NSW Respiratory Surveillance Report - week ending 21 May 2022

COVID-19 Summary

- COVID-19 transmission in the community remains high but is generally stable, with evidence of declining hospital admissions and a continuing decline in PCR positivity.
- PCR testing for COVID-19 has decreased, with 207,640 PCR tests reported this week, a 7.1% decrease since the previous week. The proportion of PCR tests that were positive for COVID-19 decreased slightly to 12.8% from 14.1% at the end of the previous week.
- 493 people with COVID-19 were admitted to hospital and 43 were admitted to ICU this week, which is a decrease since the previous week. The seven-day rolling averages of daily hospital admissions decreased to an average of 70 daily admissions from 96 last week and ICU admissions decreased to an average of six daily admissions from eight last week. Hospital admissions include people with COVID-19 who are admitted for other reasons.
- There were 86 COVID-19 deaths reported this week. Seven of the deaths reported were in people aged under 65 years. Deaths may not have occurred in the week in which they were reported.

Influenza and other respiratory viruses summary

- Hospital and laboratory surveillance continues to show an increase in influenza activity across NSW, indicating an early commencement to the influenza season.
- The rate of people reported with influenza per 100,000 population increased in all LHDs this week.
- Of the 36,286 tests conducted for influenza, the proportion of positive tests has increased to 14.9% from 12.4% in the previous week.
- Emergency department presentations for influenza-like illness (ILI) requiring an admission have increased to 150 compared to 134 admissions in the previous week. This represents 13.3% of all ILI emergency department presentations this week. The proportion of presentations that were admitted to hospital was highest for people aged 65 years and over, 35-64 years old and children aged 0-4 years.
- Influenza A is the dominant circulating strain and of these influenza A (H1N1) is mostly circulating in children and influenza A (H3N2) is affecting adults.
- Notifications of respiratory syncytial virus (RSV) have continued to increase this week. There were 1,140 cases notified this week, compared to 766 cases notified last week.
- Emergency department presentations for bronchiolitis, which is a clinical diagnosis of infants usually associated with RSV, continued to increase with 381 presentations for bronchiolitis this week in children aged 0-4 years, up from 359 presentations in the previous week. Of these presentations, 39.1% 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 21 May 2022

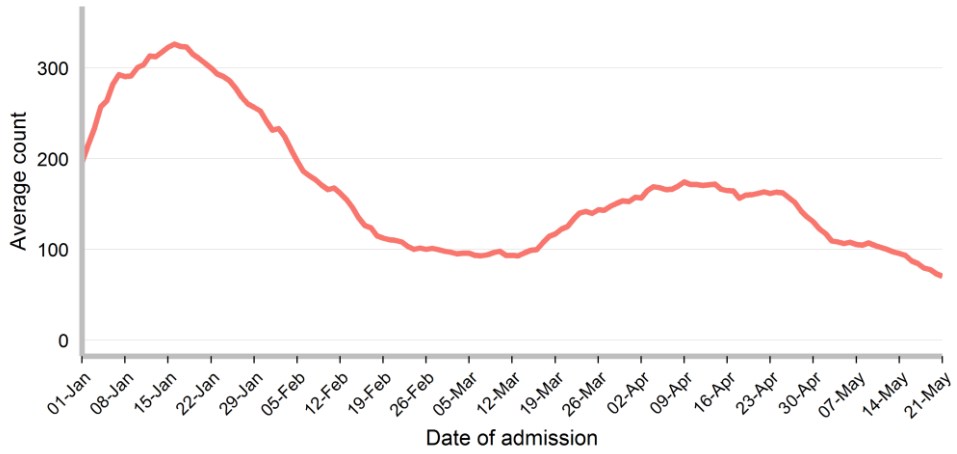
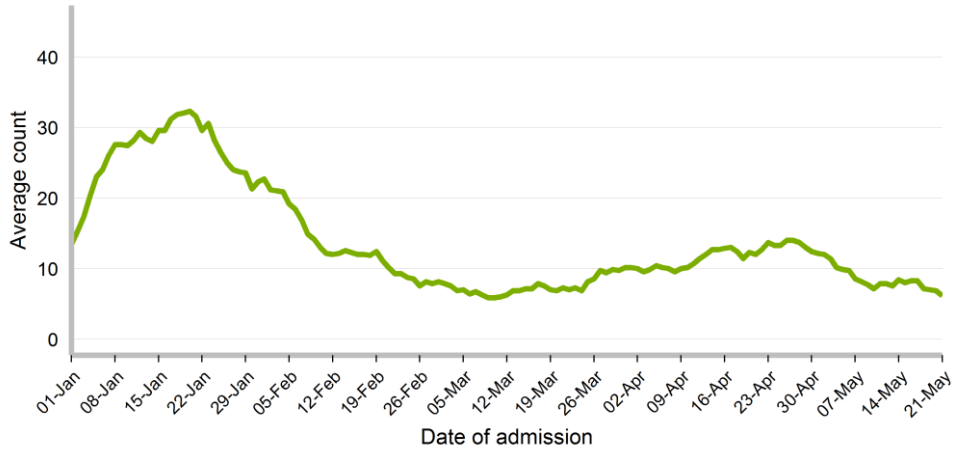


Figure 2. Daily seven-day rolling average of people with COVID-19 admitted to intensive care units, NSW, 1 January to 21 May 2022



- Hospital admissions and ICU admissions in people with COVID-19 have decreased in the last week.
  - 493 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 70 admissions by the end of this week, compared with 96 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 decreased to an average of six admissions by the end of this week, compared with eight admissions 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 21 May 2022

	Admitted to hospital (and not to ICU)	Admitted to ICU	Deaths
Gender			
Female	244	20	35
Male	238	23	51
Not stated / inadequately described	11	0	0
Age group (years)			
0-9	28	1	0
10-19	10	1	0
20-29	25	0	0
30-39	22	4	0
40-49	22	0	1
50-59	18	5	2
60-69	44	7	8
70-79	43	4	18
80-89	80	6	35
90+	31	1	22
Local Health District of residence*			
Central Coast	23	1	2
Illawarra Shoalhaven	38	1	6
Nepean Blue Mountains	18	0	0
Northern Sydney	45	5	6
South Eastern Sydney	44	8	7
South Western Sydney	89	9	13
Sydney	44	2	4
Western Sydney	30	5	5
Far West	2	0	1
Hunter New England	51	2	16
Mid North Coast	10	0	2
Murrumbidgee	14	0	7
Northern NSW	29	6	5
Southern NSW	8	0	8
Western NSW	24	1	4
Vaccination status			
Three or more doses	150	15	48
Two doses	77	7	23
One dose	6	0	1
No dose/Unknown	260	21	14
Total	493	43	86

* Excludes cases in correctional settings.

- Of the 86 people who were reported to have died with COVID-19, 37 were aged care residents. Nine of these people died in hospital and 28 died at an aged care facility.

- One of the deaths occurred at home. This person was a known COVID-19 case when they died.
- Seven people aged under 65 years died with COVID-19. Of these, three were unvaccinated, two had received two doses of a COVID-19 vaccine and two had received three doses. All had records of significant underlying health conditions that increase the risk of severe disease from COVID-19.
- 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 Heath 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.

Notifications of COVID-19 and Influenza

Table 2. Number and proportion of notifications of COVID-19 and Influenza, by gender, age group and time period, Local Health District, NSW, reported in the week ending 21 May 2022

	Week ending 21 May 2022		Year total	
	COVID-19	Influenza	COVID-19*	Influenza
Gender				
Female	34,598	2,718	1,067,261	7,296
Male	30,237	2,765	982,269	7,492
Not stated / inadequately described	108	2	3,006	21
Transgender	0	NA	3	NA
Age group (years)				
0-4	2,709	589	97,245	1,577
5-9	3,425	1,011	150,068	2,074
10-19	7,915	1,591	331,456	3,885
20-29	8,816	613	349,898	2,408
30-39	11,565	588	358,508	1,669
40-49	9,934	471	300,226	1,173
50-59	8,549	250	214,251	792
50-69	6,335	163	140,301	536
70-79	3,533	124	73,178	414
80-89	1,606	65	28,962	218
90+	556	22	8,327	64
Local Health District of residence#				
Central Coast	2,784	437	90,479	948
Illawarra Shoalhaven	3,212	284	113,285	756
Nepean Blue Mountains	3,356	244	104,139	524
Northern Sydney	8,244	594	233,382	1,555
South Eastern Sydney	6,360	702	238,887	2,098
South Western Sydney	6,743	774	262,282	2,528
Sydney	5,243	371	175,909	1,282
Western Sydney	7,648	1,007	279,512	2,340
Far West	386	26	6,763	66
Hunter New England	8,296	383	240,603	1,161
Mid North Coast	1,510	70	45,052	155
Murrumbidgee	3,297	281	66,428	556
Northern NSW	2,228	134	60,862	383
Southern NSW	2,233	91	44,792	197
Western NSW	2,847	78	69,214	220
Aboriginal status^				
Aboriginal or Torres Strait Islander	2,183	174	75,787	421
Not Aboriginal or Torres Strait Islander	52,199	2,601	1,642,386	7,014
Unknown	10,561	2,712	334,366	7,377
Total	64,943	5,487	2,052,539	14,812

* Excludes 180,433 positive RATs registered up to 19 January 2022 for whom demographic information is not available.
# Excludes cases in correctional settings and hotel quarantine.

^ 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 notified with COVID-19, by date of test and type of test performed, NSW, 1 January to 21 May 2022

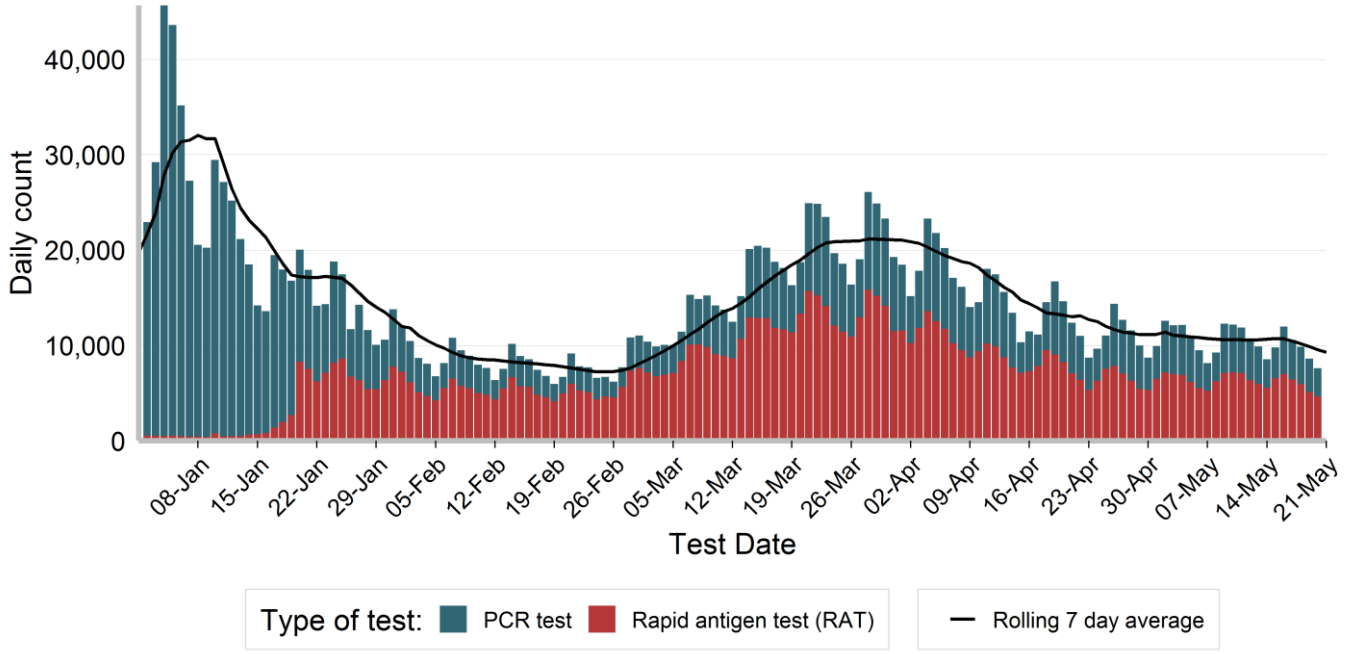
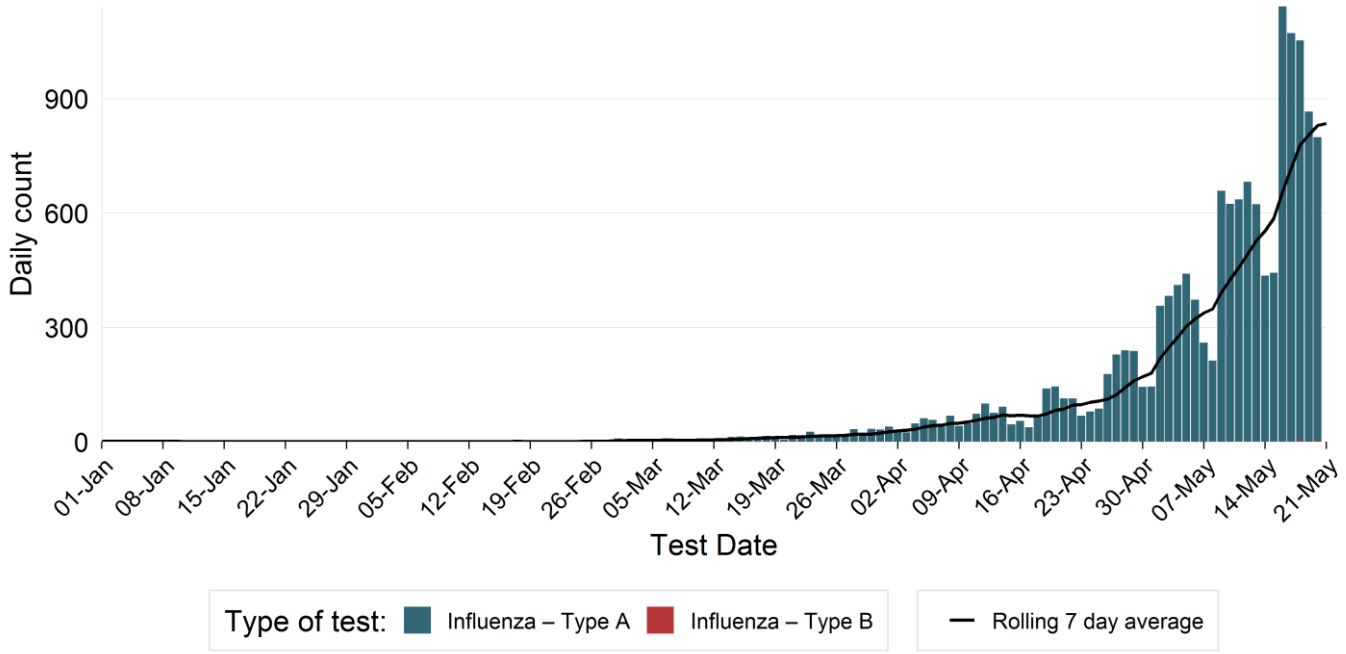


Figure 4. Number of people notified with influenza, by date of test and virus type, NSW, 1 January to 21 May 2022



- There were 64,943 people notified with COVID-19 this week, a decrease of 13.0% since the previous week.
- There were 5,845 people notified with influenza this week, an increase of 62.3% since the previous week.

Figure 5. Daily seven-day rolling average rate of people notified with COVID-19 per 100,000 population, by age group and test date, NSW, in the four weeks to 21 May 2022

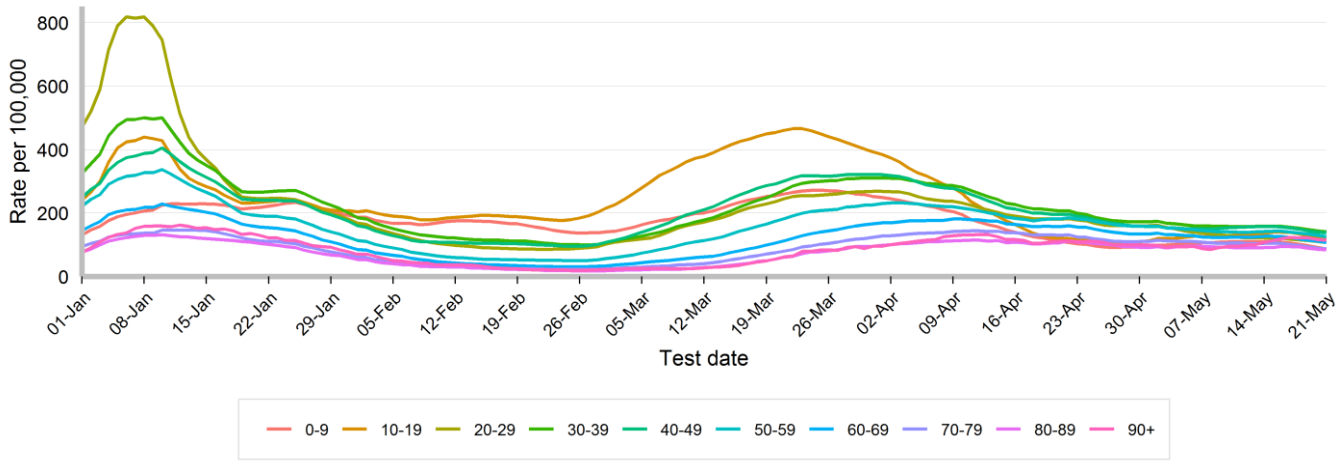


Figure 6. Daily seven-day rolling average rate of people notified with COVID-19 per 100,000 population, by metropolitan Local Health District and test date, NSW, in the four weeks to 21 May 2022

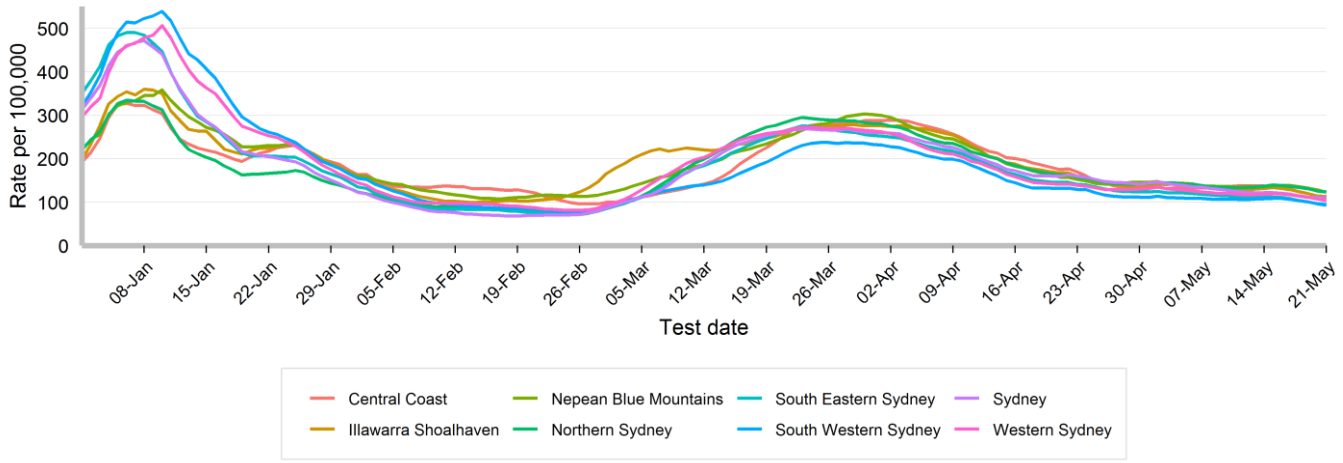
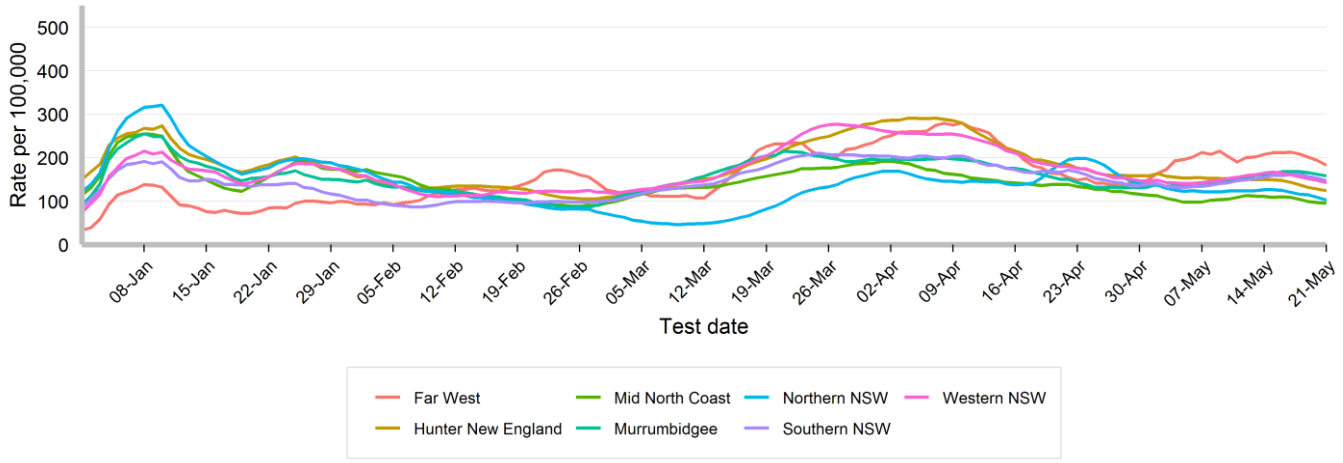
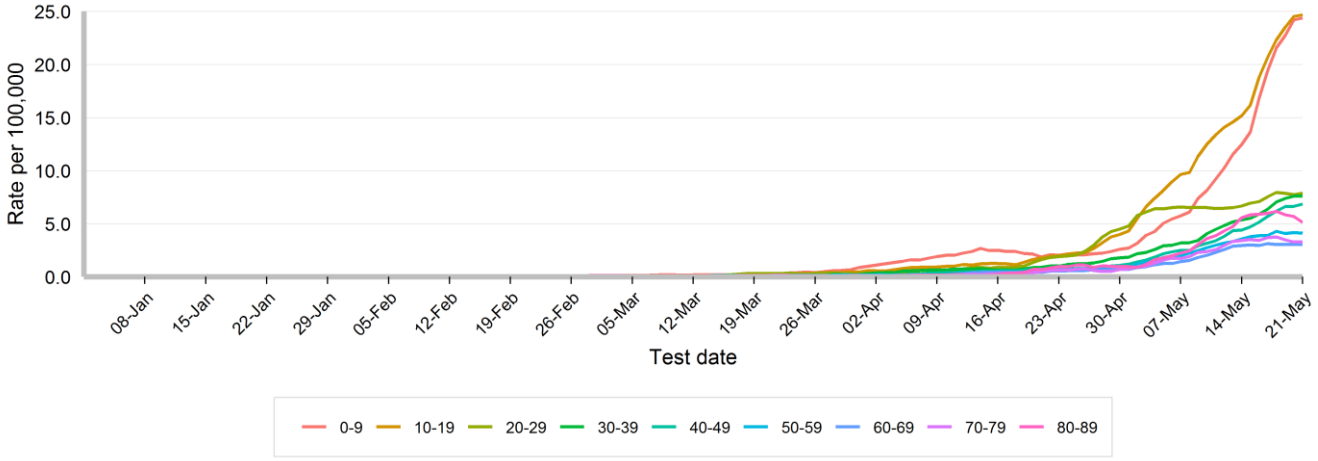


Figure 7. Daily seven-day rolling average rate of people notified with COVID-19 per 100,000 population, by rural and regional Local Health District and test date, NSW, in the four weeks to 21 May 2022



- The rate of people reported with COVID-19 per 100,000 population has remained stable in all age groups and most 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 21 May 2022



- The rate of influenza notifications was highest in people aged 10-19 years (23.6 per 100,000) and 0-9 years (22.6 per 100,000).

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 21 May 2022

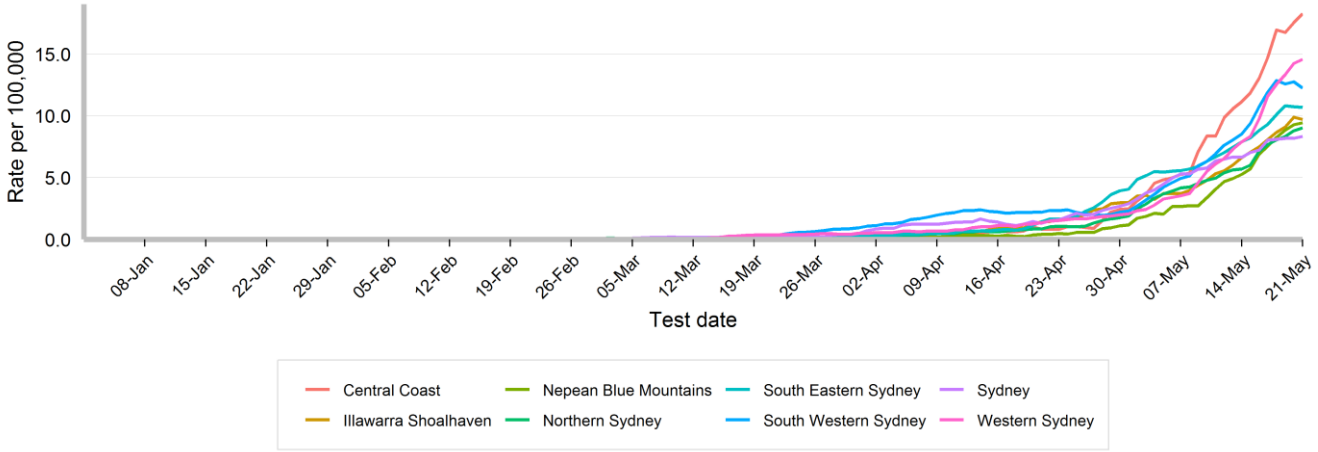
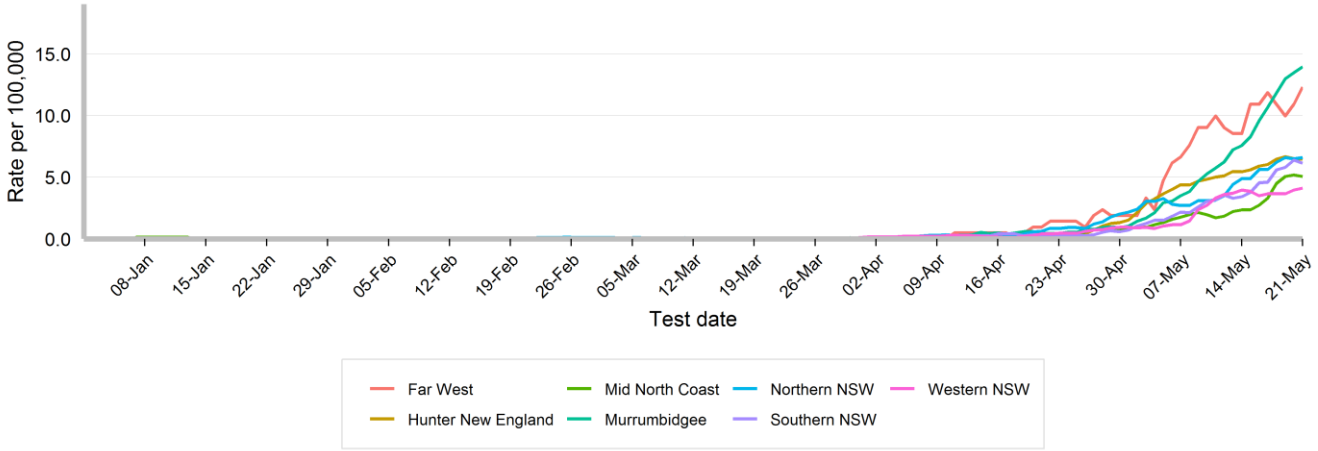


Figure 10. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by rural and regional Local Health District and test date, NSW, 1 January to 21 May 2022



- In metropolitan LHDs, the rate of influenza notifications was highest in Central Coast (17.7 per 100,000) and Western Sydney (13.7 per 100,000). In rural and regional LHDs, the rate of influenza notifications was highest in Murrumbidgee (13.5 per 100,000) and Far West (12.3 per 100,000).

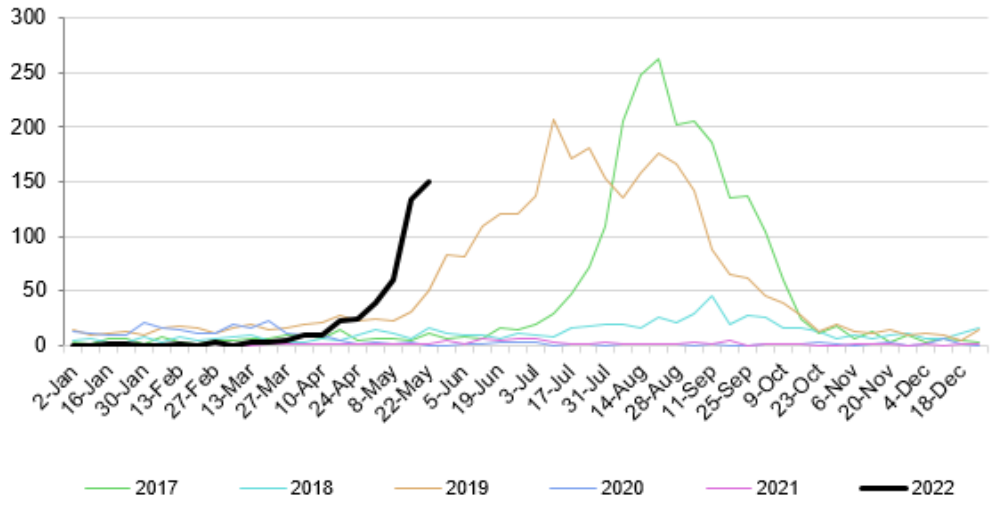
Emergency department and community surveillance

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.

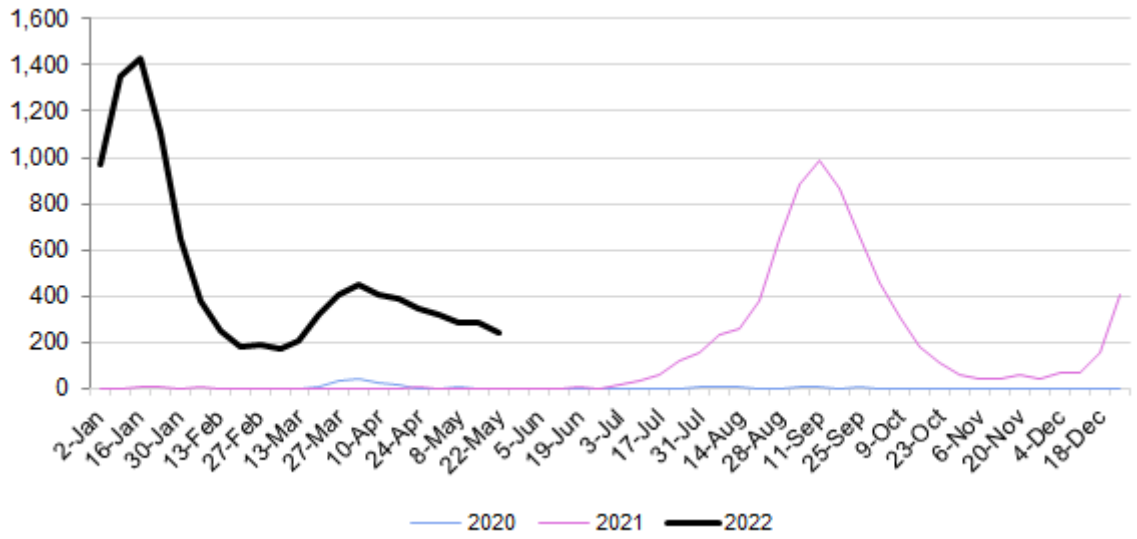
- The number of presentations and calls in each category is monitored over time to quickly identify unusual patterns of illness. Unusual patterns could signify an emerging outbreak of disease or issue of public health importance in the population. PHREDSS is also useful for monitoring the impact of seasonal 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 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 increased to 150 compared to 134 admissions in the previous week. This represents 13.3% of all ILI emergency department presentations this week which is a decrease from 17.6% in the previous week. The proportion of presentations that were admitted to hospital was highest for people aged 65 years and over, 35-64 years old and children aged 0-4 years.

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

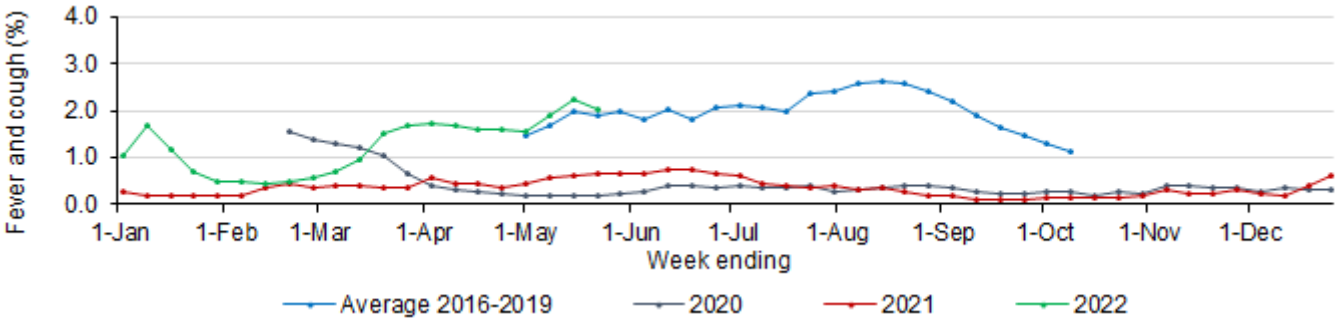


- Emergency department presentations for *'coronaviruses/SARS'* requiring an admission have decreased to 238 from 289 admissions in the previous week. This represents 27.2% of all emergency department presentations for this syndrome, slightly higher than 26.4% in the previous week. The proportion of presentations that were admitted was highest for people aged 65 years and over.

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 22 May 2022

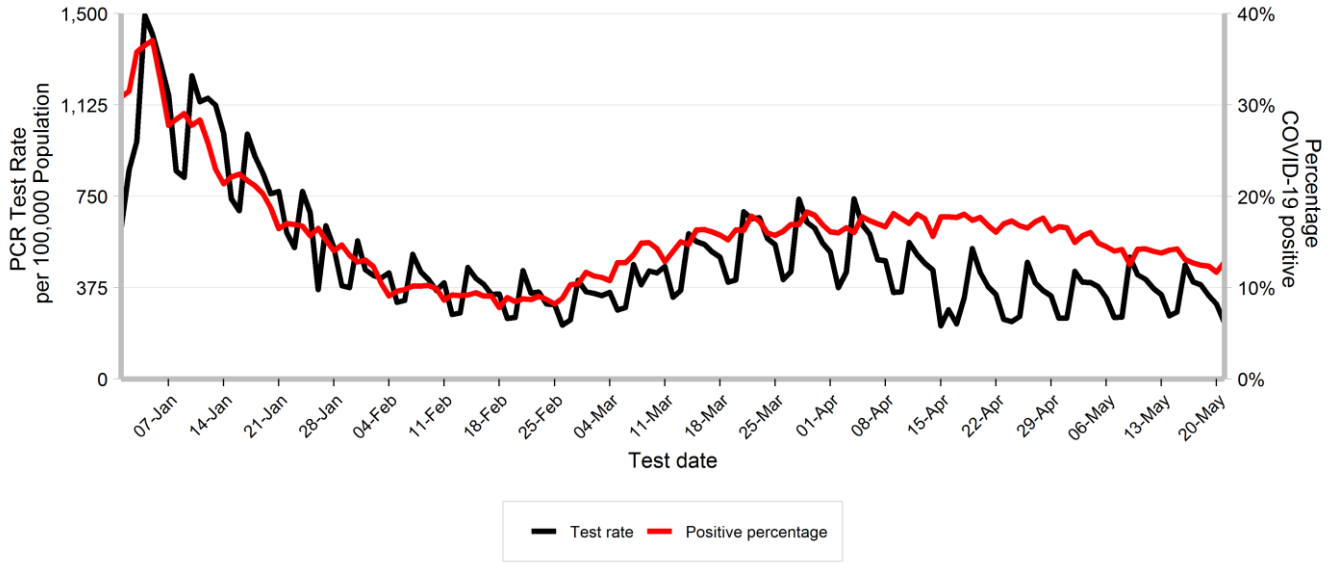


- The proportion of FluTracking participants reporting influenza-like illness decreased slightly this week.
- Additional FluTracking reports are available at: https://info.flutracking.net/reports-2/australia-reports/

LABORATORY SURVEILLANCE

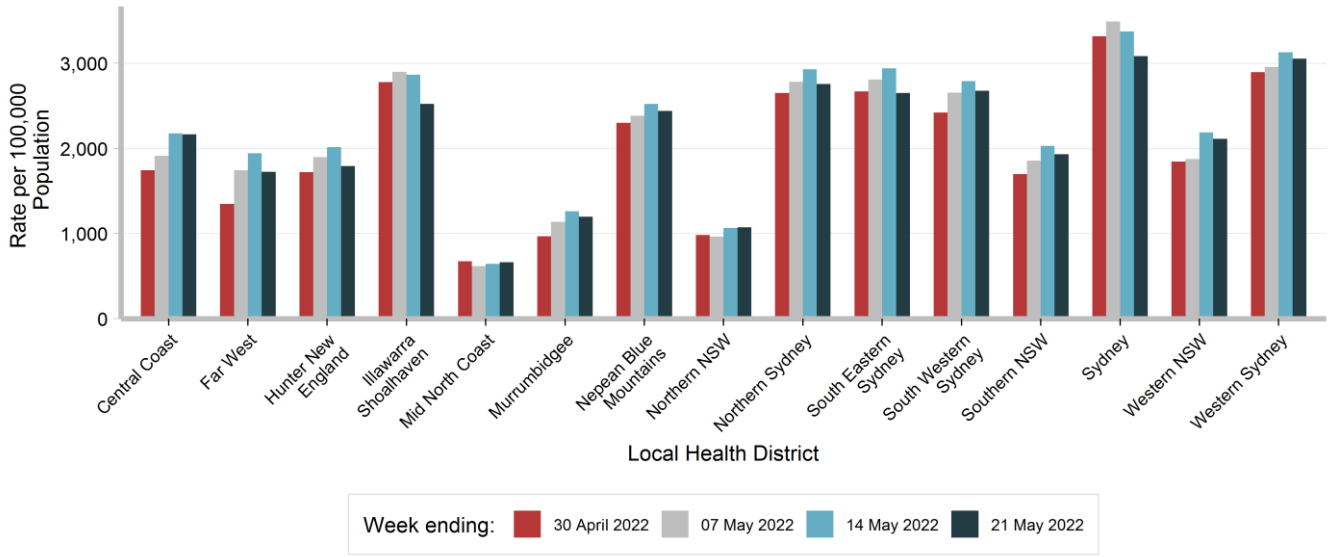
COVID-19 PCR testing

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 21 May 2022



- There were 207,640 PCR tests reported this week. This is a 7.1% decrease compared to 222,292 PCR tests reported in the previous week.
- The percentage of PCR tests that were positive for COVID-19 has decreased to 12.8% compared to 14.1% at the end of the previous 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 21 May 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, particularly 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 21 May 2022

Variant	Week ending			
	30 April	07 May	14 May	21 May
Omicron (BA.1)	24	2	4	0
Omicron (BA.2)	577	539	422	40
Omicron (BA.2.12.1)	16	17	24	0
Omicron (BA.4)	6	9	6	1
Omicron (BA.5)	1	11	7	2
Recombinant BA.1/BA.2 (unclassified)*	0	1	0	0
Total	624	579	463	43

* 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.

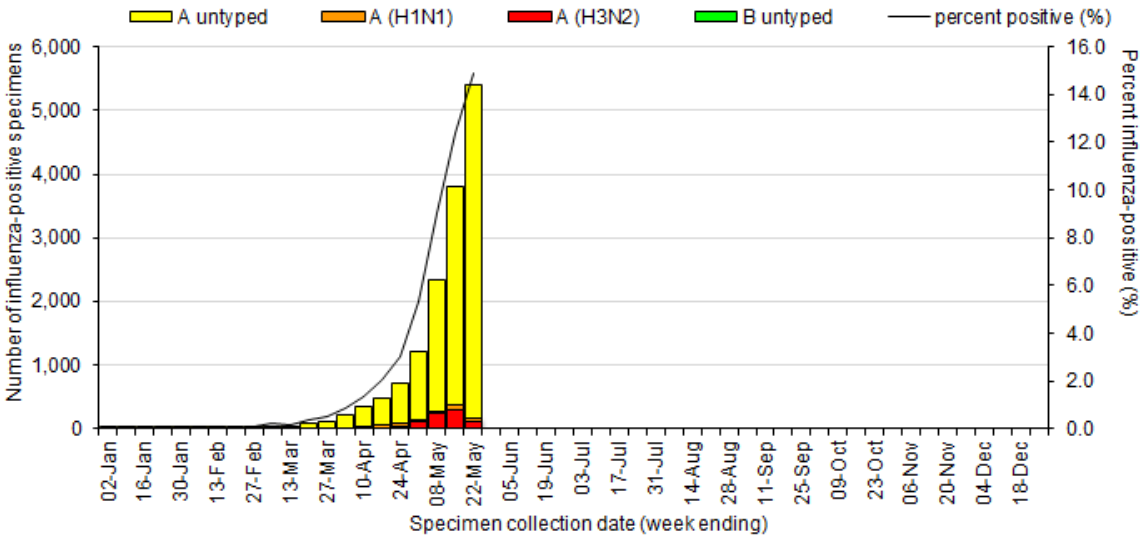
S Gene detection as a proxy for the BA.2 omicron sub-lineage

- 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 97% of SARS-CoV-2 positive specimens tested on this platform currently have an S gene detected. This suggests that the BA.2 sub-lineage likely makes up the vast majority 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.5, rather than BA.1, though the numbers are small.

Influenza and other respiratory viruses

The NSW sentinel laboratory network comprises 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 and to what extent.

Figure 16. Number and proportion of tests positive for influenza at sentinel NSW laboratories, 1 January to 22 May 2022



- Of the 30,990 tests conducted for influenza, the percentage positive has increased to 14.9% from 12.4% in the previous week.

Figure 17. Number of positive PCR test results for other respiratory viruses at sentinel NSW laboratories, 1 January to 22 May 2022.

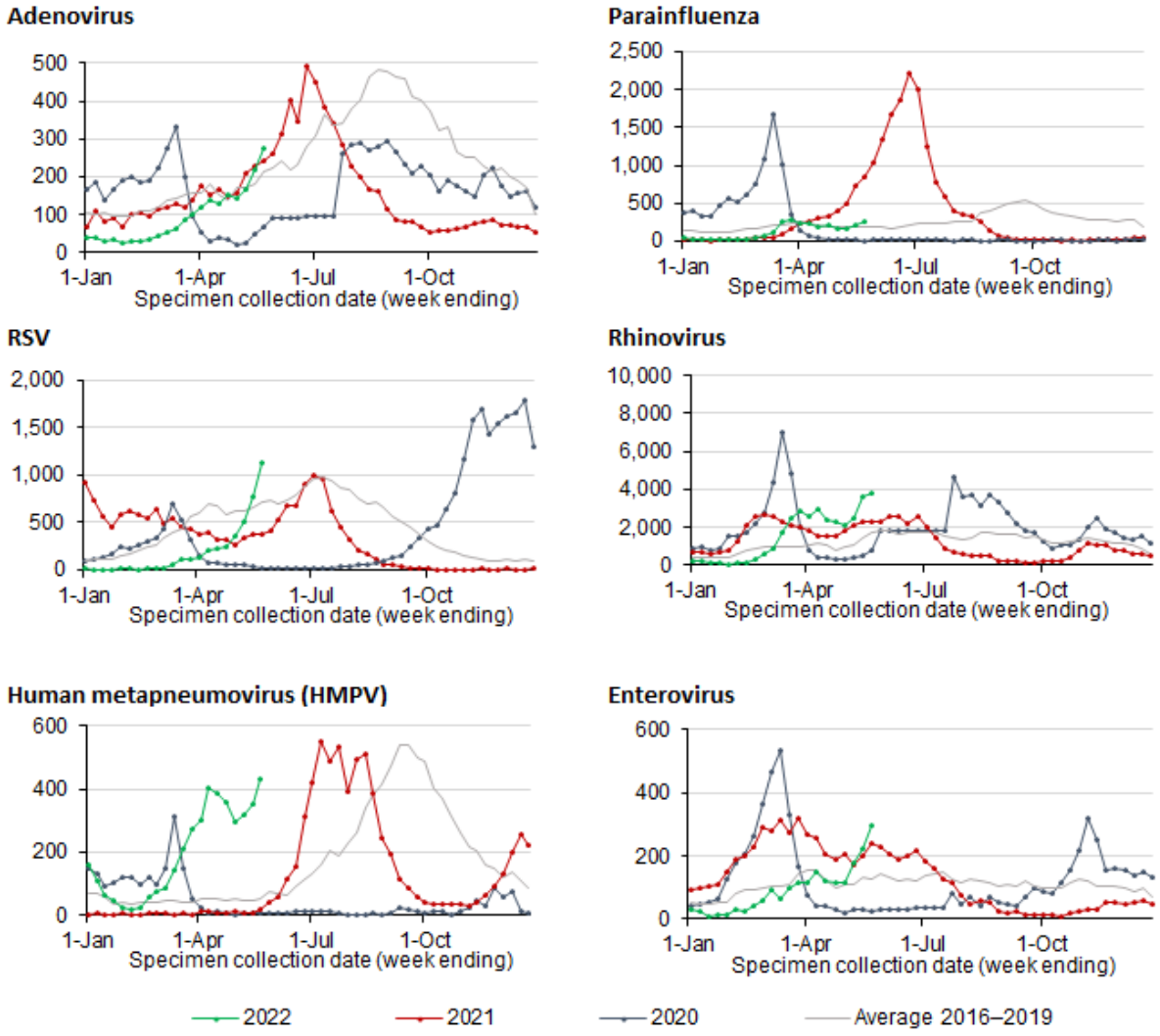


Table 4. Total number of respiratory disease notifications from sentinel laboratories, NSW in the four weeks to 22 May 2022

	Week ending				Year to date
	1 May	8 May	15 May	22 May*	
Adenovirus	143	169	221	277	1,921
Parainfluenza	168	162	209	262	2,639
Respiratory syncytial virus (RSV)	357	508	766	1,140	3,924
Rhinovirus	2,056	2,470	3,577	3,839	31,664
Human metapneumovirus (HMPV)	298	316	351	430	3,979
Enterovirus	117	175	224	294	1,893
Number of PCR tests conducted	22,689	26,057	30,801	36,286	391,029

*Recent data is subject to change. For the week ending 22 May 2022, 11 out of 13 sentinel laboratories have provided testing data at the time of reporting.

- Notifications of respiratory syncytial virus (RSV) have continued to increase this week. There were 1,140 cases notified this week, compared to 766 cases notified last week.
- Emergency department surveillance shows that presentations and admissions from emergency departments for bronchiolitis continued to increase this week but at a slower rate than in previous weeks. Bronchiolitis is a clinical diagnosis and is usually associated with RSV. It most often affects young children and babies under the age of two. The RSV factsheet has more information: https://www.health.nsw.gov.au/Infectious/factsheets/Pages/respiratory-syncytial-virus.aspx
- There were 381 presentations for bronchiolitis this week in children aged 0-4 years, up from 359 presentations in the previous week. Of these presentations, 39.3% were admitted to hospital.