

NSW Respiratory Surveillance Report week ending 30 April 2022

COVID-19 summary

- The rate of people diagnosed with COVID-19 per 100,000 population decreased or remained stable in all age groups and Local Health Districts. PCR testing has decreased, with 166,167 PCR tests for COVID-19 reported this week, a decrease of 7% since the previous week. The proportion of PCR tests that were COVID-19 positive remained stable at 17%.
- The seven-day rolling average of daily hospital and ICU admissions decreased this week. Hospital admissions decreased to an average of 115 daily admissions from 153 last week and ICU admissions decreased to an average of 12 daily admissions from 14 last week. Hospital admissions include those for COVID-19 as well as those admitted for other reasons.
- There were 83 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 summary

- Key indicators from hospital and laboratory surveillance indicate that influenza activity in the community is increasing, signifying a likely early start to the winter influenza season.
- The rate of people notified with influenza per 100,000 population has increased in all age groups and Local Health Districts this week. Of the 19,902 tests conducted for influenza, the proportion positive has increased to 5.5% from 3.1% in the previous week.
- Emergency department presentations for all respiratory problems/fever and unspecified infections are above the 2017-2019 range (8,339 compared to an average of 6,192).
- Emergency department presentations requiring an admission are above the 2017-2019 range (40 compared to the 2017-2019 average of 15). This increase is most noticeable in children aged 0-4 years old (8 compared to the 2017-19 average of 0).
- 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. Of the samples sent to the WHO reference laboratory for characterisation, H3N2 appears to be a good match to the vaccine. The WHO is currently characterising the influenza A (H1N1) samples.

COVID-19

Hospitalisations, intensive care admissions, and deaths

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 30 April 2022

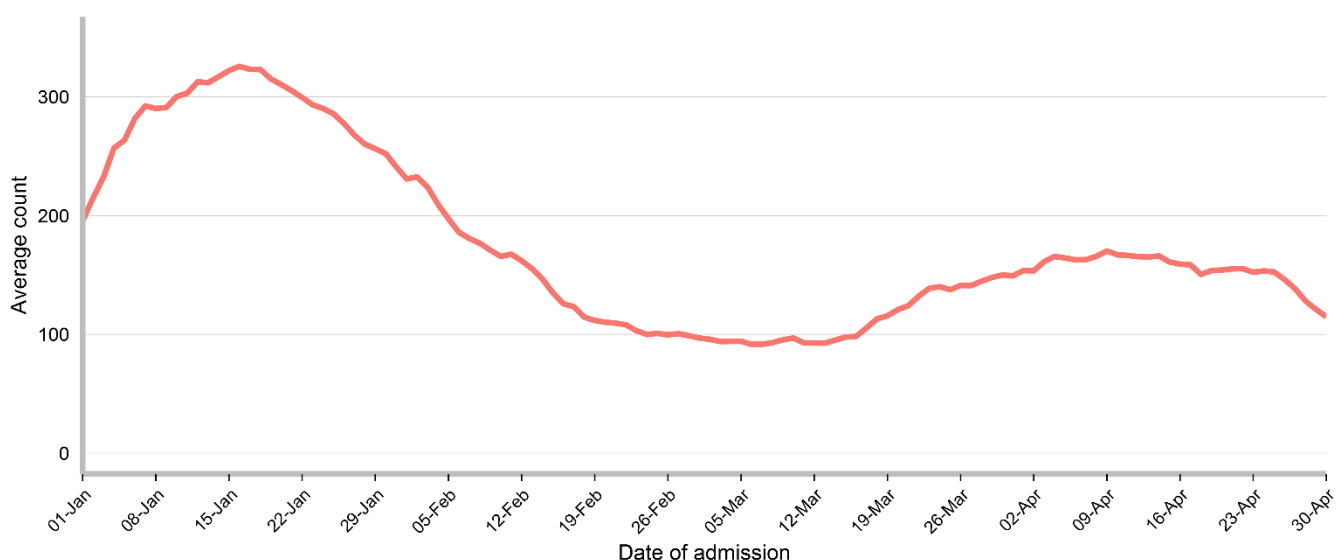
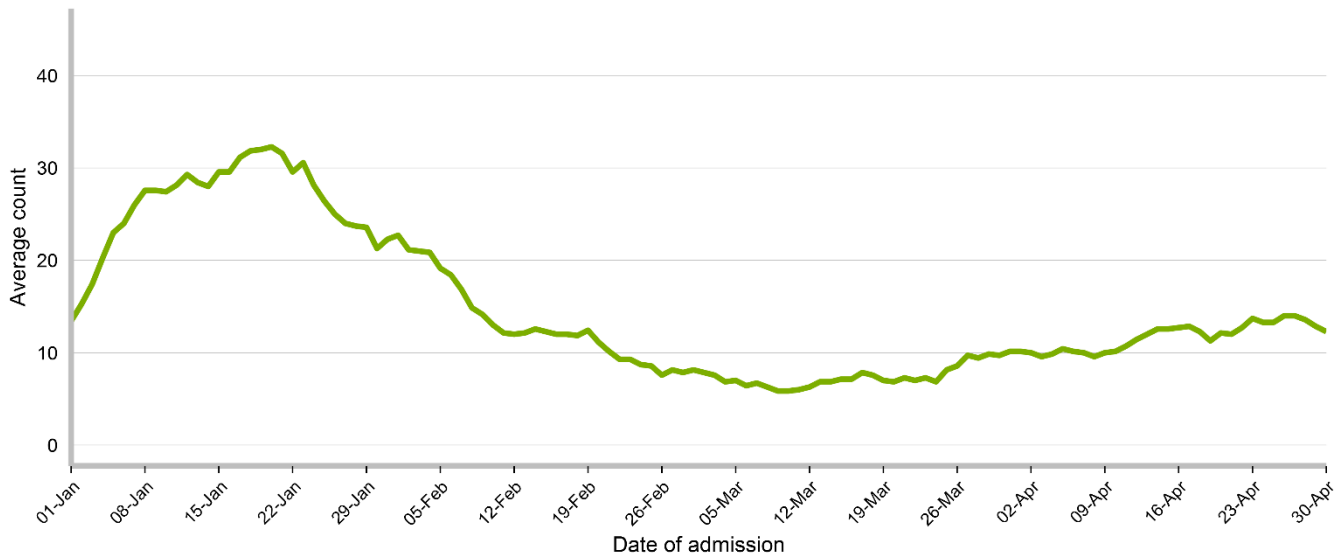


Figure 2. Daily seven-day rolling average of people with COVID-19 admitted to Intensive Care Units, NSW, 1 January to 30 April 2022



- Hospital admissions and intensive care unit (ICU) admissions in people with COVID-19 have decreased in the last week.
- In the last week, 768 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 115 admissions by the end of this week, compared with 153 admissions at the end of the previous week.
- In the last week 88 people diagnosed with COVID-19 were admitted to ICU. The seven-day rolling average of daily ICU admissions decreased to an average of 12 admissions by the end of this week, compared with 14 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 30 April 2022

		Admitted to hospital (but not to ICU)	Admitted to ICU	Deaths
Gender	Female	353	34	42
	Male	337	45	41
	Not stated	1	0	0
Age group	0-9	46	3	0
	10-19	25	5	0
	20-29	51	3	1
	30-39	68	3	0
	40-49	36	8	1
	50-59	56	7	2
	60-69	79	21	7
	70-79	119	17	12
	80-89	155	8	30
	90+	56	4	30
Metropolitan Sydney	Central Coast	31	4	6
	Illawarra Shoalhaven	37	5	5
	Nepean Blue Mountains	22	2	4
	Northern Sydney	54	6	10
	South Eastern Sydney	91	16	10
	South Western Sydney	125	8	9
	Sydney	82	7	13
	Western Sydney	55	7	5
Rural/Regional	Far West	0	0	2
	Hunter New England	73	10	11
	Mid North Coast	20	0	0
	Murrumbidgee	22	4	1
	Northern NSW	24	3	2
	Southern NSW	12	2	2
	Western NSW	36	3	2
Vaccinations	Three or more doses	341	40	53
	Two doses	169	17	15
	One dose	10	3	2
	No dose/Unknown	200	21	13
	Total	720	81	83

- 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 high proportion of people admitted to hospital or 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 because some people with COVID-19 who are admitted to hospital or ICU are admitted for conditions unrelated to their COVID-19 infection, 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.

- Of the 83 people who were reported to have died with COVID-19, 35 were aged care residents. Eight of these people died in hospital and 27 died at an aged care facility.
- Six of the deaths occurred at home. Of these, none were diagnosed after death.
- Seven people aged under 65 years died with COVID-19. Of these, two were unvaccinated, three had received two doses, one had received three doses and one had received four doses. Six 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 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.

Notifications of COVID-19 and Influenza

Table 2. Number of notifications of COVID-19 and Influenza, by age group and Local Health District, NSW, reported in the week ending 30 April 2022

	Week ending 30 April 2022			Year total		
	COVID 19		Influenza	COVID 19		Influenza
	PCR	RAT		PCR	RAT	
Age group						
0-4	1,588 (50%)	1,566 (50%)	73	51,298 (59%)	35,647 (41%)	298
5-9	970 (35%)	1,817 (65%)	62	62,810 (45%)	75,360 (55%)	268
10-19	2,243 (35%)	4,227 (65%)	244	143,093 (47%)	161,811 (53%)	558
20-29	5,500 (47%)	6,224 (53%)	333	201,795 (63%)	116,828 (37%)	652
30-39	6,134 (48%)	6,707 (52%)	125	187,422 (59%)	132,207 (41%)	335
40-49	4,821 (46%)	5,664 (54%)	67	152,026 (57%)	114,942 (43%)	175
50-59	5,176 (53%)	4,675 (47%)	54	117,604 (63%)	67,660 (37%)	149
60-69	4,165 (57%)	3,160 (43%)	34	80,011 (67%)	38,541 (33%)	98
70-79	2,515 (60%)	1,695 (40%)	21	42,384 (70%)	18,277 (30%)	72
80-89	1,129 (69%)	513 (31%)	9	17,819 (75%)	5,840 (25%)	27
90+	366 (80%)	94 (20%)	2	5,570 (82%)	1,225 (18%)	8
Local Health District*						
Central Coast	1,174 (41%)	1,686 (59%)	60	40,887 (51%)	39,728 (49%)	106
Illawarra Shoalhaven	1,935 (51%)	1,823 (49%)	86	59,191 (58%)	42,633 (42%)	169
Nepean Blue Mountains	1,774 (49%)	1,853 (51%)	30	52,206 (56%)	40,740 (44%)	63
Northern Sydney	4,473 (51%)	4,329 (49%)	115	115,472 (56%)	90,438 (44%)	294
South Eastern Sydney	4,196 (55%)	3,429 (45%)	253	137,051 (63%)	79,397 (37%)	479
South Western Sydney	4,002 (54%)	3,381 (46%)	62	157,795 (66%)	81,428 (34%)	412
Sydney	3,803 (59%)	2,638 (41%)	78	102,209 (65%)	55,494 (35%)	272
Western Sydney	5,323 (60%)	3,543 (40%)	146	169,847 (67%)	83,501 (33%)	497
Far West	62 (23%)	203 (77%)	3	1,855 (34%)	3,592 (66%)	7
Hunter New England	3,926 (41%)	5,560 (59%)	88	104,411 (49%)	106,561 (51%)	124
Mid North Coast	298 (19%)	1,300 (81%)	12	12,365 (31%)	27,580 (69%)	20
Murrumbidgee	561 (24%)	1,817 (76%)	19	21,920 (39%)	34,542 (61%)	45
Northern NSW	702 (26%)	1,959 (74%)	44	23,461 (45%)	29,242 (55%)	84
Southern NSW	733 (40%)	1,117 (60%)	9	18,025 (48%)	19,885 (52%)	21
Western NSW	1,031 (39%)	1,614 (61%)	19	28,781 (48%)	31,120 (52%)	39
Total cases*	33,993 (48%)	36,252 (52%)	1024	1,045,476 (58%)	765,881 (42%)	2641

*Excludes cases in correctional settings and hotel quarantine.

Figure 4. Number of people diagnosed with COVID-19, by date of test and type of test performed, NSW, 1 January to 30 April 2022

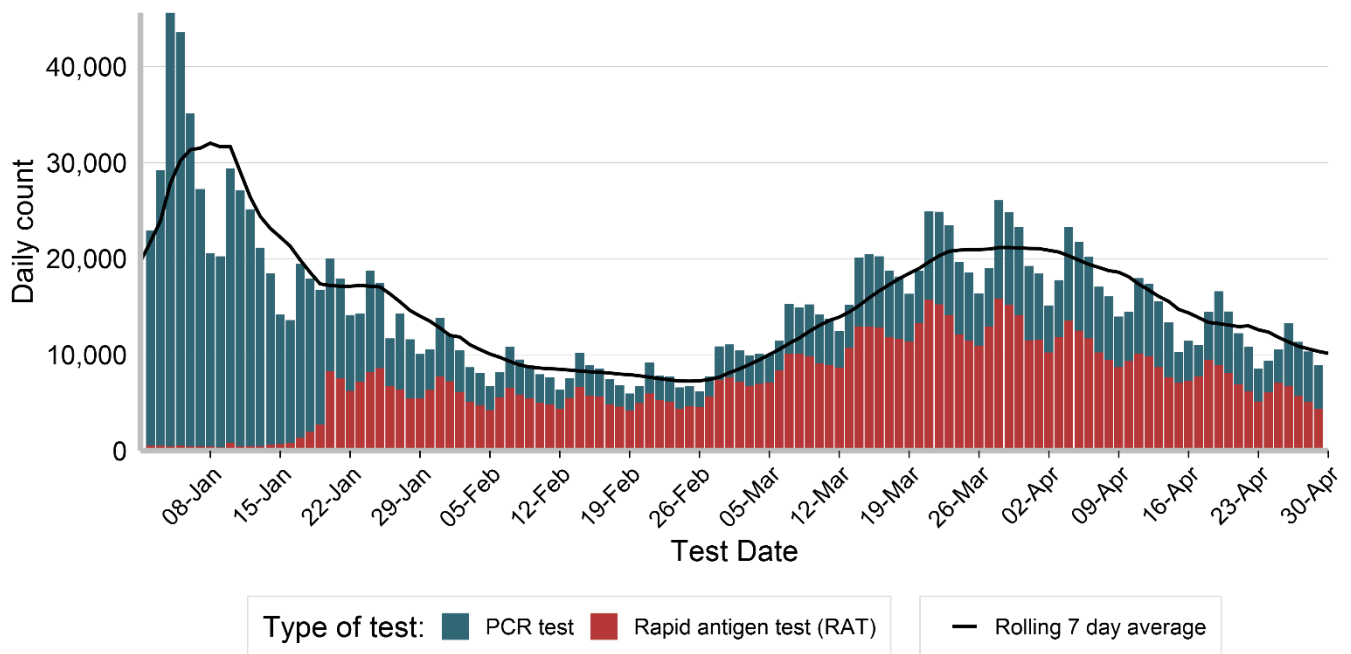
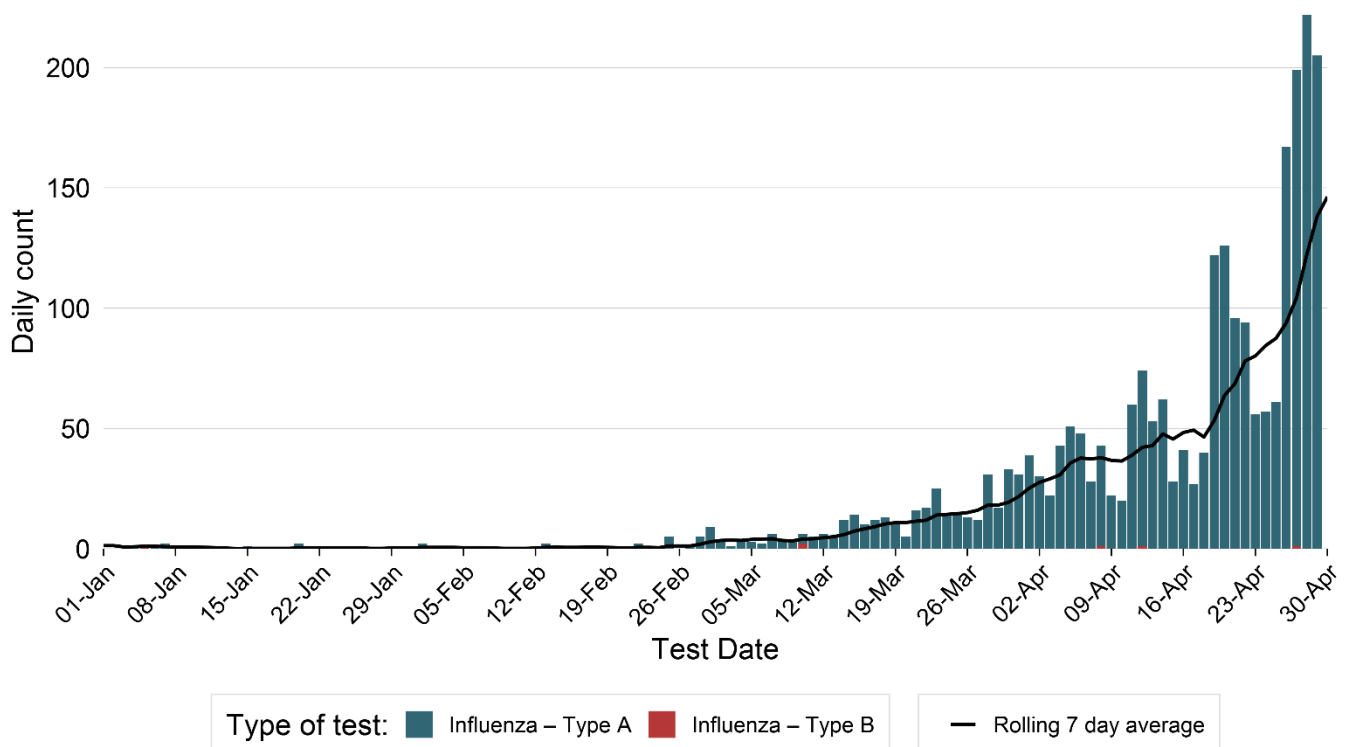


Figure 5. Number of people diagnosed with influenza, by date of test and type, NSW, 1 January to 30 April 2022



- There were 70,949 people diagnosed with COVID-19 this week, a decrease of 19% since the previous week.
- There were 1,024 people diagnosed with influenza this week, an increase of 83% since the previous week.

Figure 6. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by age group, NSW, 1 January to 30 April 2022

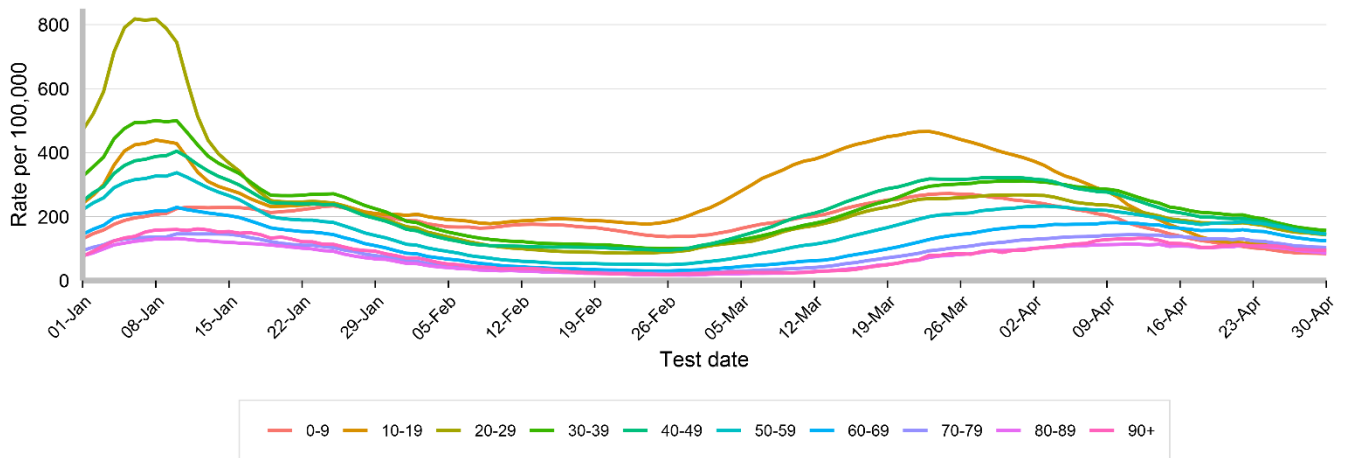


Figure 7. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by metropolitan Local Health District and test date, NSW, 1 January to 30 April 2022

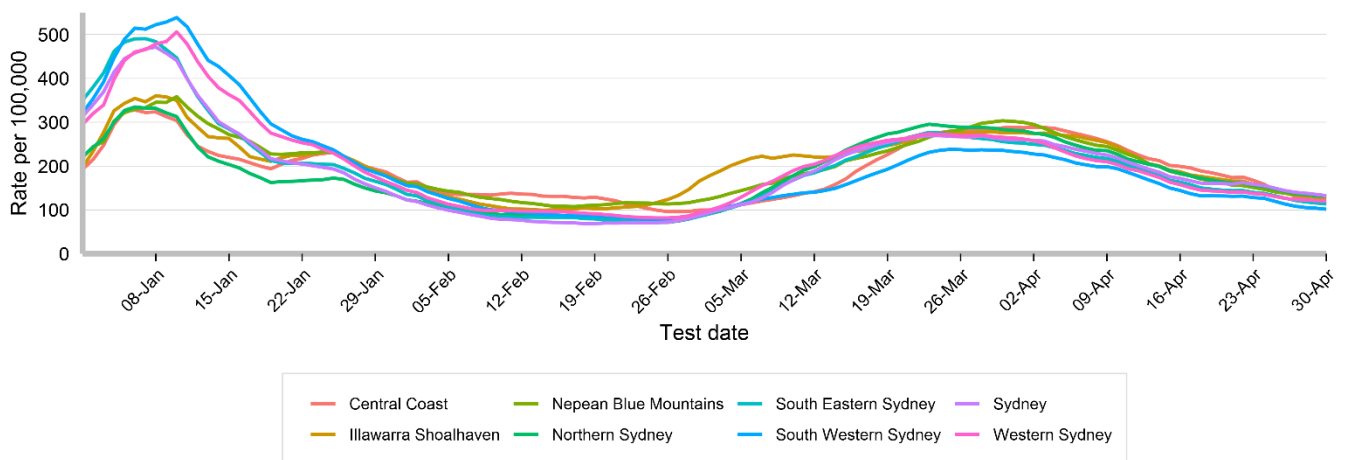
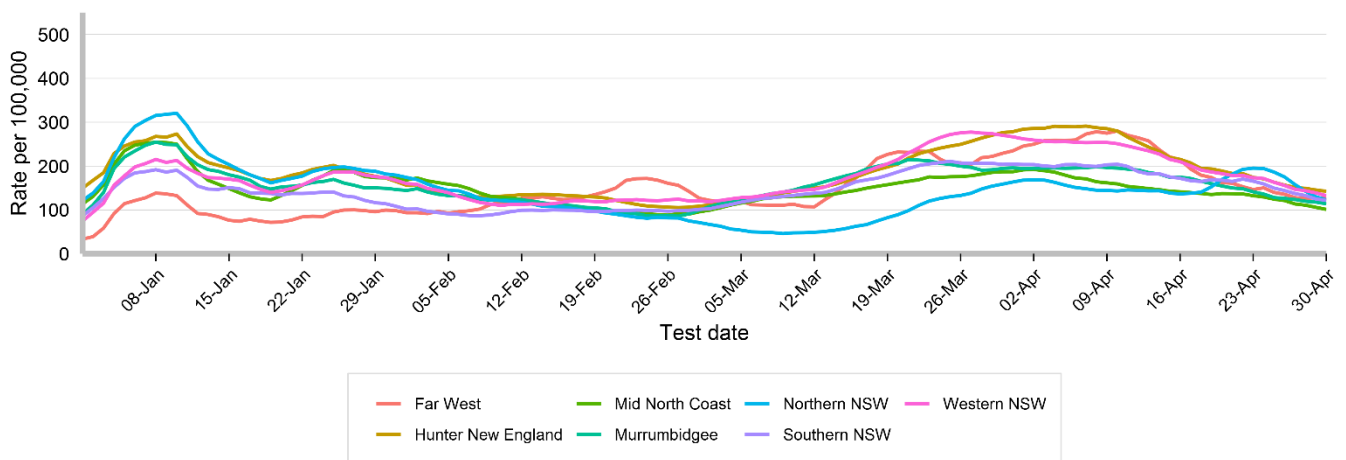


Figure 8. Daily seven-day rolling average rate of people reported with COVID-19 per 100,000 population, by rural and regional Local Health District and test date, NSW, 1 January to 30 April 2022



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

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 30 April 2022

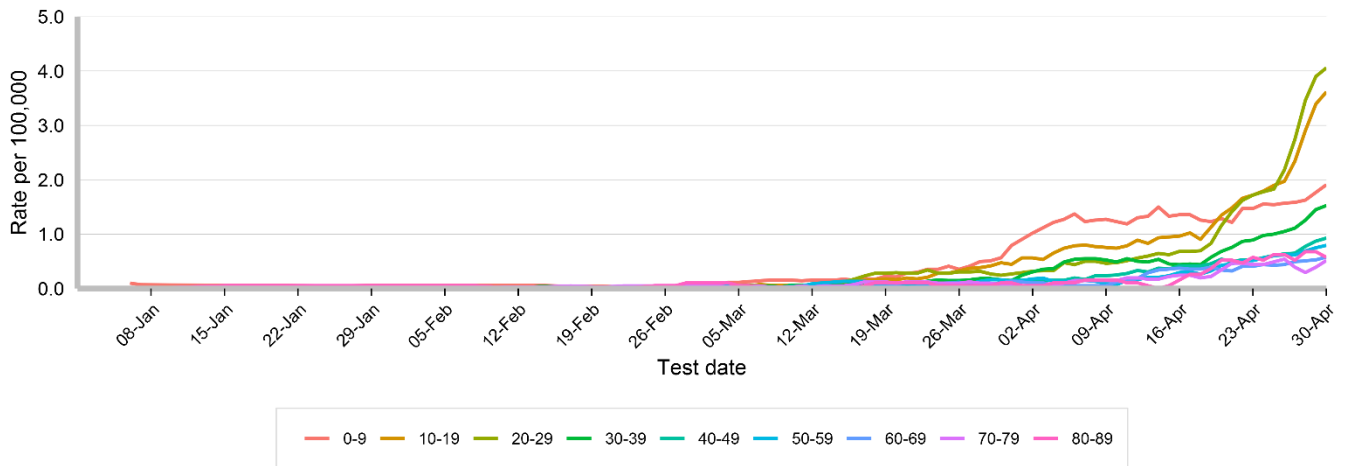


Figure 10. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by metropolitan Local Health District and test date, NSW, 1 January to 30 April 2022

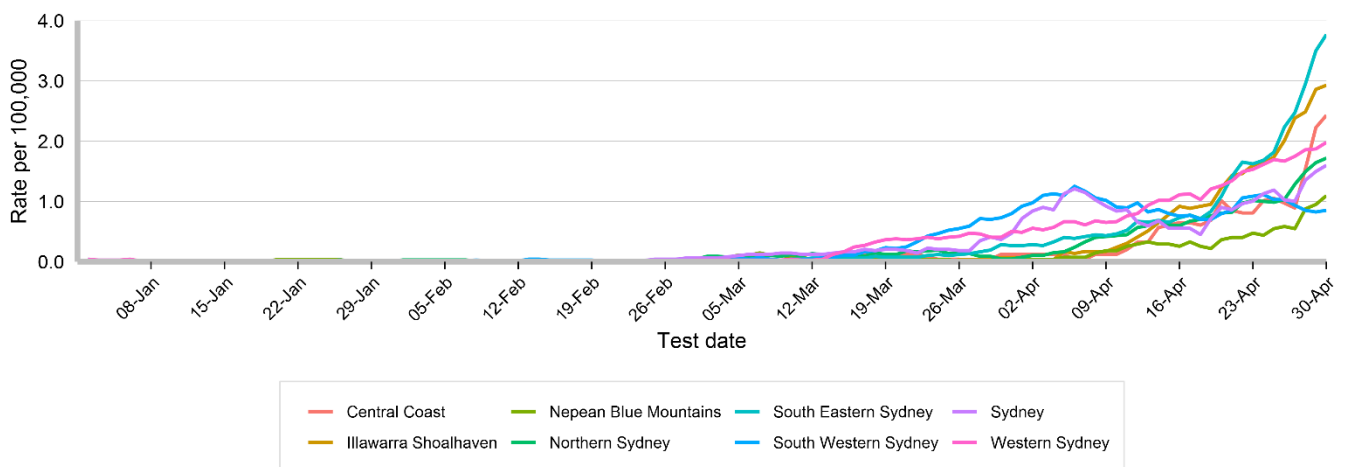
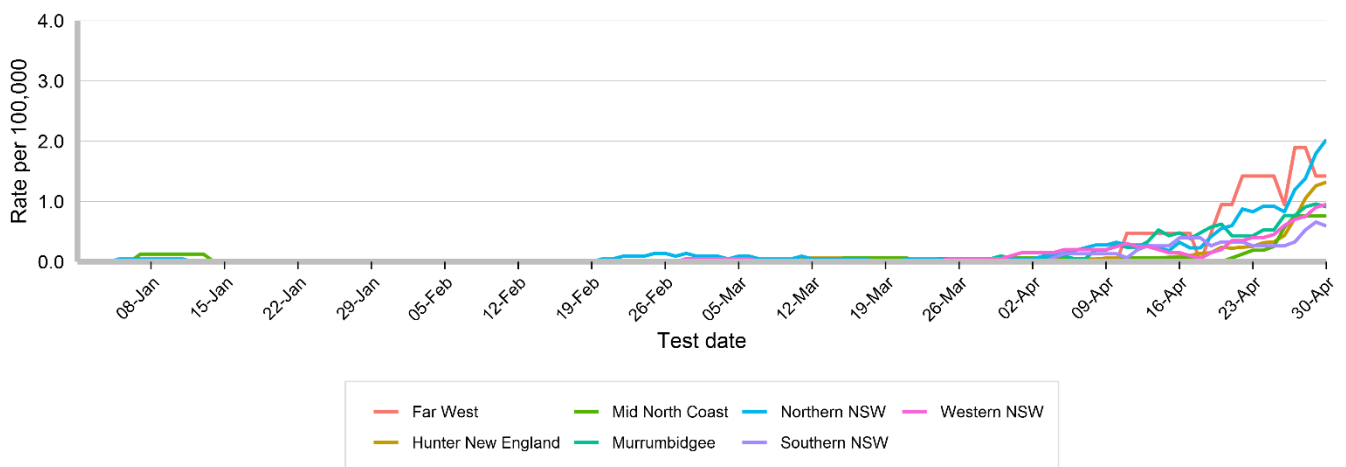


Figure 11. Daily seven-day rolling average rate of influenza notifications per 100,000 population, by rural and regional Local Health District and test date, NSW, 1 January to 30 April 2022



- The rate of people reported with influenza per 100,000 population has increased in all age groups and Local Health Districts this week.

**Emergency department and community surveillance
Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS) system**

Figure 12. Weekly counts of unplanned Emergency Department presentation for all respiratory problems, fever, or unspecified infections*.

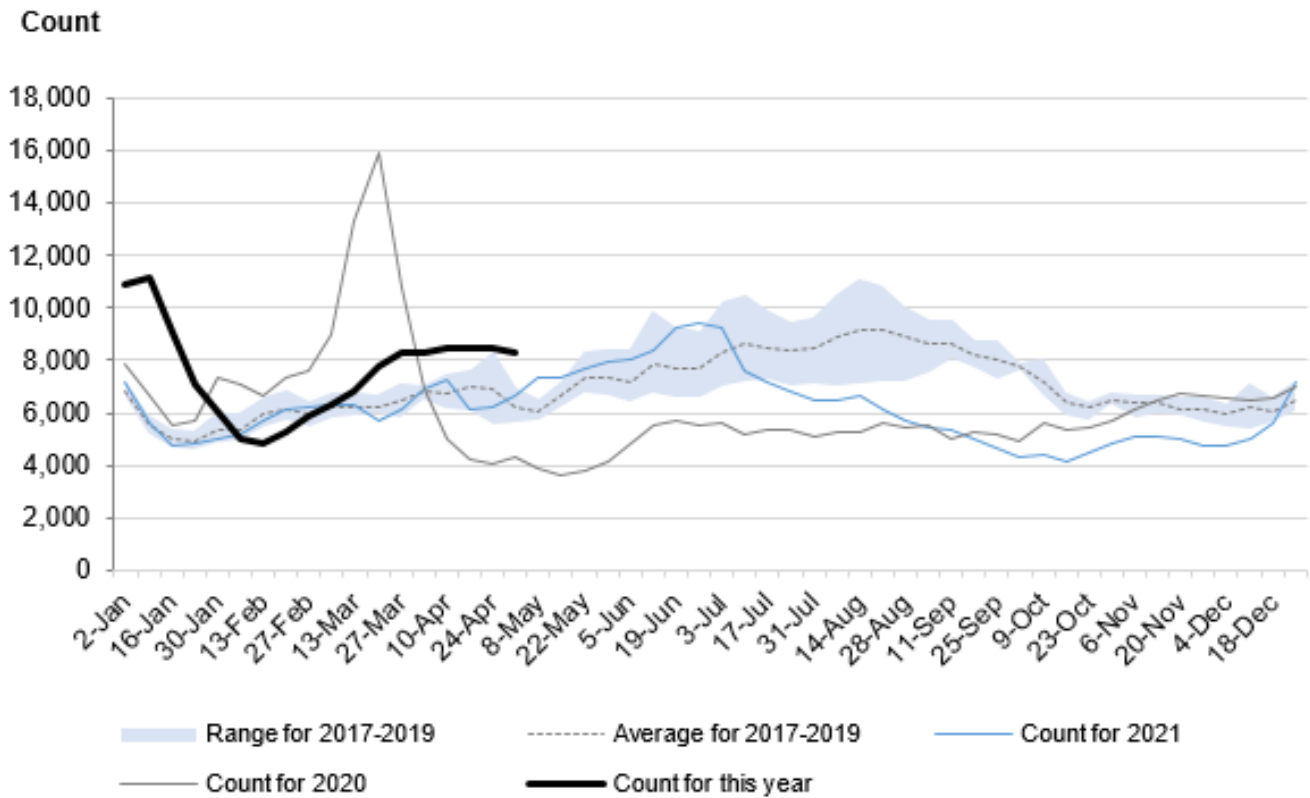
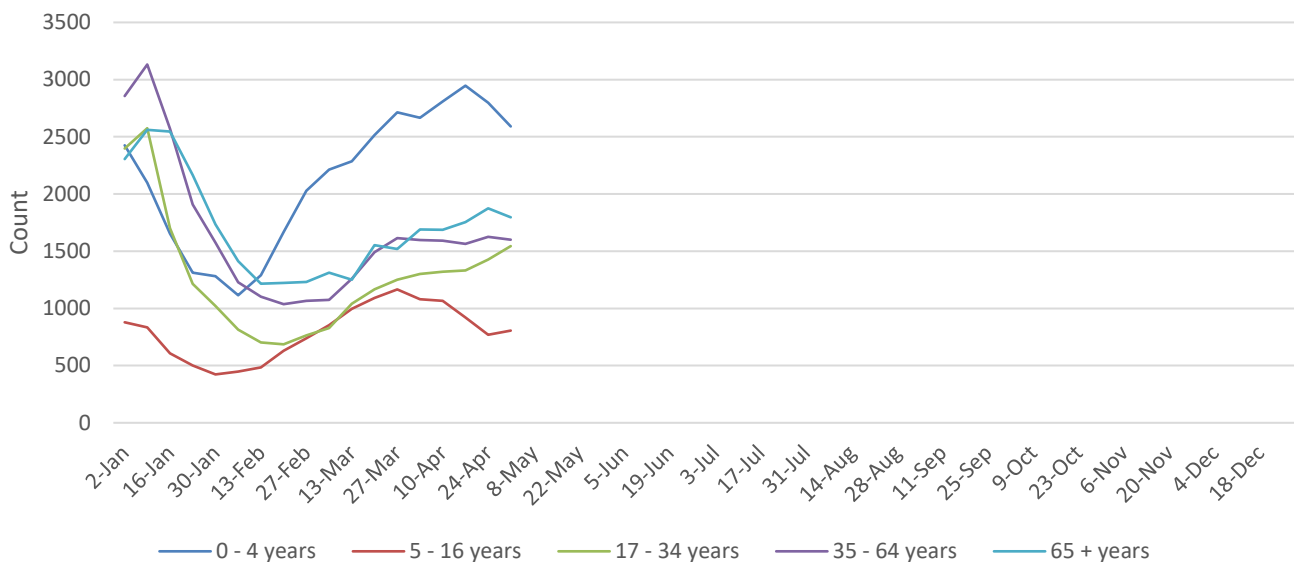


Figure 13. Weekly counts of unplanned Emergency Department presentation for all respiratory problems, fever, or unspecified infections*, 2022, by age group.



* All respiratory problems include asthma, breathing problems, bronchiolitis, coronaviruses/SARS and pneumonia diagnoses

Figure 14. Weekly counts of unplanned Emergency Department presentation requiring admission for influenza-like illness (ILI).

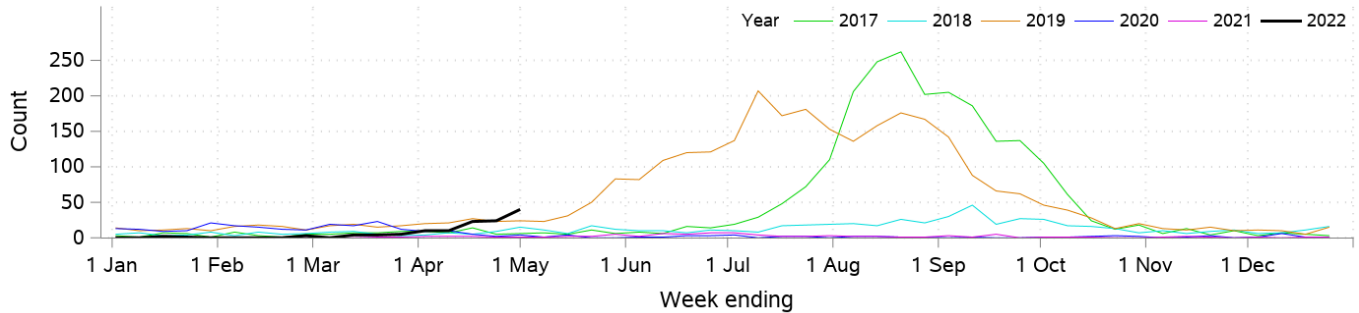
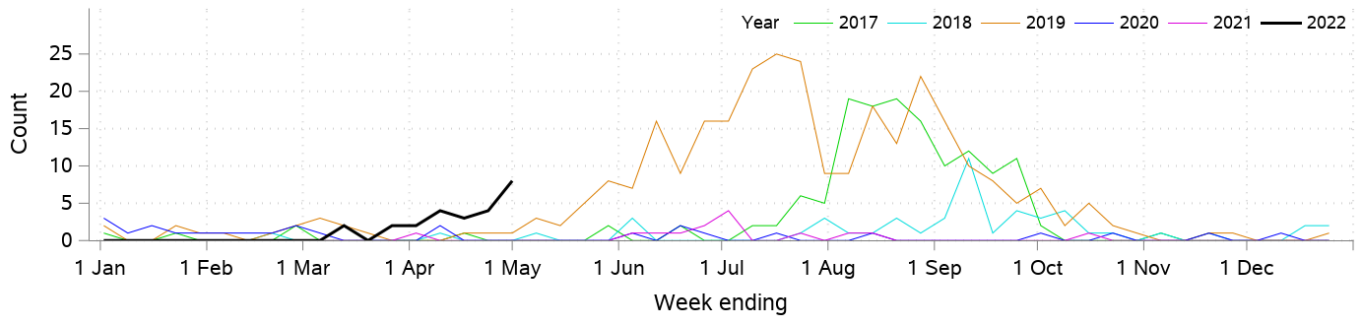


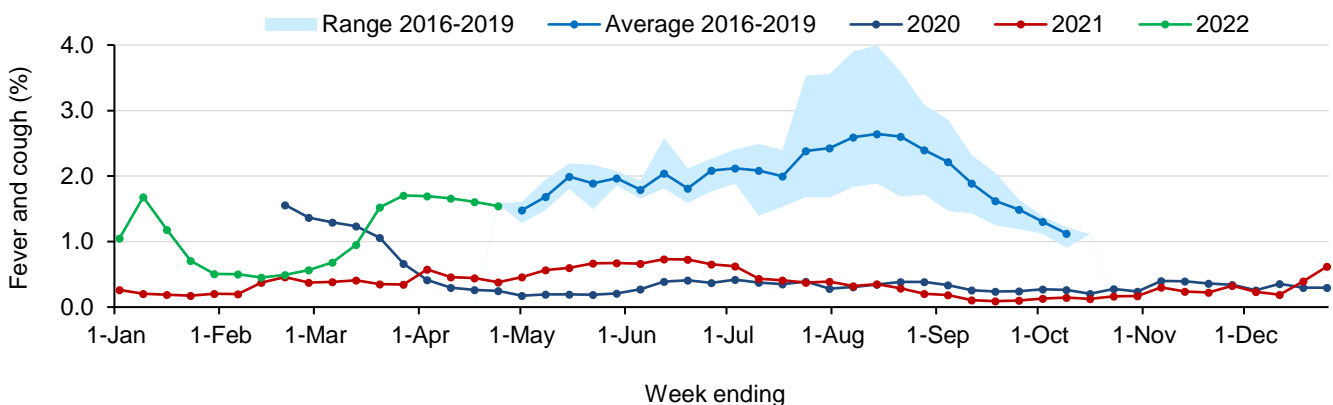
Figure 15. Weekly counts of unplanned Emergency Department presentation requiring admission for influenza-like illness (ILI), children aged 0-4 years old.



- Emergency department presentations for all respiratory problems, fever, or unspecified infections are above the 2017-2019 range (8,339 compared to an average of 6,192).
- Emergency department presentation for influenza-like illness (ILI) requiring admission are above the 2017-2019 range (40 compared to the 2017-2019 average of 15). This increase is most noticeable in children aged 0-4 years old (8 compared to the 2017-19 average of 0).
- 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. 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 presentations requiring an admission also provides an indication of severity. The burden of respiratory illness on emergency departments is better measured by the “all respiratory illnesses, fever, or unspecified infection” surveillance syndrome.
- The large increase in emergency department presentations in 2020 was driven by people seeking testing during the beginning of the pandemic. These presentations dropped off as community testing clinics were established.

FluTracking

Figure 16. Proportion of FluTracking participants reporting influenza-like illness, NSW, 1 January to 24 April 2022



- The proportion of FluTracking participants reporting influenza-like illness has decreased over recent weeks. Additional FluTracking reports are available at: <https://info.flutracking.net/reports-2/australia-reports/>

**Laboratory Surveillance
COVID-19**

Figure 17. 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 30 April 2022

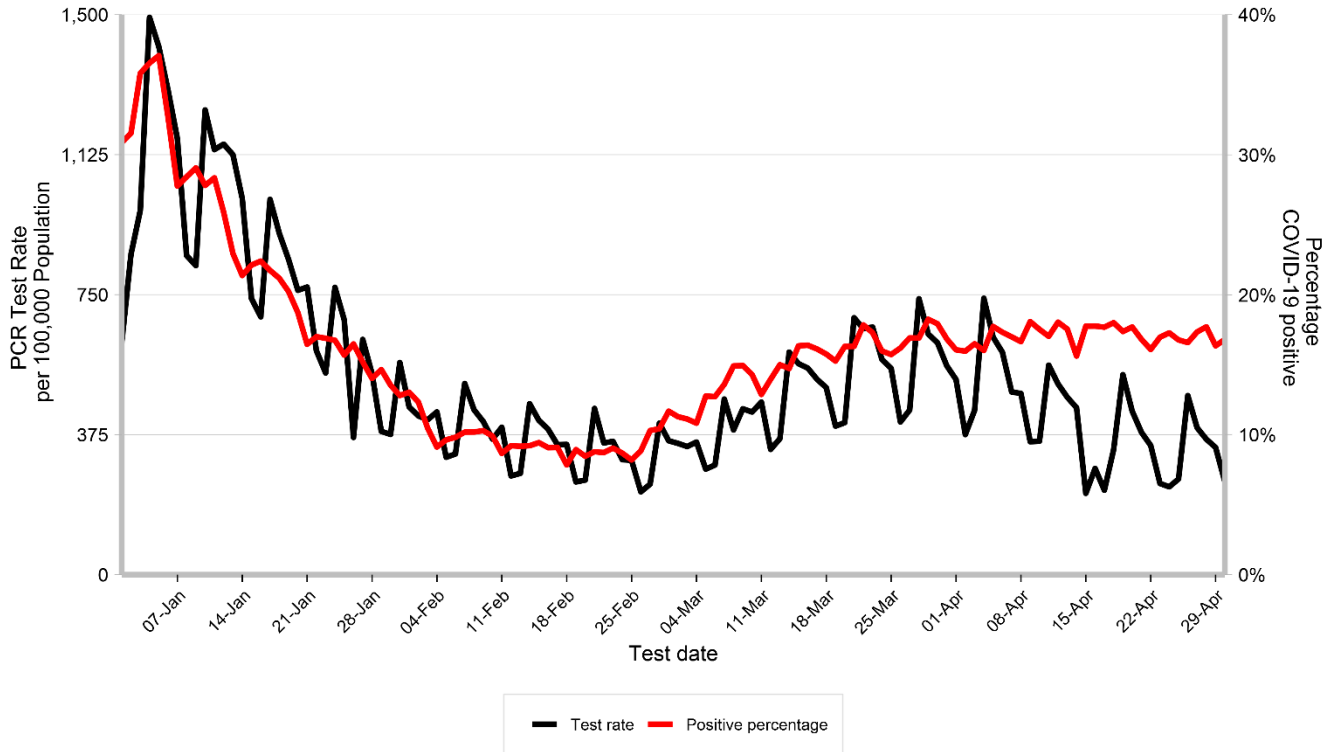
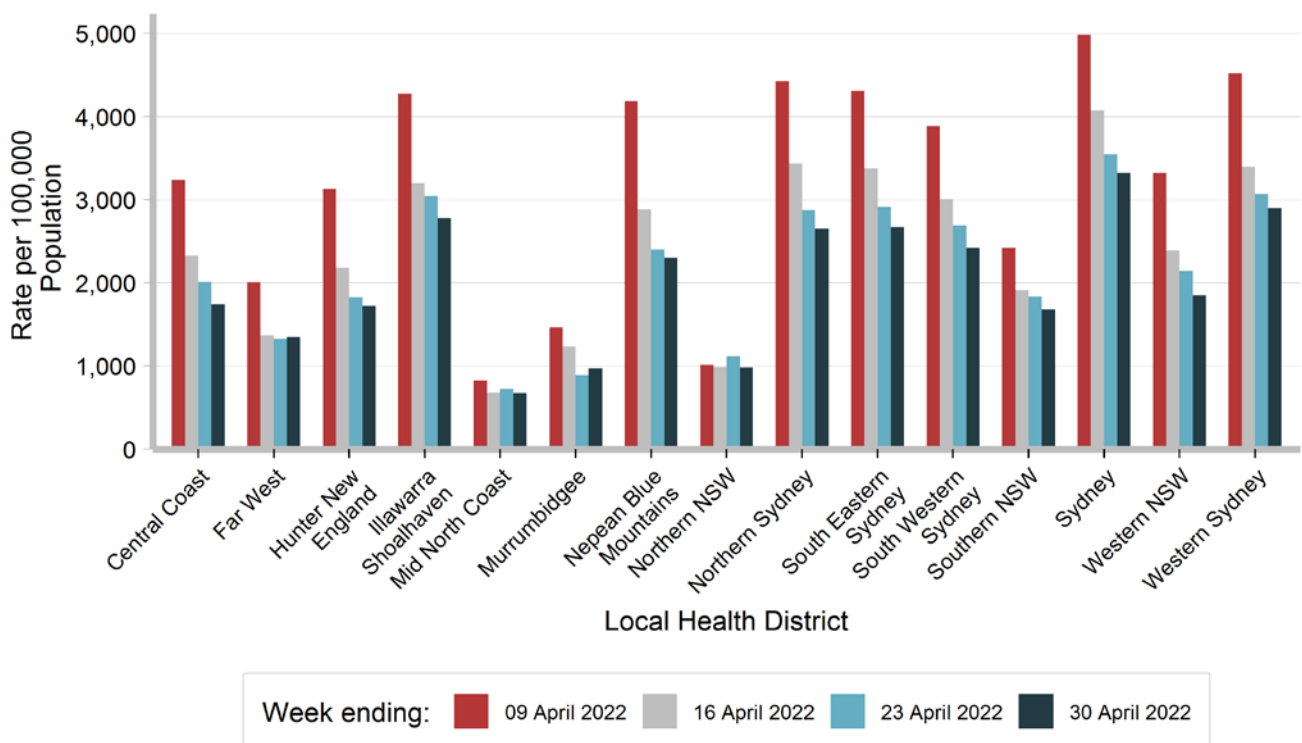


Figure 18. Rate of PCR tests for COVID-19 per 100,000 population by Local Health District and test date, NSW, in the four weeks to 30 April 2022



- The PCR testing rate decreased in most Local Health Districts (LHDs) this week, except for Far West and Murrumbidgee LHDs.

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 30 April 2022

Variant	Week ending			
	09 April	16 April	23 April	30 April
Omicron (BA.1)	27	12	8	0
Omicron (BA.2)	619	463	281	9
Omicron (BA.4)	0	0	4	2
Omicron (BA.5)	0	0	2	0
Mixed BA.1/BA.2*	1	0	0	0
Recombinant BA.1/BA.2 (XE)^	5	0	0	0
Recombinant BA.1/BA.2 (XU-like)^	0	0	1	0
Total	652	475	296	11

* 'Mixed' infections occur when two separate virus sequences are detected at the same time in a single specimen. ^ Recombinant virus sequences occur when two separate virus strains merge, forming a new, single strain that contains genomic regions of both co-infecting strains.

- Variants that pose an increased risk to global public health are designated as variants of concern (VOCs) by the World Health Organization.
- VOCs are identified by whole genome sequencing (WGS) conducted at three NSW reference laboratories. WGS can only be conducted on PCR positive specimens. Specimens are prioritised for WGS for people admitted to hospital and ICU, and recent overseas arrivals. This is not a random sample, therefore the proportion of VOCs 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 VOCs for recent dates will increase over time.
- 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.
- Seven BA.4 Omicron sub-lineage specimens have been identified in NSW to date (one was reported in last week's report and is not included in Table 5 above as it was collected prior to the period reported). Five of these specimens were collected from recent overseas arrivals. The other two specimens were collected from people who have not recently travelled overseas.
- The two BA.5 specimens identified were collected from recent overseas arrivals.
- No additional recombinant XE specimens have been identified this week. A different recombinant BA.1/BA.2 specimen has been identified that most closely resembles the XU variant. This specimen was collected from a recent overseas arrival.

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.
- The PCR test 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 98% of SARS-CoV-2 positive specimens from this laboratory currently have an S gene detected. This indicates that the BA.2 sub-lineage likely makes up around 98% of the SARS-CoV-2 detected in NSW. The S gene failure specimens have been prioritised for WGS, with most identified as BA.1 and a small proportion identified as BA.4 and BA.5.

SARS-CoV-2 reinfections

- The Communicable Diseases Network of Australia (CDNA) currently defines a SARS-CoV-2 reinfection as anyone who has a confirmed or probable infection more than 12 weeks after being released from isolation from their first infection. In practice this means that they have a SARS-CoV-2 positive test at least 91 days after their first positive test.
- Applying this definition to all NSW cases since January 2020, it is estimated that 11,309 people have had two or more SARS-CoV-2 infections. For approximately 45% of these people, both infections have occurred since the first Omicron variant was identified in NSW in late November 2021.
- There are significant limitations in estimating the number of reinfections:
 - These reinfections have not been confirmed by WGS.
 - Reinfections have been identified by matching name and date of birth, which can sometimes be inaccurate.

- Some people (particularly those who are immunocompromised) can continue to test positive more than 91 days after their infection despite not acquiring a new infection. These people may have been incorrectly identified as having a reinfection.
- Most SARS-CoV-2 infections in NSW have occurred in the last six months, however the risk of reinfection increases over time as immunity wanes. Therefore, people with a single SARS-CoV-2 infection could still be reinfected in the future.
- If a person does not get tested for SARS-CoV-2 (for example if they are asymptomatic) then a reinfection may not be identified.
- Risk of reinfection varies by age, vaccination status and time since vaccination.

Number of people reported to be diagnosed with influenza and other respiratory viral infectious at sentinel laboratories

- Testing for influenza and other respiratory viruses is much higher than prior to the COVID-19 pandemic. In the week ending 1 May 2022, 19,902 PCR tests were conducted, compared to the 2016-2019 average for the same week of 5,738 tests. Of the 19,902 PCR tests conducted, 5.5% were positive for influenza, however this is above the 2016-2019 average positivity rate (4.4%) for the same week.
- Cases of human metapneumovirus virus and rhinovirus are above the seasonal average for 2016-2019 and although trending down, cases of adenovirus, parainfluenza and enterovirus are approximately the same as the seasonal average. Cases of respiratory syncytial virus (RSV) are below average.
- For the week ending 1 May, nine out of 12 sentinel laboratories had provided data.

Figure 19. Number and proportion of tests positive for influenza at sentinel NSW laboratories, 1 January to 1 May 2022

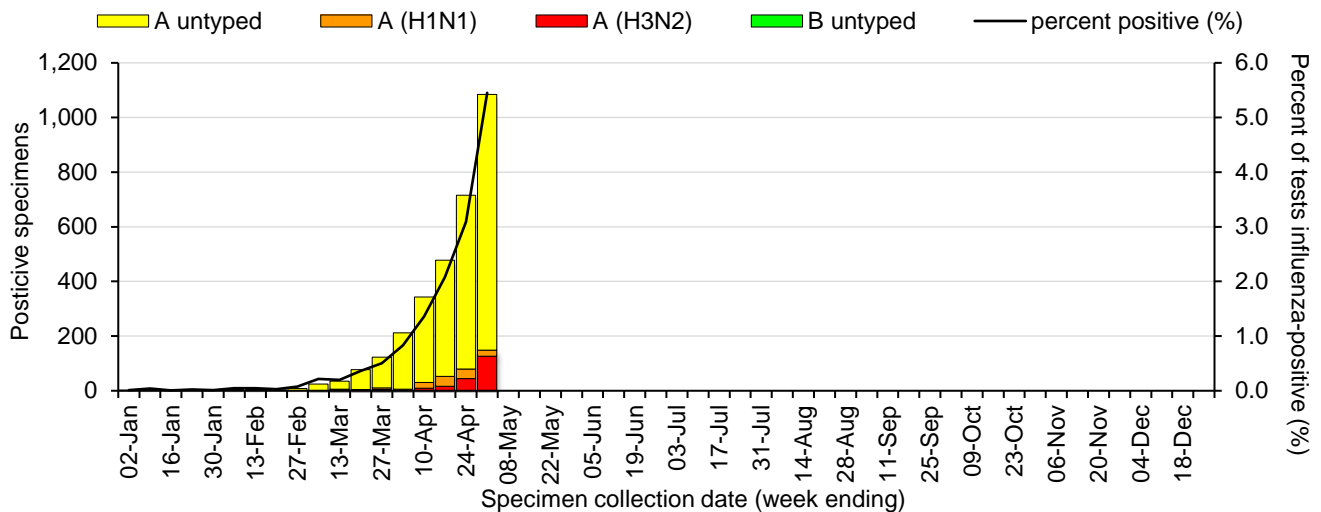


Figure 20. Number of positive PCR test results for influenza and other respiratory viruses at sentinel NSW laboratories, 1 January to 1 May 2022.

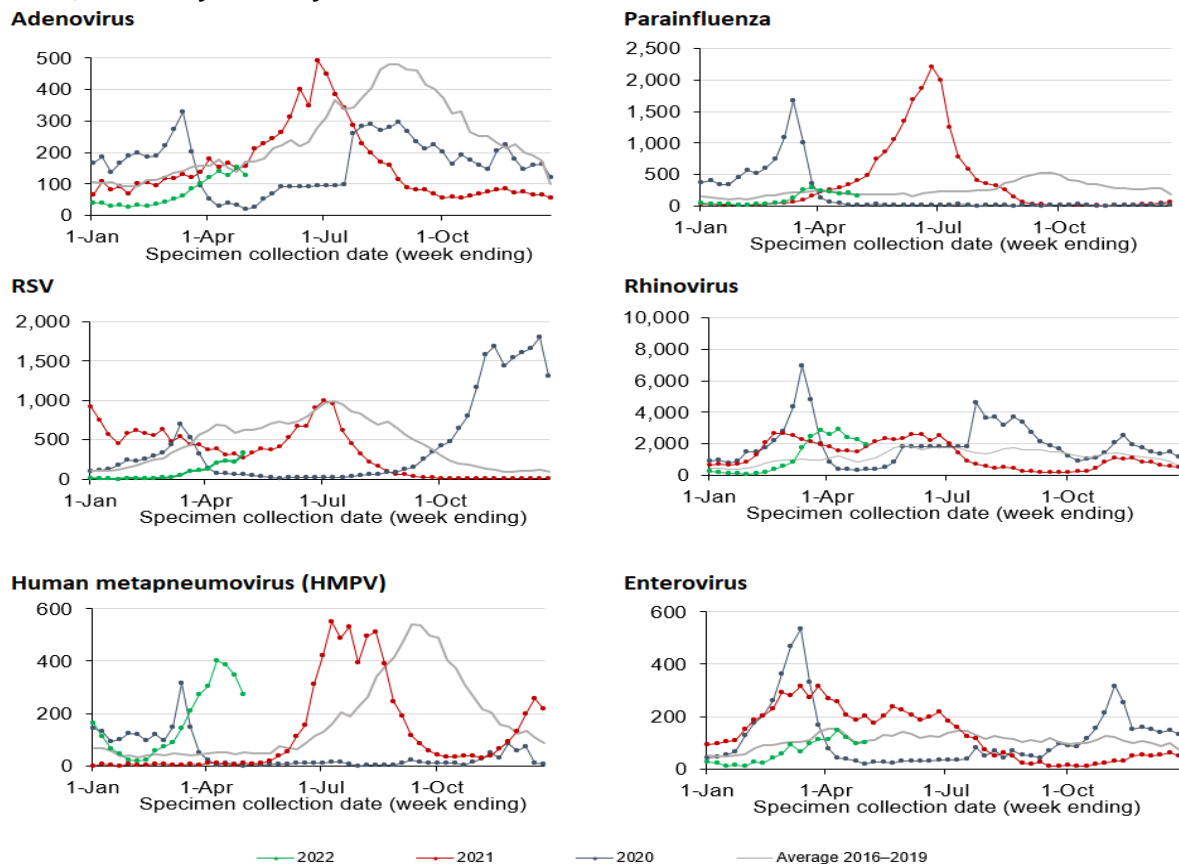


Table 4. Total number of respiratory disease notifications from sentinel laboratories, NSW in the four weeks to 1 May, 2022

	Week ending				Year to date
	10 Apr	17 Apr	24 Apr	1 May	
Influenza A	342	478	715	1,084	3,121
Influenza B	1	0	0	1	5
Adenovirus	139	127	152	127	1,237
Parainfluenza	229	191	203	156	1,990
Respiratory syncytial virus (RSV)	204	232	222	331	1,461
Rhinovirus	2,908	2,388	2,247	1,953	21,636
Human metapneumovirus (HMPV)	401	386	349	274	2,850
Enterovirus	150	119	98	100	1,164
Number of PCR tests conducted	25,197	23,015	23,146	19,902	294,517