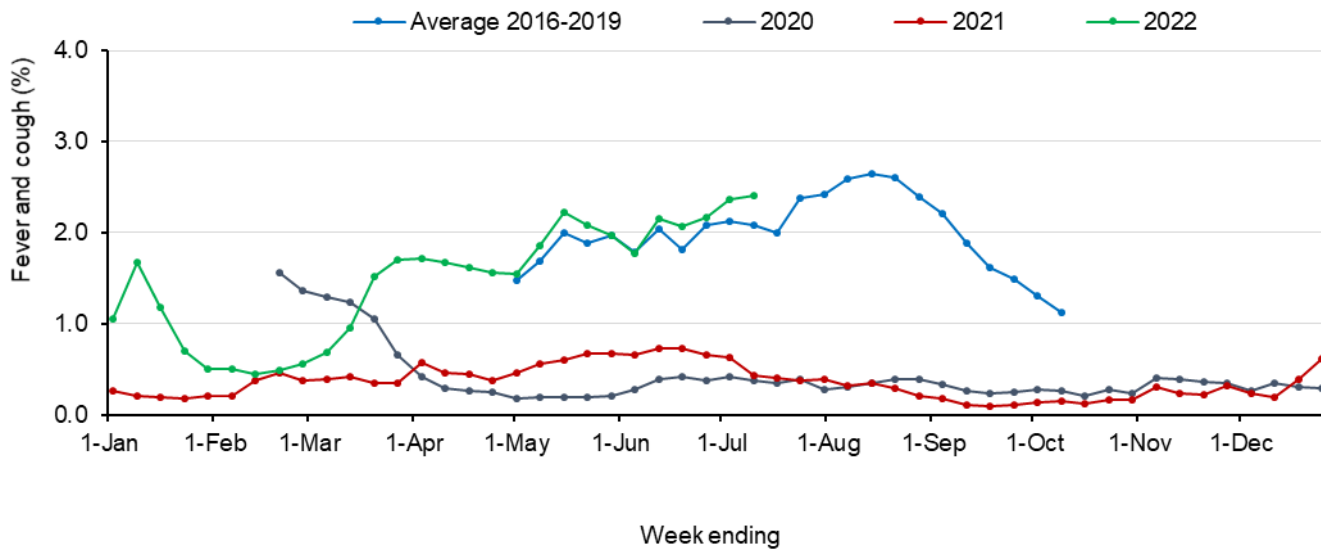


- Emergency department presentations for coronaviruses/SARS requiring an admission have increased to 363 from 302 admissions in the previous week.

FluTracking

FluTracking is an online health surveillance system used to detect epidemics of influenza across Australia and New Zealand. Participants complete an online survey each week to provide community level influenza-like illness surveillance, consistent surveillance of influenza activity across all jurisdictions over time, and year to year comparisons of the timing, attack rates and seriousness of influenza in the community. More information about FluTracking and ways to be involved are available here: <https://info.flutracking.net/about/>

Figure 14. Proportion of FluTracking participants reporting influenza-like illness, NSW, 1 January to 10 July 2022

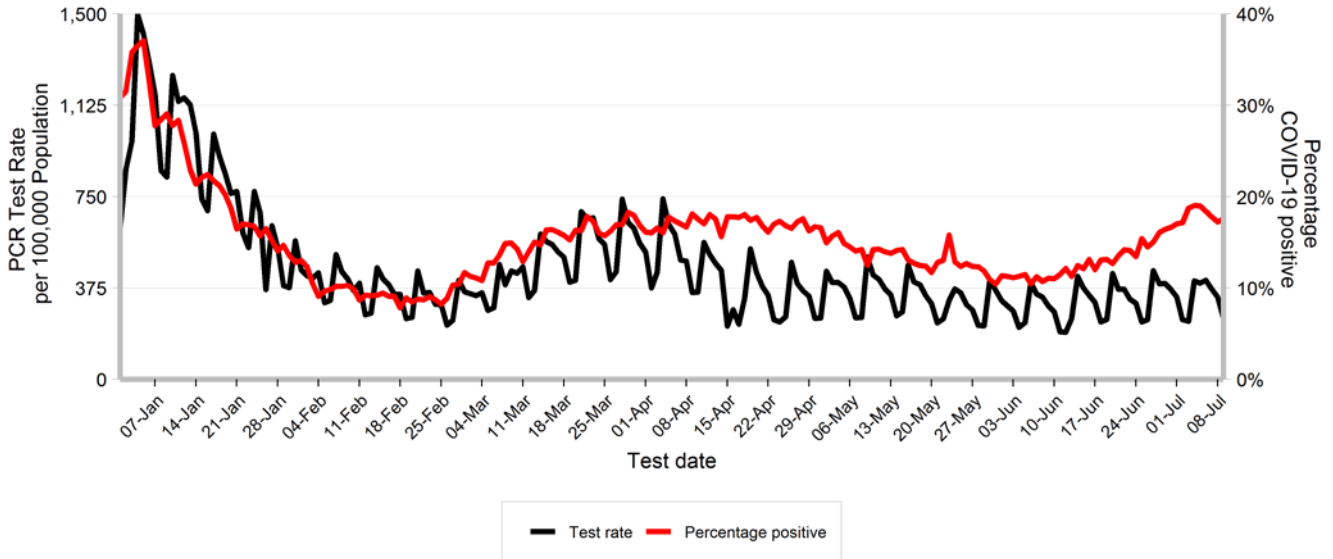


- The proportion of FluTracking participants reporting influenza-like illness increased this week.
- Additional FluTracking reports are available at: <https://info.flutracking.net/reports-2/australia-reports/>

LABORATORY SURVEILLANCE

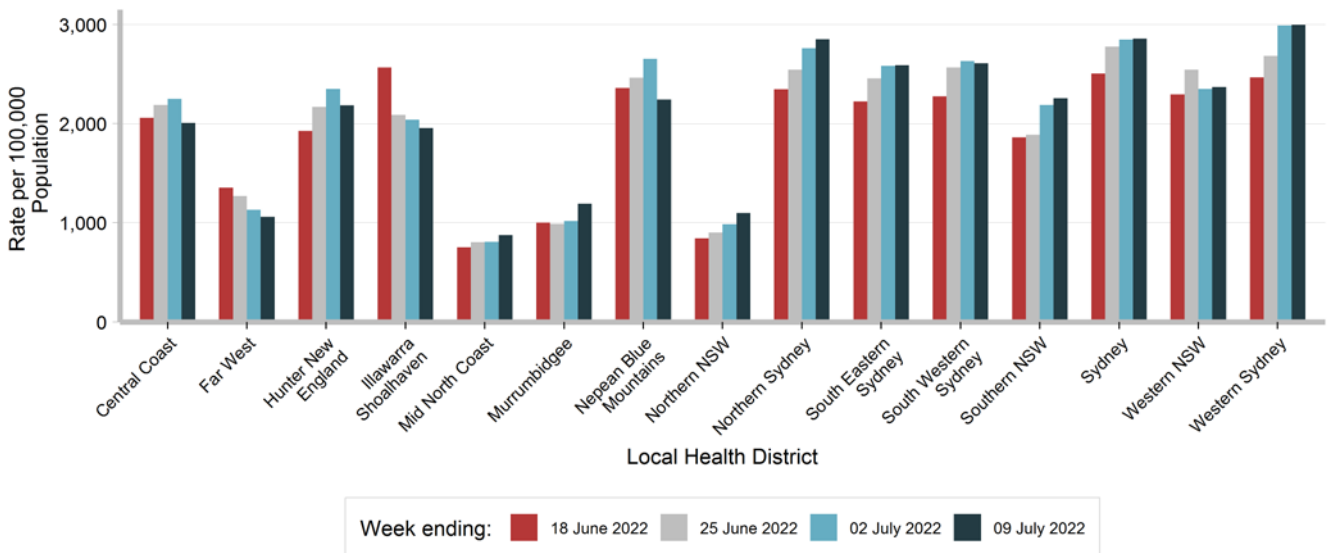
COVID-19 PCR testing

Figure 15. Rate of PCR tests for COVID-19 per 100,000 population per day, and percentage of PCR tests which were positive for COVID-19, by test date, NSW, 1 January to 09 July 2022



- There were 203,451 PCR tests reported this week. This is similar to the 206,120 PCR tests reported in the previous week.
- The percentage of PCR tests that were positive for COVID-19 was 17.6% this week compared to 17.1% at the end of the previous week admissions.

Figure 16. Rate of PCR tests for COVID-19 per 100,000 population by Local Health District and test date, NSW, in the four weeks to 09 July 2022



COVID-19 Whole Genome Sequencing

Whole genome sequencing (WGS) is a laboratory procedure that identifies the genetic profile of an organism. WGS can help understand how a virus transmits, responds to vaccination and the severity of disease it may cause. It can also help to monitor the spread of the virus by identifying specimens that have are genomically similar. WGS has been used in NSW since the start of the COVID-19 pandemic to inform epidemiological investigations, and to monitor for and analyse the behaviour of new SARS-CoV-2 variants circulating in the community. WGS is conducted at three NSW reference laboratories. Prior to August 2021, low community transmission meant that most positive specimens were able to be sequenced. However, since that time high case numbers have required prioritisation of specimens for sequencing.

Specimens from people with COVID-19 who are admitted to hospital or an ICU are prioritised to identify and understand lineages with increased disease severity. Specimens from overseas arrivals are also prioritised to monitor for the introduction of new variants into the community. This is not a random sample, therefore the proportion of sequences identified is not necessarily reflective of their distribution in the community. There is a lag between the date a PCR test is taken and the date that the results of WGS are reported, therefore the count of sequences for recent dates will increase over time.

Variants of Concern

- Like all viruses, the SARS-CoV-2 virus changes over time. The World Health Organization monitors these changes and classifies lineages according to the risk that they pose to global public health. Those that they identify as having changes that increase transmissibility, increase virulence, or decrease the effectiveness of vaccines or treatments are designated as variants of concern (VOCs).

Table 3. Variants of concern (VOCs) identified by whole genome sequencing (WGS) of virus from people who tested positive for SARS CoV-2 by PCR, by test date, NSW, in the four weeks to 09 July 2022

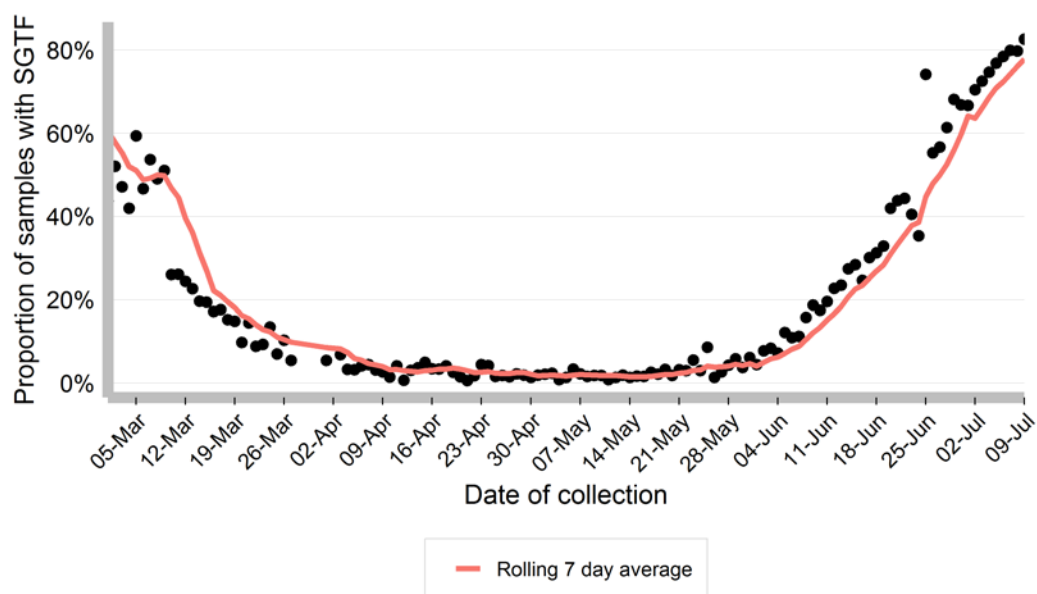
Variant	Week ending			
	18 June	25 June	02 July	09 July
Omicron (BA.1)	1 (0.2%)	0 (0%)	0 (0%)	0 (0%)
Omicron (BA.2)	241 (36.2%)	155 (26.5%)	122 (30.8%)	12 (66.7%)
Omicron (BA.2.12.1)	55 (8.3%)	53 (9.1%)	18 (4.5%)	0 (0%)
Omicron (BA.4)	77 (11.6%)	71 (12.2%)	39 (9.8%)	0 (0%)
Omicron (BA.5)	292 (43.8%)	303 (51.9%)	213 (53.8%)	6 (33.3%)
Omicron (BE.1)	0 (0%)	1 (0.2%)	0 (0%)	0 (0%)
Omicron (BF.1)	0 (0%)	0 (0%)	2 (0.5%)	0 (0%)
Dual Infection	0 (0%)	0 (0%)	2 (0.5%)	0 (0%)
Recombinant (XAG)	0 (0%)	1 (0.2%)	0 (0%)	0 (0%)
Total	666	584	396	18

- The Omicron variant (B.1.1.529) is currently the dominant COVID-19 variant circulating in the NSW community. Most recent specimens have been identified as the BA.2 sub-lineage, however the proportion of specimens identified as BA.4 and BA.5 has been increasing in recent weeks, with BA.5 increasing more than BA.4.

S Gene detection as a proxy for the BA.2 omicron sub-lineage

- The BA.1, BA.4 and BA.5 subvariants of the Omicron variant have a mutation that results in a failure of certain PCR test platforms to detect the S gene. This mutation is typically not present in the BA.2 sub-lineage, and therefore the detection of an S gene can be used as a proxy to estimate the prevalence of BA.2 in the community.
- A PCR testing platform used by a large private pathology provider in NSW can routinely report on detection of the S gene in a specimen positive for SARS-CoV-2. Around 17% of SARS-CoV-2 positive specimens currently have an S gene detected. This indicates that the BA.2 subvariant likely makes up around 17% of the SARS-CoV-2 detected in NSW, and the BA.1, BA.4 and BA.5 subvariants constitute 83%. The S gene failure specimens have been prioritized for WGS, with the majority of these now being identified as BA.4 and BA.5, rather than BA.1.

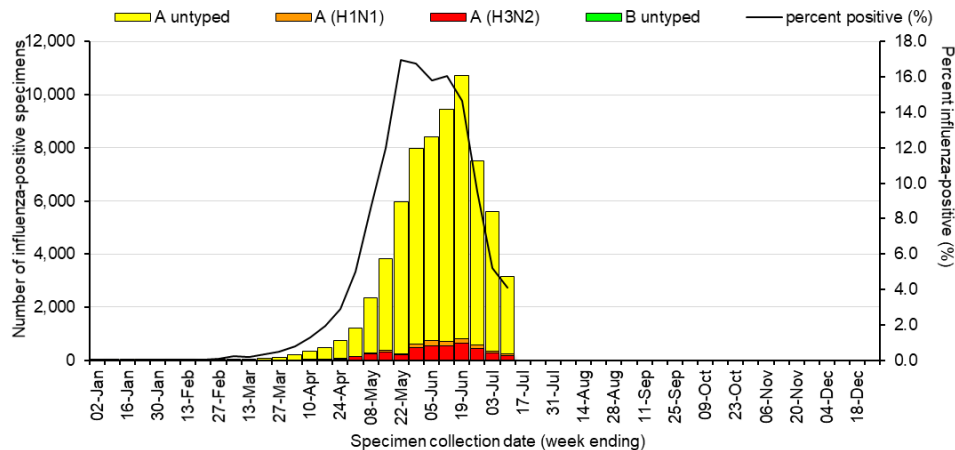
Figure 17. Proportion of samples with S gene target failure (SGTF), 1 March 2022 to 09 July 2022



Influenza and other respiratory viruses

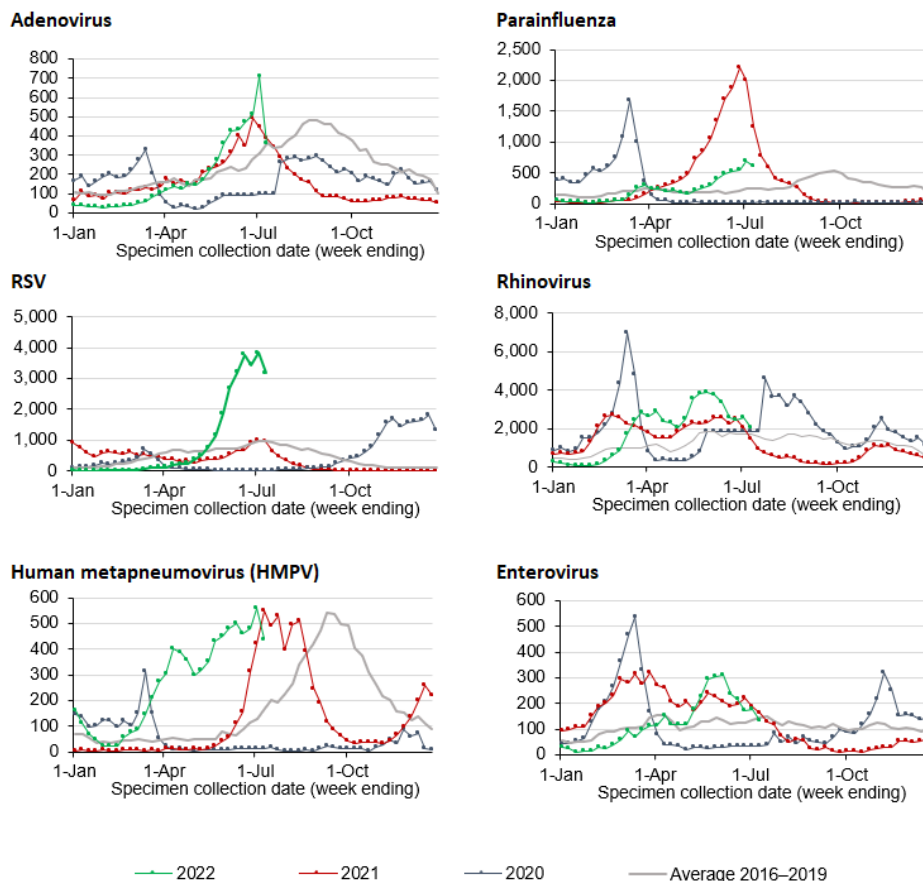
The NSW sentinel laboratory network comprises of 13 public and private laboratories throughout NSW who provide additional data on positive and negative test results. This helps us to understand which respiratory viruses are circulating as well as how much

Figure 18. Number and proportion of tests positive for influenza at sentinel NSW laboratories, 1 January to 10 July 2022



- Of the 76,684 tests conducted for influenza, the proportion positive has decreased to 4% from 5% in the previous week.

Figure 19. Number of positive PCR test results for other respiratory viruses at sentinel NSW laboratories, 1 January to 10 July 2022.



- Recent data is subject to change. For the week ending 10 July 2022, 10 out of 13 sentinel laboratories have provided testing data at the time of reporting.

Table 4. Total number of respiratory disease notifications from sentinel laboratories, NSW in the four weeks to 10 July 2022

	Week ending				Year to date
	19 June	26 June	03 July	10 July*	
Adenovirus	469	511	711	359	5,196
Respiratory syncytial virus (RSV)	3,775	3,442	3,842	3,183	25,915
Rhinovirus	2,565	2,433	2,534	2,066	52,262
Human metapneumovirus (HMPV)	461	482	561	438	7,349
Enterovirus	215	171	175	133	3,435
Number of PCR tests conducted	73,270	78,971	108,068	76,684	901,121

*Recent data is subject to change. For the week ending 10 July 2022, 10 out of 13 sentinel laboratories have provided testing data at the time of reporting.