

NSW Respiratory Surveillance Report - week ending 11 June 2022

COVID-19 Summary

- COVID-19 transmission in the community remains high but continues to trend downwards. Reported rates of COVID-19 are likely to underestimate true incidence in the community due to a decrease in PCR testing and the use of self-reported rapid antigen testing (RATs).
- PCR testing for COVID-19 has decreased, with 178,462 PCR tests reported this week, a 1.1% decrease since the previous week. The proportion of PCR tests that were positive for COVID-19 remains relatively stable at 11.5%.
- 467 people with COVID-19 were admitted to hospital and 43 were admitted to ICU this week. The seven-day rolling average of daily hospital admissions decreased to an average of 67 daily admissions from 75 last week and ICU admissions remained stable at an average of six daily admissions. Hospital admissions include people with COVID-19 who are admitted for other reasons.
- There were 80 COVID-19 deaths reported this week. Of these, all were eligible for a third dose of a COVID-19 vaccine but only 49 (61%) had received a third dose. 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.
- The Omicron variant (B.1.1.529) is currently the dominant COVID-19 variant circulating in the NSW community, with BA.2 the predominant sub-lineage. The proportion of specimens likely to be either the BA.4 or BA.5 sub-lineage has increased substantially in the last week to around 22%.
- The BA.4 and BA.5 sub-lineages have a growth advantage over the BA.2 sub-lineage. There is no evidence of a difference in disease severity but this is being closely monitored. The timing of any increase in COVID-19 infections as a result of the BA.4 and BA.5 sub-lineages 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, isolation when unwell). It is expected that BA.4 and BA.5 will become the dominant strain and will likely be associated with an increase in infections in the coming weeks.

Influenza summary

- Hospital and laboratory surveillance continues to show an increase in influenza activity across NSW, indicating an early commencement to the influenza season and a rapid increase in reported cases.
- Notifications of influenza cases have increased this week; however, case numbers will be impacted by increased levels of influenza testing compared to previous years. Hospitalisations and the percentage of tests that are positive are the most useful indicators for comparison of influenza activity across years.
- Of the 43,884 tests conducted for influenza at sentinel laboratories, the proportion of positive tests remained stable at around 16-17%.
- Emergency department presentations for '*influenza-like illness*' (ILI) requiring an admission have decreased to 217 compared to 232 admissions in the previous week. 14% of all ILI emergency department presentations requiring a hospital admission this week, which is similar to 15% in the previous week. The proportion of presentations that were admitted to hospital was highest for people aged 65 years and over (53%), 35-64 years (14%) and children aged 0-4 years (15%).
- Influenza A is the dominant circulating strain.

Other respiratory viruses summary

- Detections of respiratory syncytial virus (RSV) have decreased this week. Data from sentinel laboratories show that 2,252 cases detected this week, compared to 2,687 cases detected last week.
- Detections of RSV are likely impacted by increased levels of testing for respiratory viruses compared to previous years.
- Emergency department presentations for bronchiolitis, which is a clinical diagnosis of infants usually associated with RSV, continued to increase with 621 presentations for bronchiolitis this week in children aged 0-4 years, up from 519 presentations in the previous week. Of these presentations, 43% were admitted to hospital.

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. Almost 95 per cent of people aged 16 and over in NSW have received two doses of a COVID-19 vaccine, while more than 65 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 11 June 2022

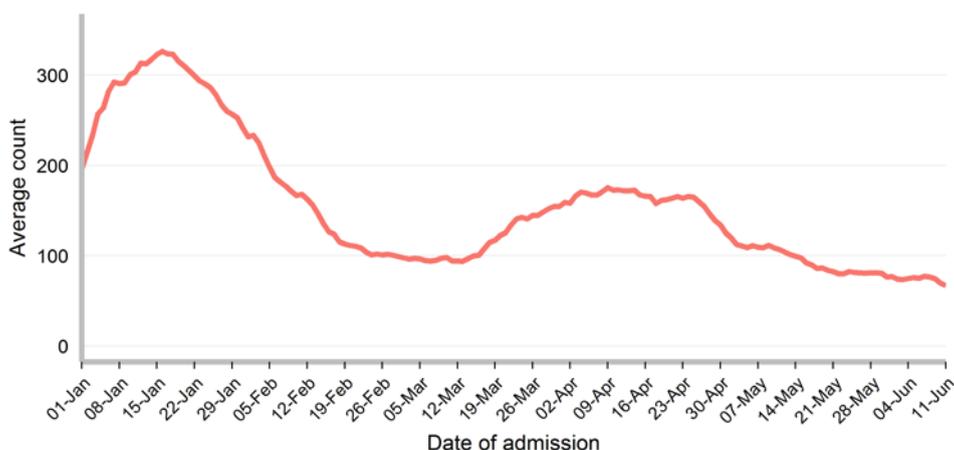
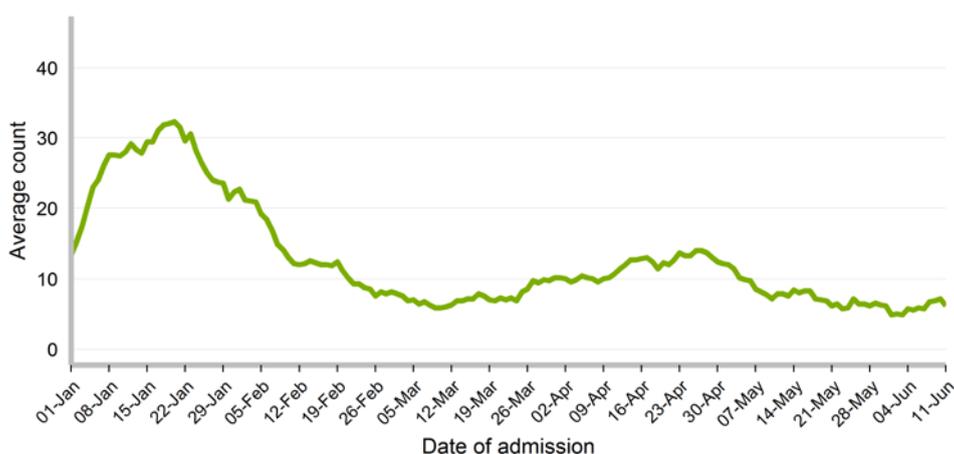


Figure 2. Daily seven-day rolling average of people with COVID-19 admitted to intensive care units, NSW, 1 January to 11 June 2022



- Hospital admissions of people with COVID-19 have decreased in the last week. ICU admissions of people with COVID-19 have increased in the last week
 - 467 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 67 admissions by the end of this week, compared with 75 admissions at the end of the previous week.
 - 43 people diagnosed with COVID-19 were admitted to ICU. The seven-day rolling average of daily ICU admissions was an average of 6 admissions by the end of this week, the same as at the end of the previous week.

Table 1. Number of people with a COVID-19 diagnosis in the previous 14 days who were admitted to hospital, admitted to ICU or reported as having died in the week ending 11 June 2022

	Admitted to hospital (but not to ICU)	Admitted to ICU	Deaths
Gender			
Female	234	22	40
Male	233	21	40
Age group (years)			
0-9	39	0	0
10-19	9	1	0
20-29	16	2	0
30-39	44	1	1
40-49	20	1	1
50-59	28	9	2
60-69	44	5	3
70-79	86	12	14
80-89	120	9	37
90+	61	3	22
Local Health District of residence*			
Central Coast	21	2	0
Illawarra Shoalhaven	32	1	9
Nepean Blue Mountains	16	0	4
Northern Sydney	37	4	6
South Eastern Sydney	67	7	9
South Western Sydney	71	7	12
Sydney	37	3	10
Western Sydney	45	3	5
Far West	3	0	0
Hunter New England	45	5	14
Mid North Coast	15	1	1
Murrumbidgee	17	1	3
Northern NSW	17	3	3
Southern NSW	11	3	1
Western NSW	26	1	3
Vaccination status			
Four or more doses	60	8	7
Three doses	180	14	42
Two doses	92	6	16
One dose	8	0	2
No dose	1	0	12
Unknown [^]	126	15	1
Total	467	43	80

*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 the AIR. People with unknown vaccination status were unable to be found in the AIR, though may have vaccination details recorded in the AIR under a shortened name or different spelling.

- Of the 80 people who were reported to have died with COVID-19, all were eligible for a third dose of a COVID-19 vaccine but only 49 (61% of those eligible) had received a third dose.¹
- Thirty-seven were aged care residents; 10 died in hospital and 27 died at an aged care facility.
- Four of the deaths occurred at home. Of these, none were diagnosed after death.
- Six people aged under 65 years died with COVID-19. Five had records of significant underlying health conditions that increase the risk of severe disease from COVID-19.
 - Two of the deaths were unvaccinated
 - Three of the deaths were not fully vaccinated
 - One of the deaths was fully vaccinated
- 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. Number and proportion of notifications of COVID-19 and Influenza, by gender, age group, Local Health District, NSW, reported in the week ending 11 June 2022

	Week ending 11 June 2022		Year total	
	COVID-19	Influenza	COVID-19 *	Influenza
Gender				
Female	22,558 (53.6%)	9,317 (53.5%)	1,147,873 (52.1%)	30,369 (51.6%)
Male	19,429 (46.2%)	8,054 (46.3%)	1,050,800 (47.7%)	28,434 (48.3%)
Not stated / inadequately described	73 (0.2%)	33 (0.2%)	3,231 (0.1%)	97 (0.2%)
Transgender	0 (0.0%)	0 (0.0%)	3 (0.0%)	0 (0.0%)
Age group (years)				
0-4	1,918 (4.6%)	2,596 (14.9%)	103,909 (4.7%)	7,671 (13.0%)
5-9	1,801 (4.3%)	3,356 (19.3%)	156,763 (7.1%)	10,663 (18.1%)
10-19	4,041 (9.6%)	3,470 (19.9%)	347,517 (15.8%)	13,139 (22.3%)
20-29	5,646 (13.4%)	1,725 (9.9%)	370,419 (16.8%)	7,014 (11.9%)
30-39	7,394 (17.6%)	2,471 (14.2%)	384,749 (17.5%)	7,564 (12.8%)
40-49	6,477 (15.4%)	1,654 (9.5%)	323,132 (14.7%)	5,355 (9.1%)
50-59	5,863 (13.9%)	891 (5.1%)	235,021 (10.7%)	3,027 (5.1%)
50-69	4,597 (10.9%)	615 (3.5%)	155,762 (7.1%)	2,129 (3.6%)
70-79	2,635 (6.3%)	366 (2.1%)	81,829 (3.7%)	1,397 (2.4%)
80-89	1,230 (2.9%)	180 (1.0%)	32,906 (1.5%)	689 (1.2%)
90+	456 (1.1%)	76 (0.4%)	9,779 (0.4%)	236 (0.4%)
Local Health District of residence[#]				
Central Coast	1,915 (4.6%)	1,139 (6.5%)	98,225 (4.5%)	3,397 (5.8%)
Illawarra Shoalhaven	2,488 (6.0%)	1,029 (5.9%)	121,204 (5.6%)	2,835 (4.8%)
Nepean Blue Mountains	1,999 (4.8%)	1,236 (7.1%)	111,017 (5.1%)	3,138 (5.3%)
Northern Sydney	5,557 (13.4%)	1,929 (11.1%)	252,977 (11.6%)	5,936 (10.1%)
South Eastern Sydney	4,529 (10.9%)	1,923 (11.0%)	254,549 (11.7%)	6,706 (11.4%)
South Western Sydney	4,166 (10.0%)	2,610 (15.0%)	276,871 (12.7%)	8,592 (14.6%)
Sydney	3,567 (8.6%)	960 (5.5%)	188,559 (8.7%)	3,751 (6.4%)
Western Sydney	4,480 (10.8%)	2,734 (15.7%)	295,999 (13.6%)	9,214 (15.6%)
Far West	177 (0.4%)	53 (0.3%)	7,476 (0.3%)	176 (0.3%)
Hunter New England	5,171 (12.4%)	1,982 (11.4%)	259,237 (11.9%)	4,984 (8.5%)
Mid North Coast	887 (2.1%)	191 (1.1%)	48,304 (2.2%)	556 (0.9%)
Murrumbidgee	2,214 (5.3%)	372 (2.1%)	74,500 (3.4%)	1,703 (2.9%)
Northern NSW	1,044 (2.5%)	247 (1.4%)	65,079 (3.0%)	1,002 (1.7%)
Southern NSW	1,620 (3.9%)	244 (1.4%)	49,936 (2.3%)	759 (1.3%)
Western NSW	1,762 (4.2%)	700 (4.0%)	75,541 (3.5%)	1,272 (2.2%)
Aboriginal status[^]				
Aboriginal and/or Torres Strait Islander	1,517 (3.6%)	478 (2.7%)	81,043 (3.7%)	1,583 (2.7%)
Not Aboriginal or Torres Strait Islander	34,267 (81.5%)	7,627 (43.8%)	1,764,358 (80.1%)	26,578 (45.1%)
Not Stated / Unknown	6,276 (14.9%)	9,299 (53.4%)	356,506 (16.2%)	30,739 (52.2%)
Total	42,060 (100%)	17,404 (100%)	2,201,907 (100%)	58,900 (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 3. Number of people diagnosed with COVID-19, by date of test and type of test performed, NSW, 1 January to 11 June 2022

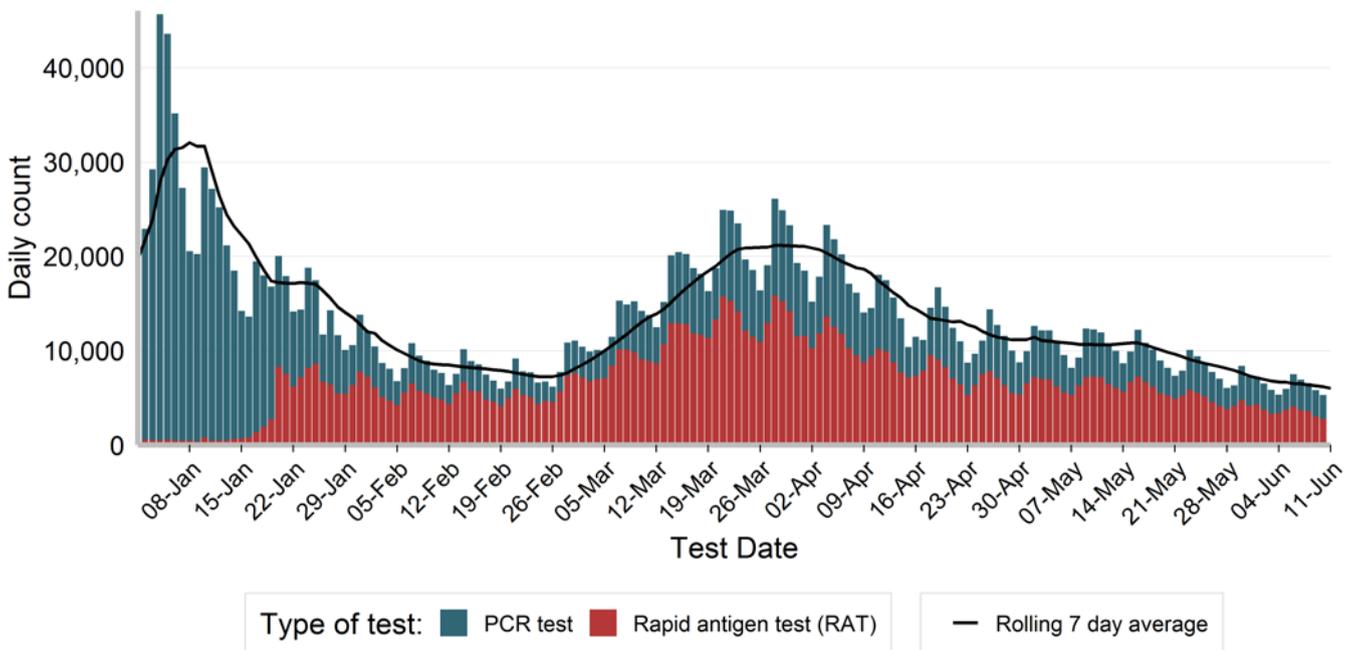
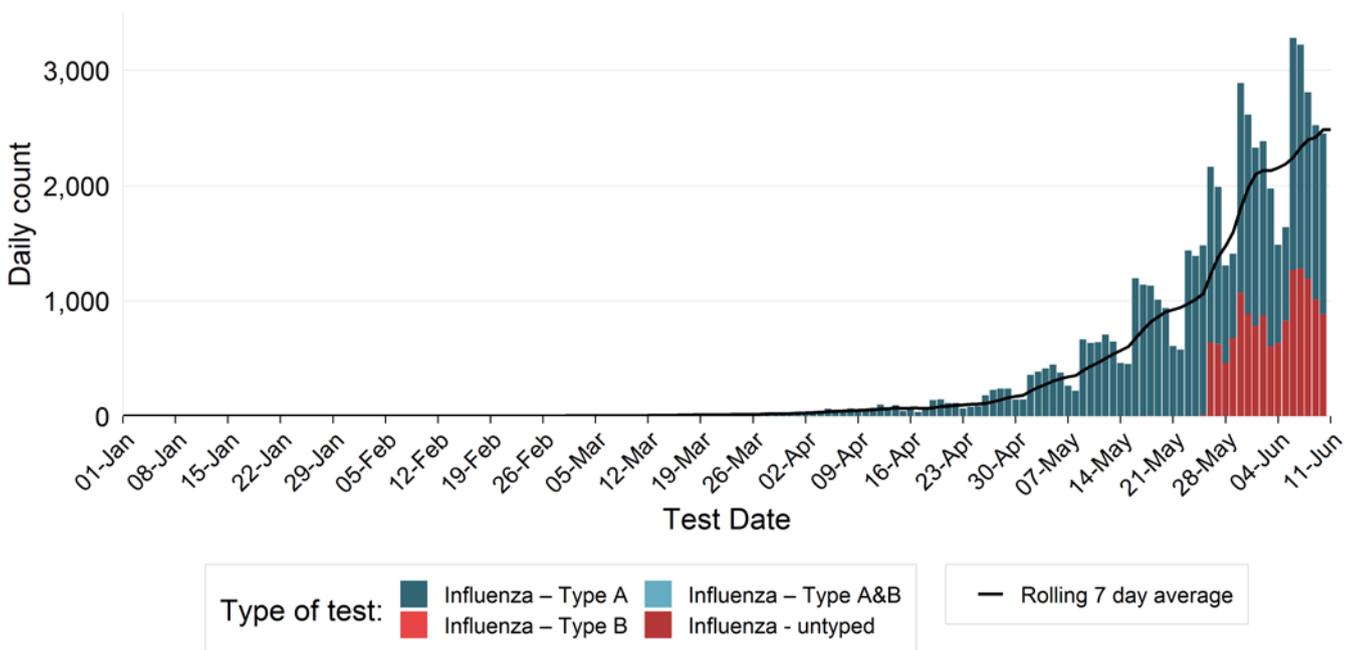


Figure 4. Number of people diagnosed with influenza, by date of test and virus type, NSW, 1 January to 11 June 2022



- There were 42,060 people diagnosed with COVID-19 this week, a decrease of 10.2% since the previous week.
- There were 17,404 people diagnosed with influenza this week, an increase of 15.3% since the previous week.

Figure 5. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by age group and test date, NSW, 1 January to 11 June 2022

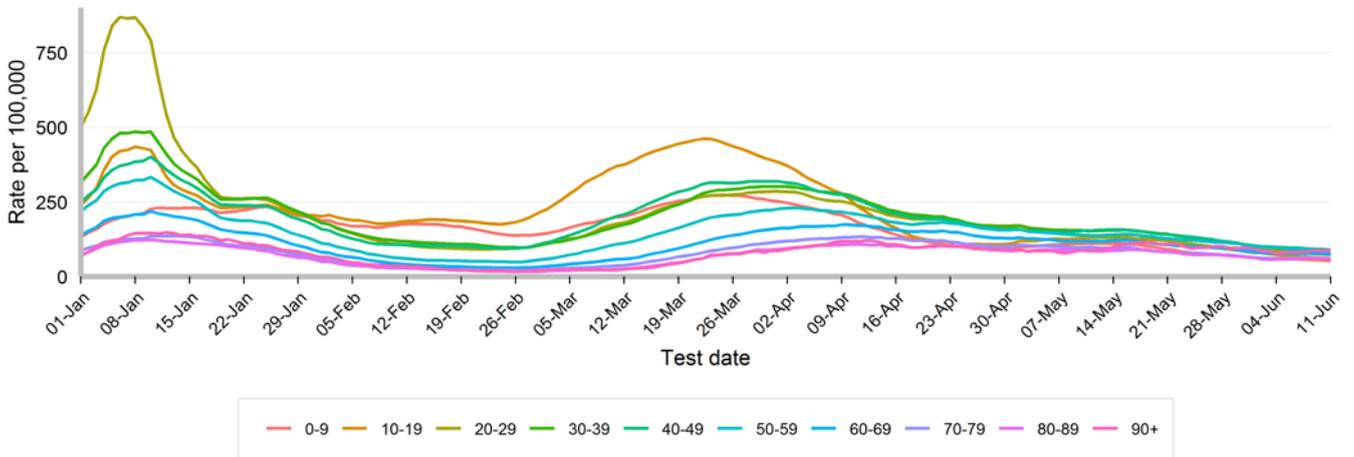


Figure 6. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by metropolitan Local Health District and test date, NSW, 1 January to 11 June 2022

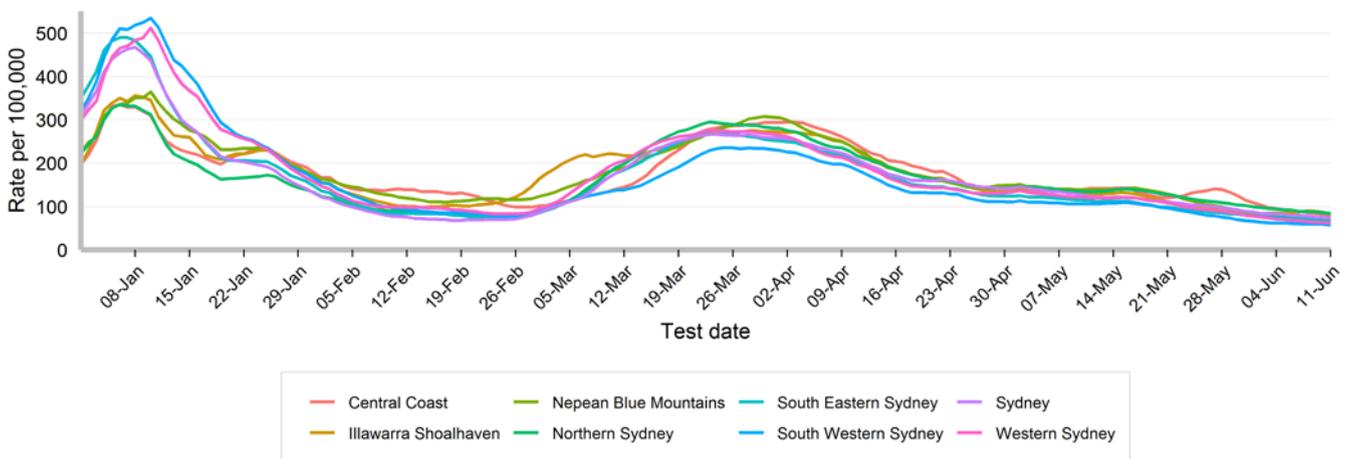
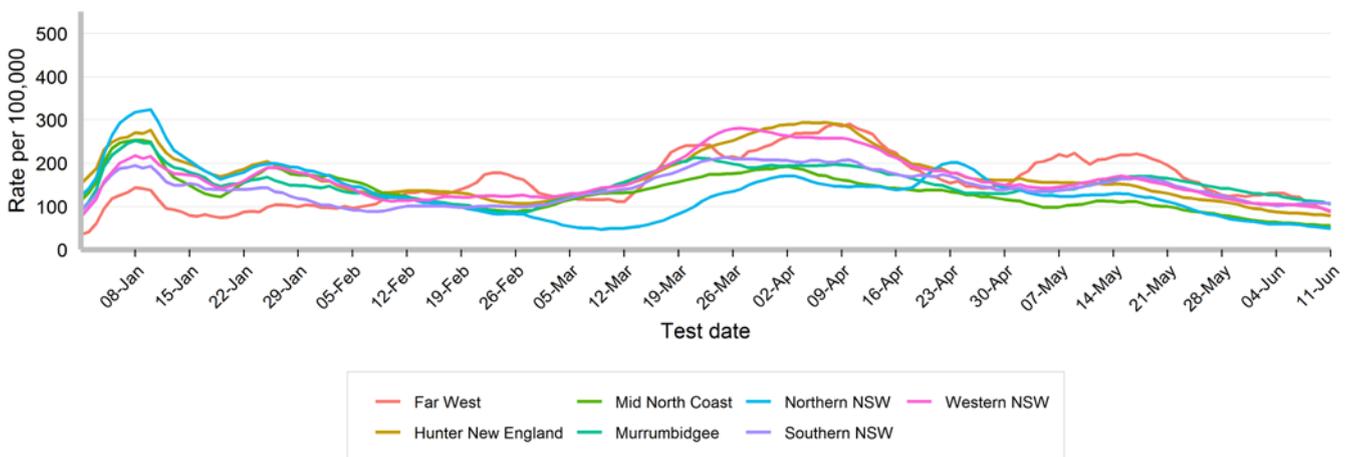


Figure 7. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by rural and regional Local Health District and test date, NSW, 1 January to 11 June 2022



- The rate of people reported with COVID-19 per 100,000 population has remained stable or decreased in all age groups and Local Health Districts (LHDs) this week.

Figure 8. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by age group and test date, NSW, 1 January to 11 June 2022

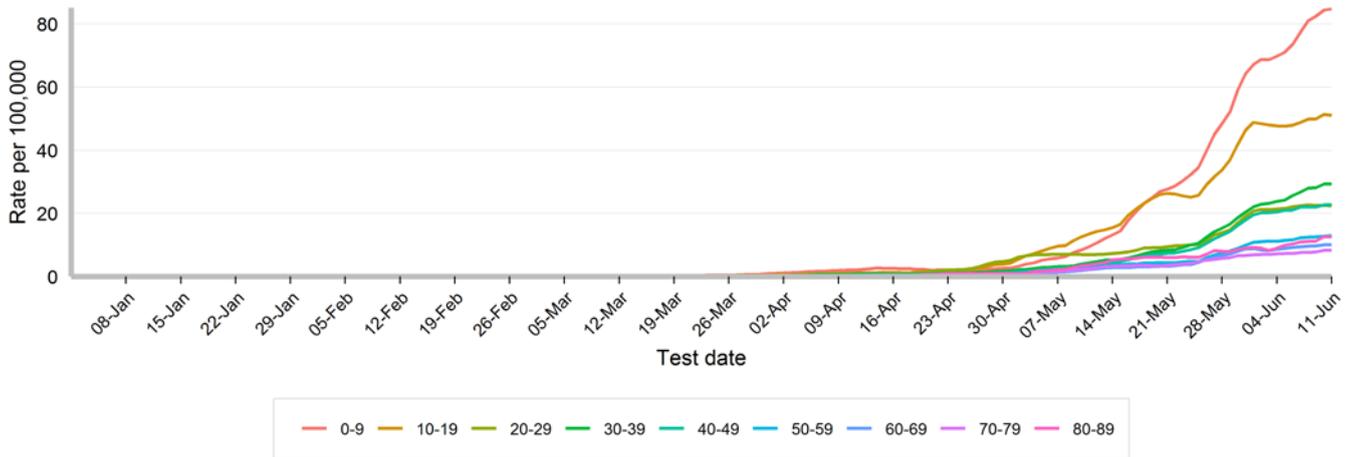


Figure 9. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by metropolitan Local Health District and test date, NSW, 1 January to 11 June 2022

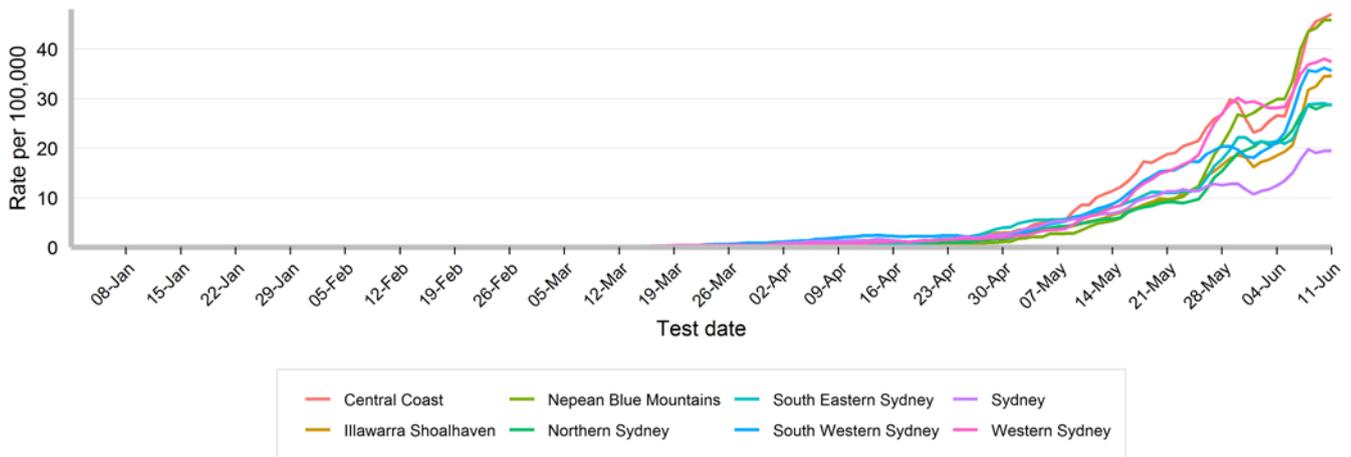
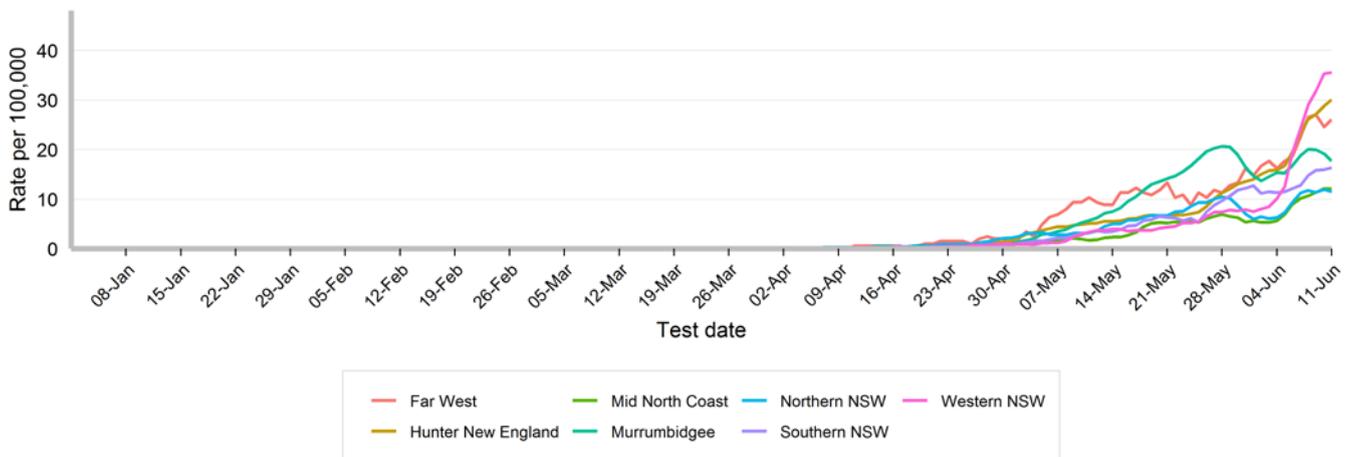


Figure 10. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by rural and regional Local Health District and test date, NSW, 1 January to 11 June 2022



- The rate of influenza notifications remains elevated across all LHDs. In metropolitan LHDs, the rate was highest in Nepean Blue Mountains and Western Sydney at the end of this week. In rural and regional LHDs, the rate was highest in Western NSW Hunter New England and Far West.

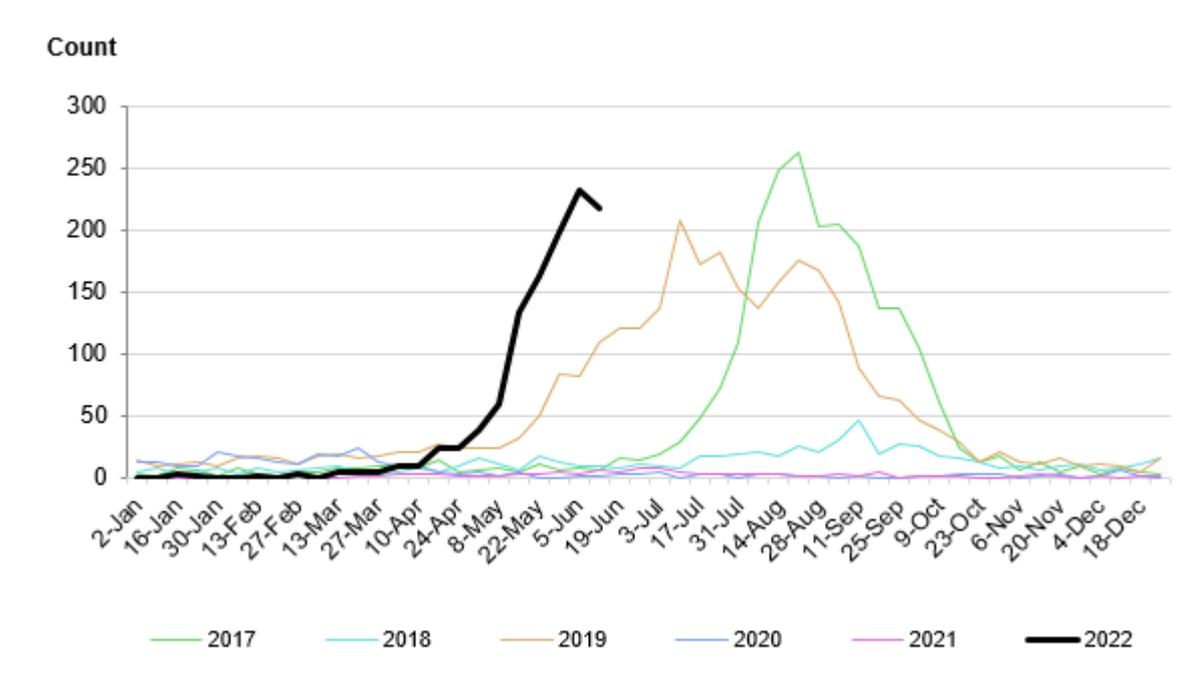
Emergency department and community surveillance

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.

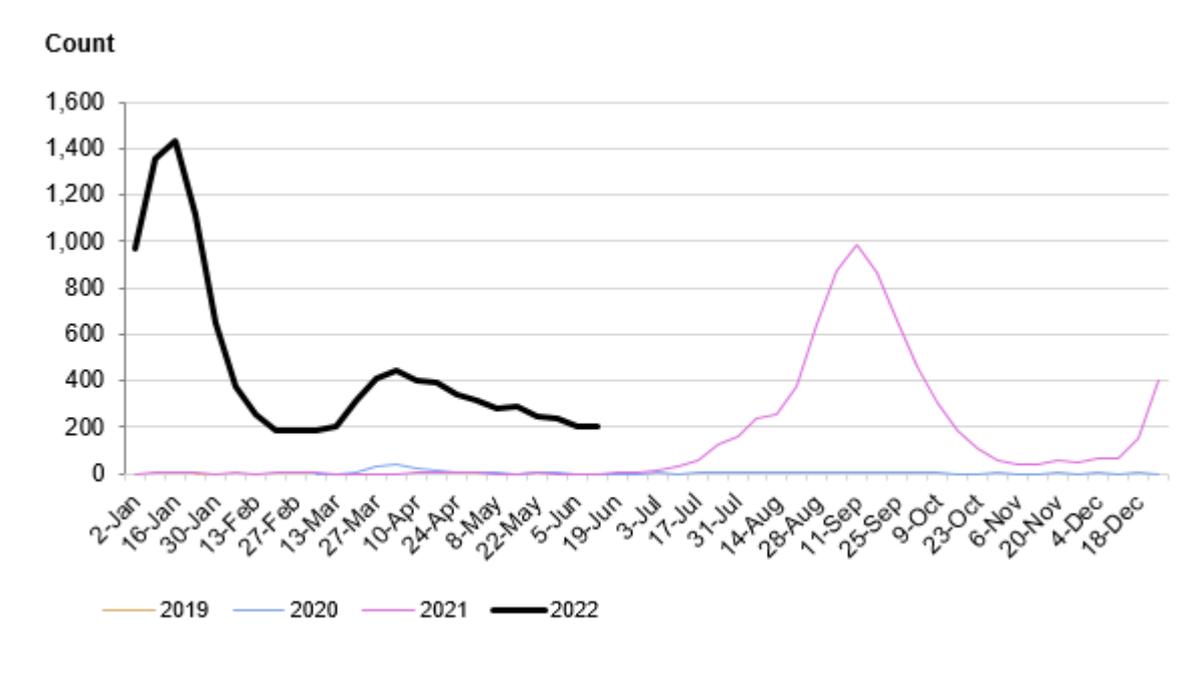
- The number of presentations and calls in each category is monitored over time to quickly identify unusual patterns of illness. Unusual patterns could signify an emerging outbreak of disease or issue of public health importance in the population. PHREDSS is also useful for monitoring the impact of seasonal 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 ICD-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 11. 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 217 compared to 232 admissions in the previous week. This represents 14% of all ILI emergency department presentations this week, which is a slight decrease from 15% in the previous week. The proportion of presentations that were admitted to hospital was highest for people aged 65 years and over (53%), 35-64 years old (14%) and children aged 0-4 years (15%).

Figure 12. 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

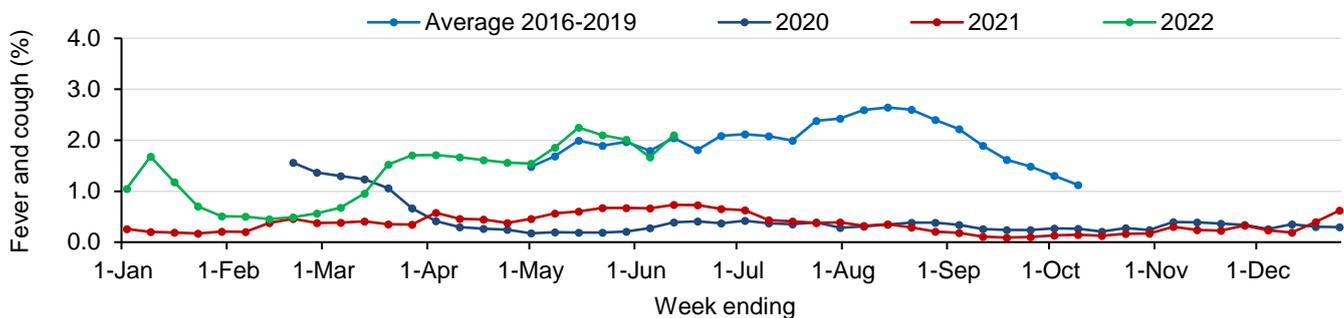


- Emergency department presentations for coronaviruses/SARS requiring an admission have increased to 208 from 207 admissions in the previous week.

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 13. Proportion of FluTracking participants reporting influenza-like illness, NSW, 1 January to 12 June 2022

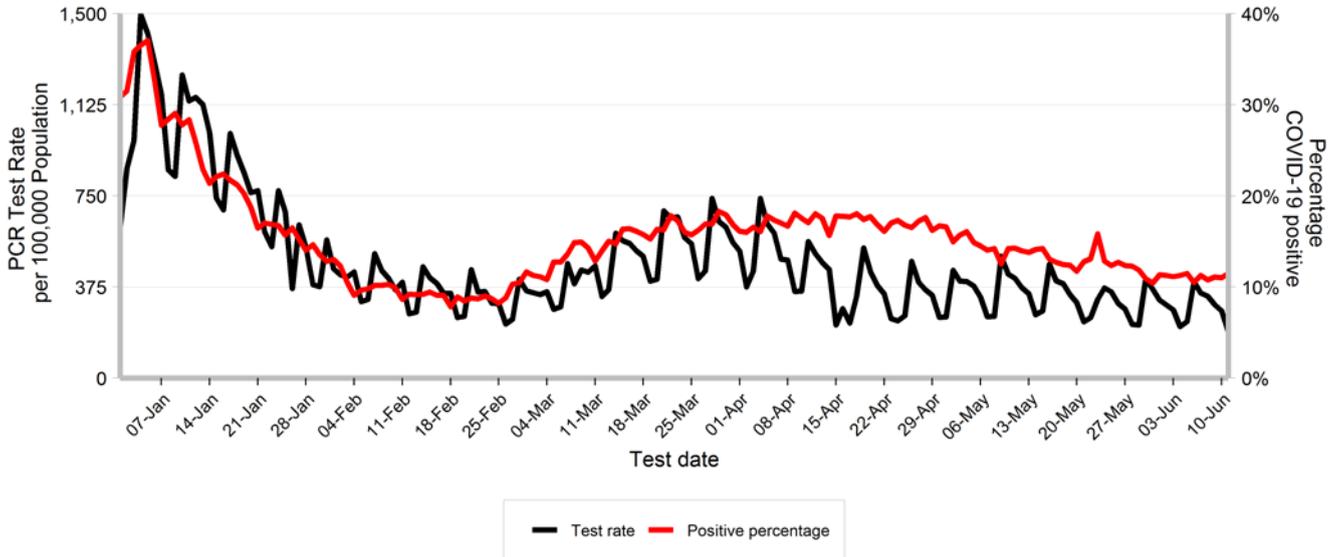


- The proportion of FluTracking participants reporting influenza-like illness increased this week.
- Additional FluTracking reports are available at: <https://info.flutracking.net/reports-2/australia-reports/>

LABORATORY SURVEILLANCE

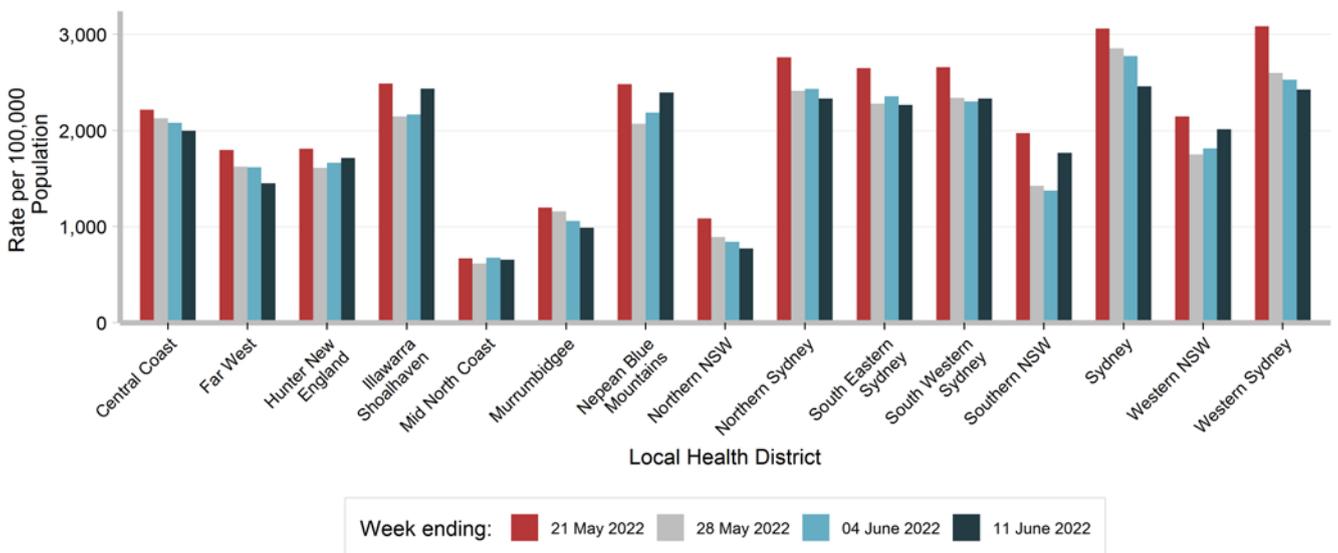
COVID-19 PCR testing

Figure 14. 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 11 June 2022



- There were 178,462 PCR tests reported this week. This is a 1.1% decrease compared to 180,430 PCR tests reported in the previous week.
- The percentage of PCR tests that were positive for COVID-19 is stable at 11.5% compared to 11.3% at the end of the previous week admissions by the end of this week.

Figure 15. Rate of PCR tests for COVID-19 per 100,000 population by Local Health District and test date, NSW, in the four weeks to 11 June 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 11 June 2022

Variant	Week ending			
	21 May	28 May	04 June	11 June
Omicron (BA.1)	4	2	0	0
Omicron (BA.2)	473	401	210	85
Omicron (BA.2.12.1)	37	50	62	19
Omicron (BA.3)	1	0	0	0
Omicron (BA.4)	25	50	67	23
Omicron (BA.5)	46	80	223	56
Recombinant (XE)*	0	1	0	0
Recombinant (XM)*	0	1	0	1
Total	586	585	562	184

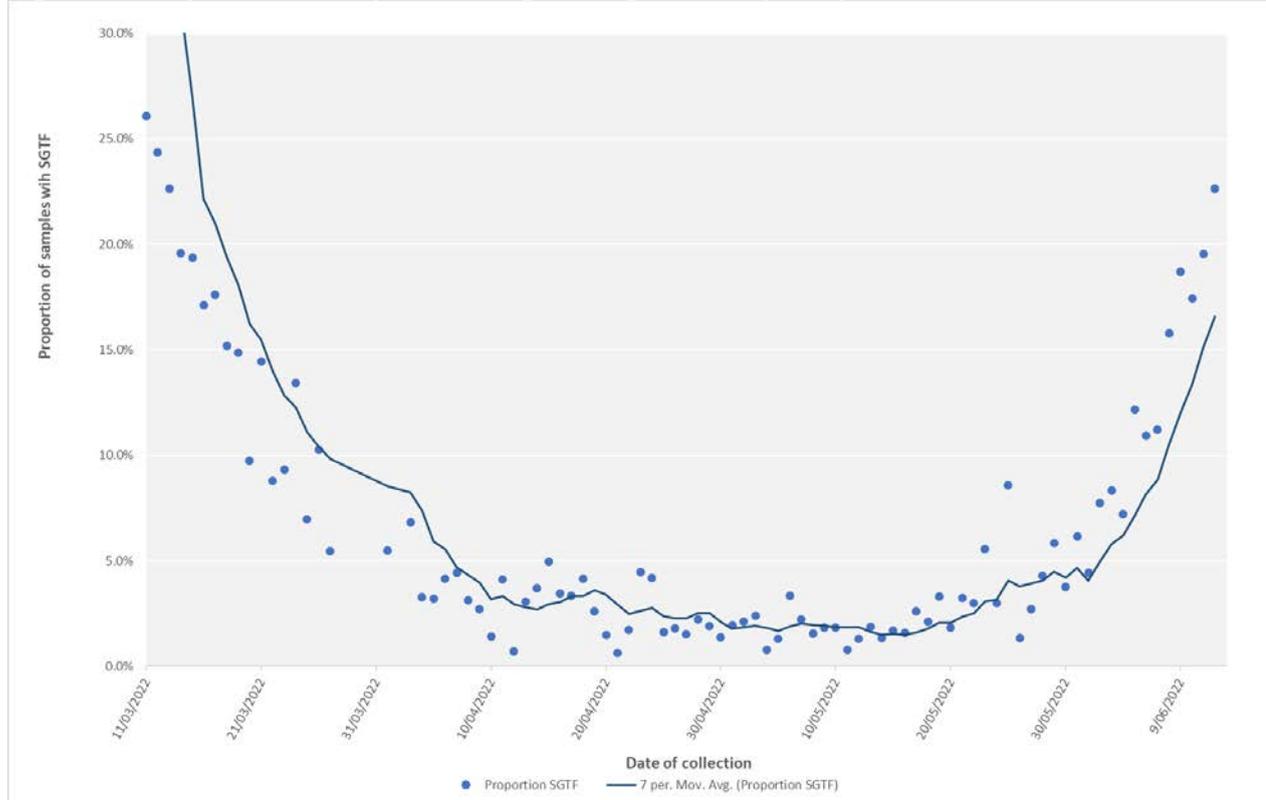
*Recombinant virus sequences occur when two separate virus strains merge, forming a new, single strain that contains genomic regions of both co-infecting strains.

- 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.

Epidemiological week 23, ending 11 June 2022

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

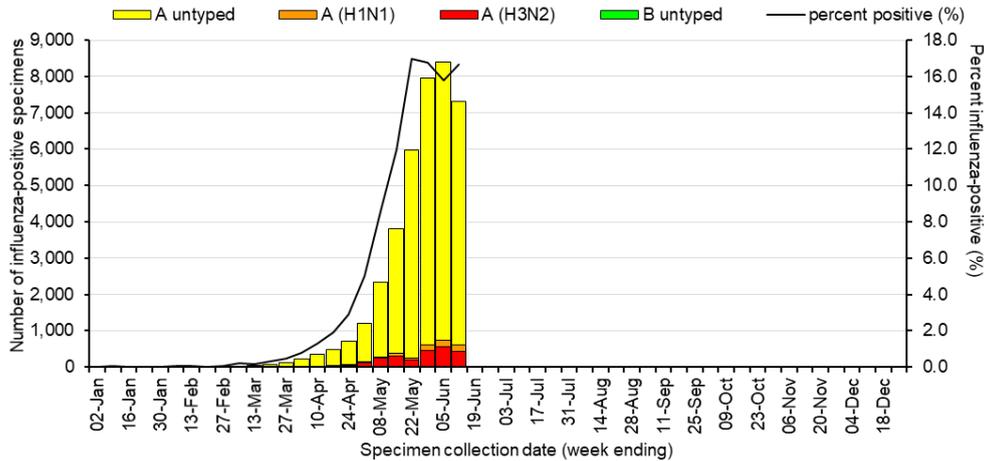
- The BA.1, BA.4 and BA.5 sub-lineages of the Omicron variant have a mutation that results in a failure of certain PCR test platforms to detect the S gene. This mutation is typically not present in the BA.2 sub-lineage, and therefore the detection of an S gene can be used as a proxy to estimate the prevalence 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 78% of SARS-CoV-2 positive specimens currently have an S gene detected. This indicates that the BA.2 sub-lineage likely makes up around 78% of the SARS-CoV-2 detected in NSW. The S gene failure specimens have been prioritised for WGS, with the majority of these now being identified as BA.4 and BA.5, rather than BA.1.

Figure 16. Proportion of samples with S gene target failure (SGTF), 1 March 2022 to 12 June 2022

Influenza and other respiratory viruses

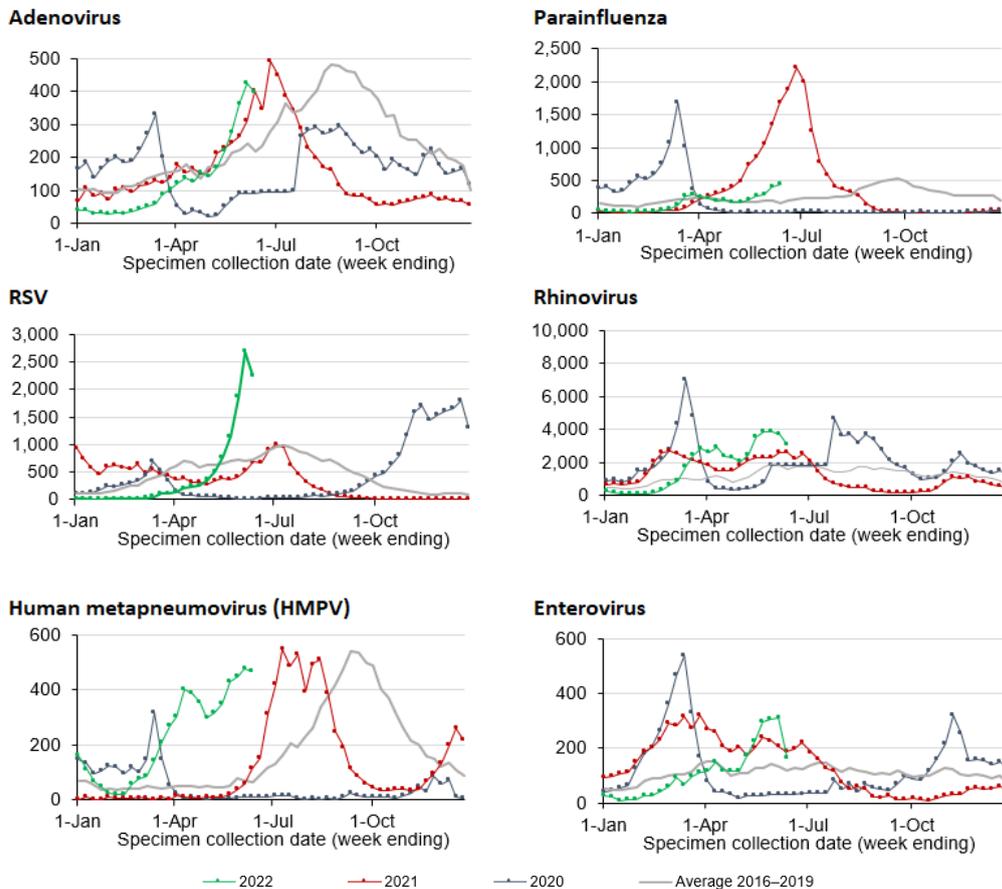
The NSW sentinel laboratory network comprises of 13 public and private laboratories throughout NSW who provide additional data on positive and negative test results. This helps us to understand which respiratory viruses are circulating as well as how much

Figure 17. Number and proportion of tests positive for influenza at sentinel NSW laboratories, 1 January to 12 June 2022



- Of the 43,884 tests conducted for influenza, the percentage positive has increased to 16.6% from 15.8% in the previous week.

Figure 18. Number of positive PCR test results for other respiratory viruses at sentinel NSW laboratories, 1 January to 12 June 2022.



- Recent data is subject to change. For the week ending 12 June 2022, 8 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 12 June 2022

	Week ending				Year to date
	22 May	29 May	05 June	12 June*	
Adenovirus	277	363	427	399	3,110
Respiratory syncytial virus (RSV)	1,140	1,862	2,687	2,252	10,725
Rhinovirus	3,839	3,887	3,733	3,096	42,380
Human metapneumovirus (HMPV)	430	451	479	467	5,376
Enterovirus	294	304	309	163	2,669
Number of PCR tests conducted	35,134	47,543	53,271	43,884	549,143

*Recent data is subject to change. For the week ending 12 June 2022 8 out of 13 sentinel laboratories have provided testing data at the time of reporting.