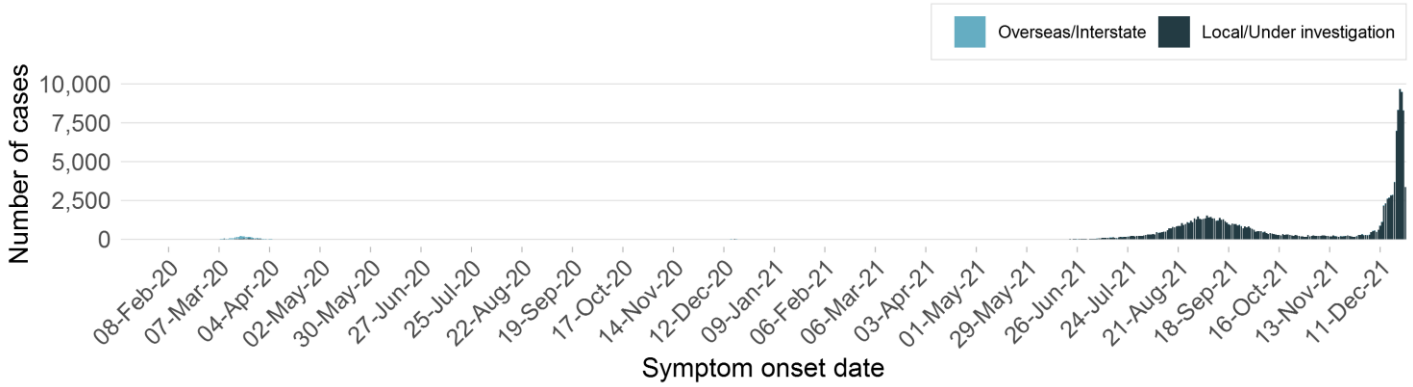
COVID-19 WEEKLY SURVEILLANCE IN NSW

EPIDEMIOLOGICAL WEEK 51 ENDING 25 DECEMBER 2021

Published 7 January 2022

Summary for the week 19 December to 25 December 2021 (inclusive)

Figure 1. COVID-19 cases by likely infection source and reported illness onset, NSW, 13 January 2020 to 25 December 2021



The date of the first positive test is used for cases who did not report symptoms.

Table 1. Number and proportion of COVID-19 cases in NSW by likely source of infection to week ending 25 December 2021

	2020		2021			Total
	Jan – Jun	July – Dec	01 Jan - 15 Jun	16 Jun - 31 Oct	01 Nov - 25 Dec	
Locally acquired	1,236 (39 %)	807 (52 %)	51 (7 %)	69,489 (100 %)	30,132 (53 %)	101,715 (77 %)
Interstate acquired	67 (2 %)	23 (1 %)	0 (0 %)	31 (<1 %)	285 (<1 %)	406 (<1 %)
Overseas acquired	1,892 (59 %)	714 (46 %)	641 (93 %)	240 (<1 %)	488 (1 %)	3,975 (3 %)
Under investigation	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	26,271 (46 %)	26,271 (20 %)
Total	3,195 (100 %)	1,544 (100 %)	692 (100 %)	69,760 (100 %)	57,176 (100 %)	132,367 (100 %)
Deaths	51	5	0	522	76	654

In the week ending 25 December 2021:

- There were 34,582 total cases reported, with 10,728 (31%) locally acquired and 23,652 (68%) under investigation.
- Of these cases, 169 cases have been confirmed as having the Omicron variant. Since 26 November 2021, 1,059 Omicron cases have been confirmed, with a further 2,925 probable Omicron cases pending genomic sequencing.
- The ten LGAs with the highest number of cases were:
  - Sydney, 3,061 (9%) cases
  - Canterbury-Bankstown, 2,413 (7%) cases
  - Newcastle, 1,606 (5%) cases
  - Lake Macquarie, 1,600 (5%) cases
  - Blacktown, 1,556 (4%) cases
  - Cumberland, 1,453 (4%) cases
  - Inner West, 1,414 (4%) cases
  - Randwick, 1,153 (3%) cases
  - Sutherland, 1,111 (3%) cases
  - Bayside, 1,088 (3%) cases
  - 17,707 (51%) cases were residents across 96 other LGAs
- There were 136 (1%) cases in overseas returned travellers (compared with 141 the previous week).
- There were 8 deaths in people diagnosed with COVID.
- Among those aged 12 and over, 78.0% of all cases, and 92.3% of the population were fully vaccinated.
- Testing rates increased compared to the previous week (up 5.9%).
- 169 sewage samples were tested for fragments of SARS-CoV-2. Of these, there were 102 detections. Detections from Balranald, Buladelah, Buronga, Narooma, Tomakin, Wentworth, West Wyalong occurred with no known or recent cases in the catchment. Cases were also identified in Batemans Bay, Buronga, Cowra, Leeton, Manilla, Merriwa, Moonee, Moruya, Moss Vale, Walcha, Wauchope, and Yass following recent detections. Due to the current wide spread of COVID in the community, the sewage surveillance program is no longer useful in identifying the introduction of cases into previously unaffected communities. It therefore ceased in its current form from 22 December 2021.

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Table 2. Measures of public health action, NSW, for the period from 12 December to 25 December 2021

	Week ending 25 Dec	Week ending 18 Dec
Proportion total cases notified to NSW Health by the laboratory within 1 day of specimen collection	25% (8,540/34,582)	58% (6,938/12,013)
Total cases contacted by text message within 1 day of notification to NSW Health	99% (34,210/34,582)	99% (11,910/12,013)
Number of high-risk cases fully interviewed by public health staff within 1 day of responding to the NSW Health text message*	80% (3,729/4,675)	90% (2,184/2,431)
Total cases fully interviewed by public health staff within 1 day of notification to NSW Health#	22% (7,552/34,582)	59% (7,141/12,012)
Number of high-risk or un-responded cases to be interviewed by public health staff within 1 day of notification to NSW Health*	62% (4,697/7,613)	80% (2,993/3,742)

* In the week ending 25 December, cases were considered high risk if they had been overseas, identify as Aboriginal and/or Torres Strait Islander, or had visited or worked in the following settings in the last week: Aboriginal community, aged care or disability service, hospital, or prison/detention.
# Due to the increase in case numbers, NSW Health is no longer interviewing all COVID-19 cases.

Section 1: Cases from 16 June 2021 to 25 December 2021

Figure 2. Source of infection, NSW from 16 June to 25 December 2021

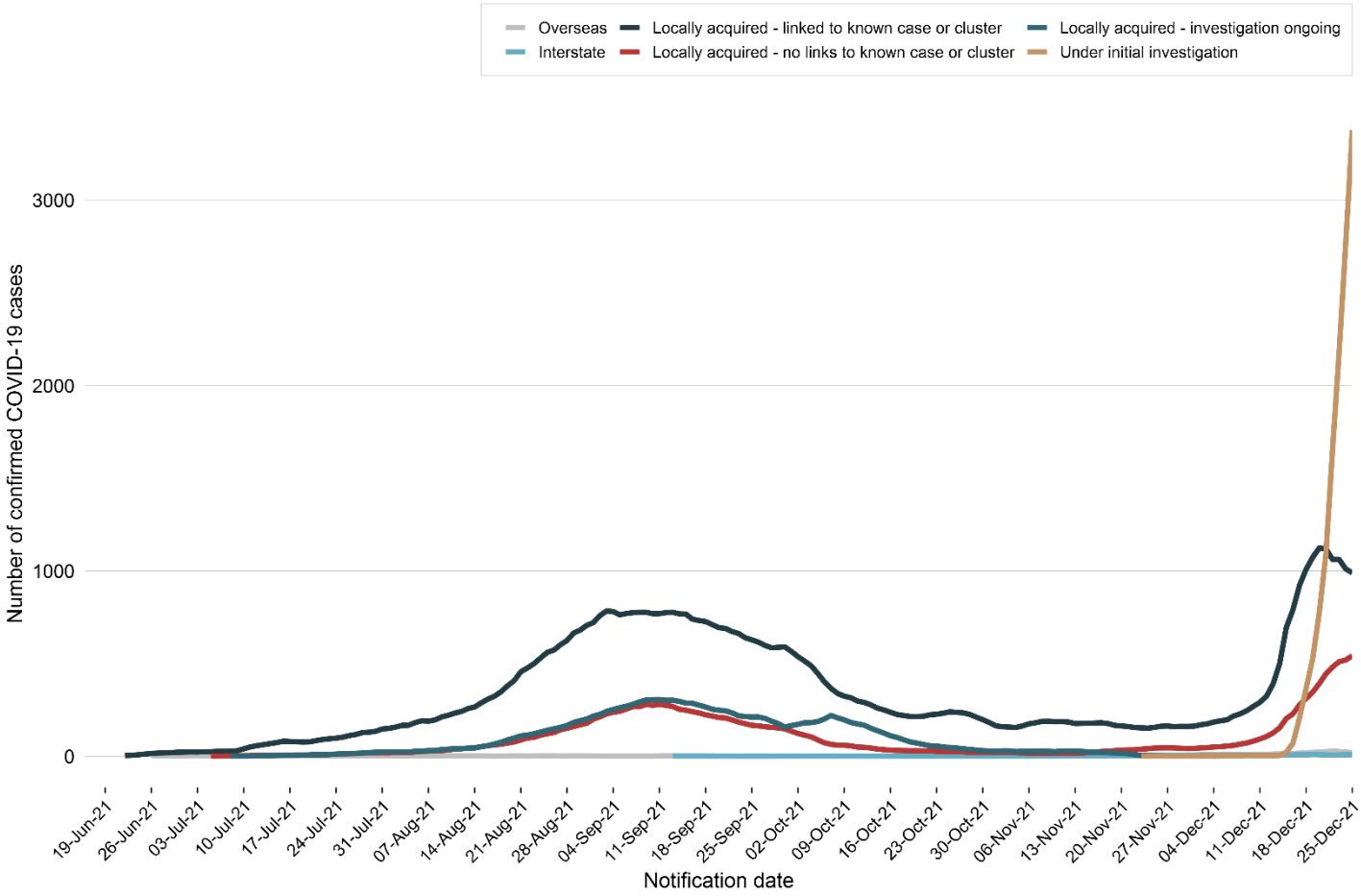


Table 3. COVID-19 cases and tests reported, NSW, from 16 June 2021 to 25 December 2021

	Week ending 25 Dec	Week ending 18 Dec	% change	16 Jun to 31 Oct 2021	Since 1 Nov 2021
Number of cases	34,582	12,013	188 %	69,760	57,176
Locally acquired	10,728	9,249	16 %	69,489	30,132
Known epidemiological links to other cases or clusters	6,930	7,061	-2 %	44,727	21,975
No epidemiological links to other cases or clusters	3,798	2,188	74 %	24,762	8,157
Overseas acquired	136	141	-4 %	240	488
Interstate acquired	66	60	10 %	31	285
Under investigation	23,652	2,563	822 %	0	26,271
Number of tests	1,073,229	1,013,736	6 %	14,082,065	5,048,493

Note: The case numbers reported for previous weeks is based on the most up to date information from public health investigations. Source of infection is subject to change as data are cleaned and updated.

- The number of reported cases acquired in NSW almost doubled in the last week.
- A large proportion of cases reported in the week ending 25 December 2021 remain under investigation. Due to the current case volume, NSW Health is prioritising case interviews for cases who have attended high risk settings while infectious. Source of infection is unable to be determined for cases who have not been interviewed.

Section 2: Age and sex breakdown of cases

Figure 3. Seven day backward rolling average of COVID-19 cases rate per 100,000 population by age and notification date, NSW, from 16 June 2021 to 25 December 2021

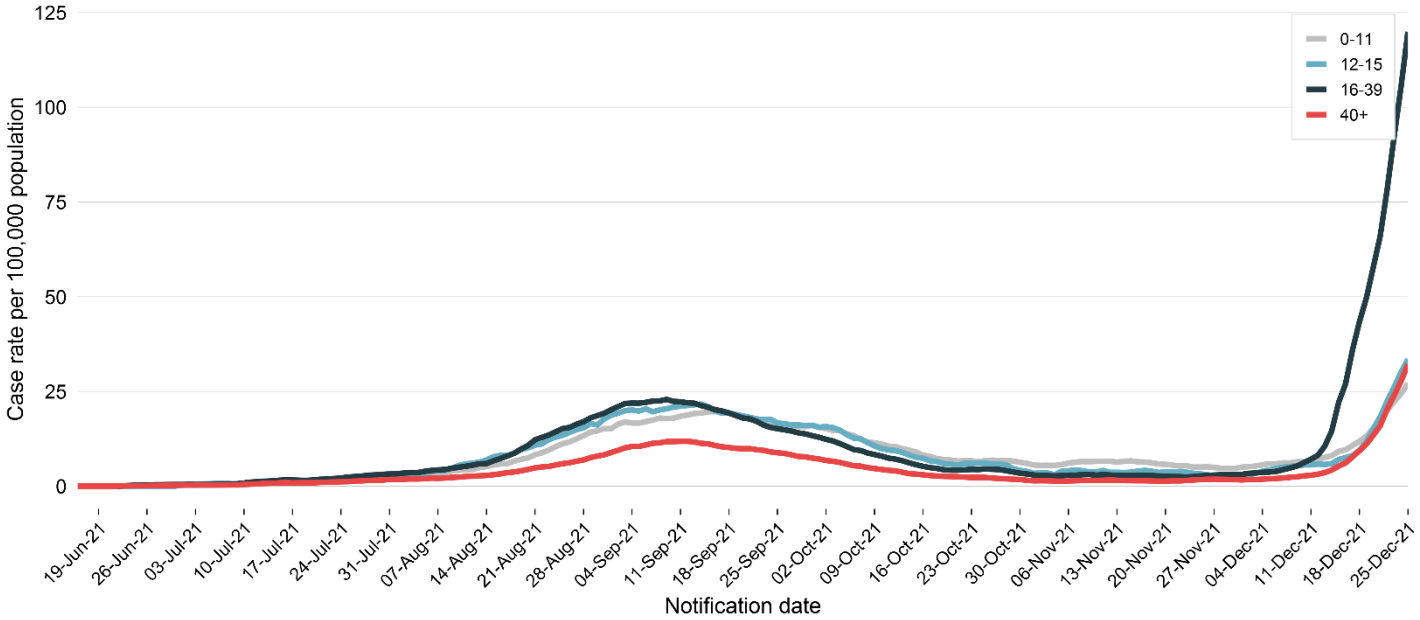
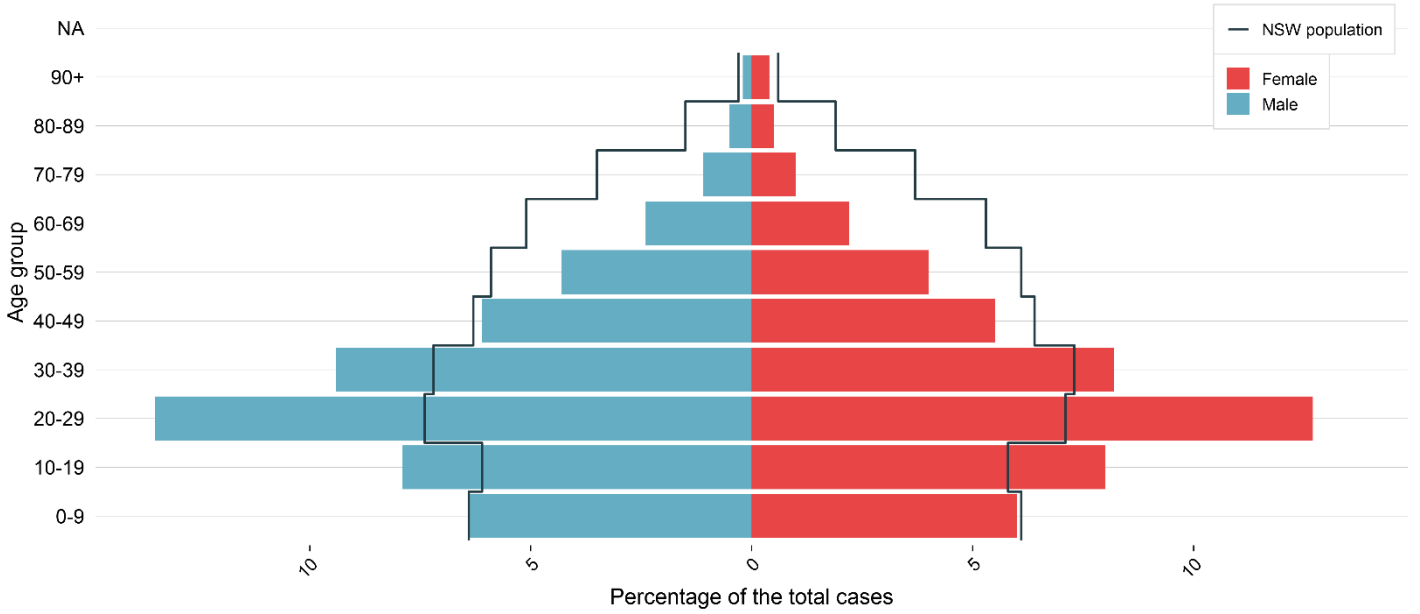


Figure 4. Current wave total case percentage (n = 126,787) by age and gender, NSW, from 16 June to 25 December 2021



Note that the figure does not include cases for whom gender is not specified or non-binary.

- The large increase in case numbers in the week ending 25 December was principally in the 20-29 age range (see Appendix E for further detail)
- Cases since 16 June 2021 have been younger (median age = 28 years, interquartile range (IQR) = 18-42 years) than cases before this date (median age = 37 years, IQR = 25-55 years).
- Most cases were aged 20-29 years, with all age groups between 10 and 40 over-represented among the cases, relative to their proportion in the NSW population. See Appendix E for further detail
- The over-representation of younger age group and under-representation among older groups may be due to increased social mixing amongst younger groups and higher vaccination rates in older groups.

Section 3: Omicron variant in NSW

- On 26 November 2021, the World Health Organization designated a new variant, Omicron (B.1.1.529), as a variant of concern.
- The first Omicron case in NSW was identified on 28 November 2021. Genomic sequencing of older cases has since identified an Omicron case who was notified in the week ending 27 November 2021.

Table 4. Demographics of confirmed and probable Omicron infections, Delta infections, and infections with genomic sequencing under investigation by gender, age, vaccination status and clinical severity, NSW, 26 November to 25 December, 2021

	Confirmed Omicron Cases	Probable Omicron Cases^	Confirmed Delta Cases	Not Sequenced
Gender				
Female	564 (51.0%)	1,473 (50.4%)	1,205 (47.4%)	23,618 (49.3%)
Male	540 (48.9%)	1,443 (49.3%)	1,330 (52.4%)	24,236 (50.5%)
Not stated	1 (0.1%)	9 (0.3%)	5 (0.2%)	95 (0.2%)
Age group*				
0-9	26 (2.4%)	82 (2.8%)	371 14.6%)	2,982 (6.2%)
10-19	203 (18.4%)	516 (17.6%)	457 (18.0%)	7,219 (15.1%)
20-29	567 (51.3%)	1,447 (49.5%)	575 (22.6%)	17,295 (36.1%)
30-39	136 (12.3%)	442 (15.1%)	397 (15.6%)	9,026 (18.8%)
40-49	83 (7.5%)	202 (6.9%)	314 (12.4%)	4,981 (10.4%)
50-59	54 (4.9%)	145 (5.0%)	186 (7.3%)	3,517 (7.3%)
60-69	16 (1.4%)	56 (1.9%)	127 (5.0%)	1,795 (3.7%)
70-79	14 (1.3%)	21 (0.7%)	77 (3.0%)	762 (1.6%)
80-89	4 (0.4%)	12 (0.4%)	31 (1.2%)	298 (0.6%)
90+	2 (0.2%)	1 (<0.1%)	5 (0.2%)	71 (0.1%)
Vaccination status				
Fully vaccinated	879 (79.5%)	2,344 (80.1%)	1,234 (48.6%)	33,796 (70.5%)
Partially vaccinated	12 (1.1%)	12 (0.4%)	43 (1.7%)	444 (0.9%)
No effective dose	154 (13.9%)	308 (10.5%)	703 (27.7%)	4,489 (9.4%)
Under investigation#	29 (2.6%)	165 (5.6%)	37 (1.5%)	5,321 (11.1%)
Not eligible (aged 0-11 years)	31 (2.8%)	96 (3.3%)	523 (20.6%)	3,899 (8.1%)
Clinical severity				
Hospitalised	17 (1.5%)	16 (0.5%)	101 (4.0%)	620 (1.3%)
ICU	1 (0.1%)	0 (0.0%)	1 (<0.1%)	2 (<0.1%)
Deaths	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	1,105 (100%)	2,925 (100%)	2,540 (100%)	47,949 (100%)

* Does not include people with no birth date recorded
# Vaccination status is updated regularly using both the Australian Immunisation Register and the patient's interview.
^ Probable Omicron cases are confirmed cases that are yet to have genomic sequencing but have PCR results that show an S gene dropout, a feature caused by a mutation in the Omicron variant. Following genomic sequencing, these cases will be reported with their confirmed variant.

- A large proportion of cases notified since 26 November have not had genomic sequencing.
- Of those who have had genomic sequencing, 1,105 Omicron cases have been confirmed. A further 2,925 probable Omicron cases have also been identified (i.e., those with S-gene dropout on PCR testing).
- Approximately half of all confirmed and probable Omicron cases are in the 20-29 year age group. This is also the most common age group for confirmed Delta cases, but there is a wider spread of cases across age groups for confirmed Delta cases with only 22.6% being in the 20-29 year age group.
- Approximately 80% of confirmed and probable Omicron cases are fully vaccinated, while only 48.6% of confirmed Delta cases are fully vaccinated.
- A slightly higher proportion of confirmed Delta cases (4%) have been hospitalised, compared to confirmed Omicron (1.5%) and probable Omicron (0.5%) cases.

Section 4: Cases in hospital each day with COVID-19

Figure 5a. Estimated active cases (number of cases notified last 14 days), number of cases in hospital, in ICU and ventilated by date, NSW, from 16 June to 25 December 2021

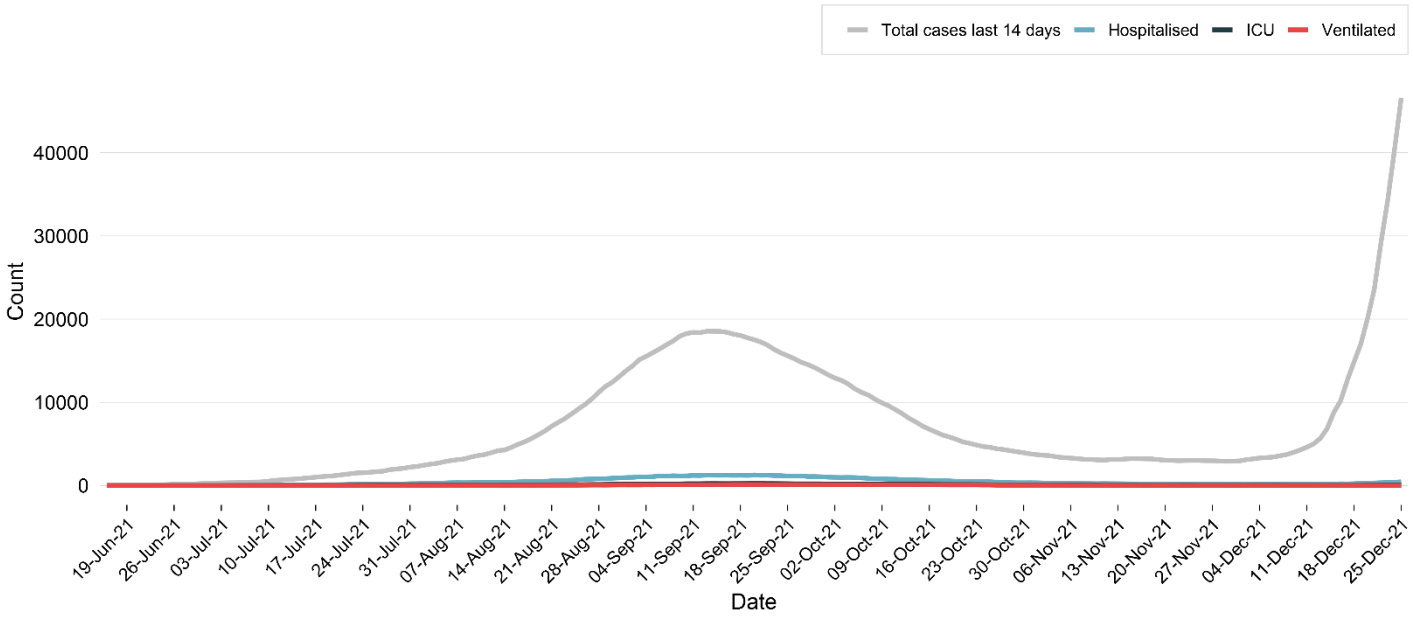
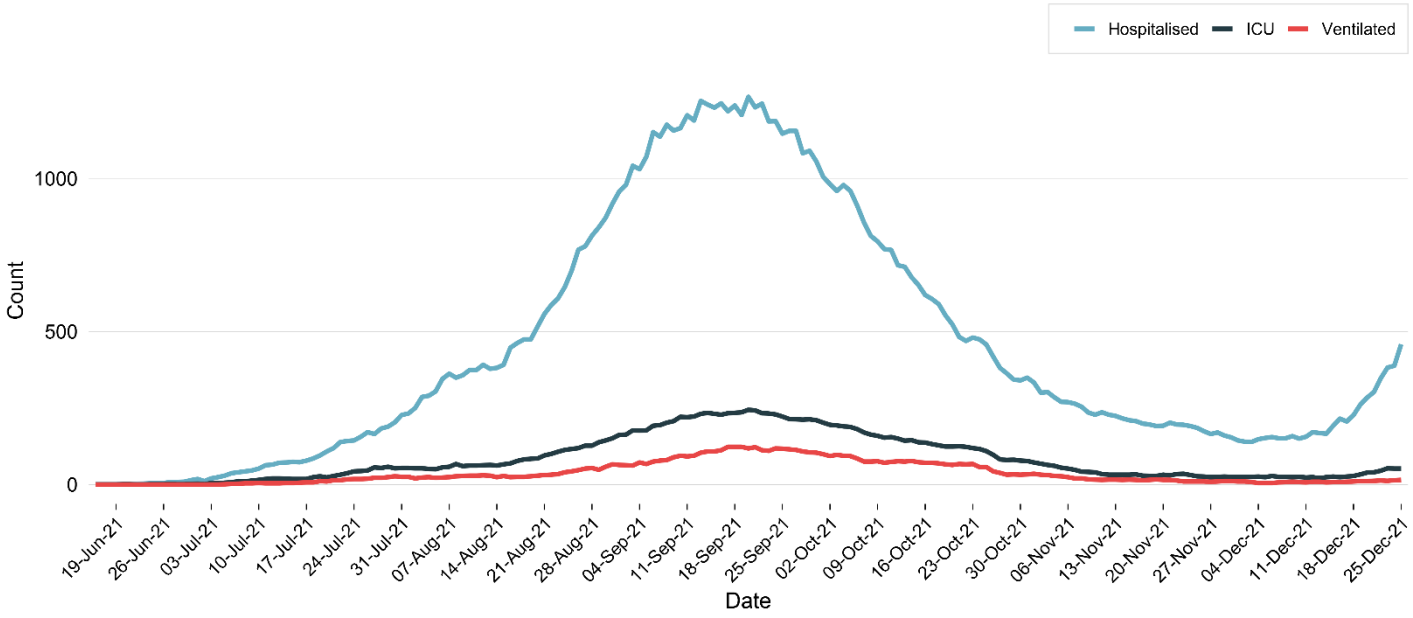


Figure 5b. Number of cases in hospital, in ICU and ventilated by date, NSW, from 16 June to 25 December 2021



- The graph shows the number of active cases and the number hospitalised, in ICU and ventilated.
- The median delay between a person becoming ill with COVID-19 and requiring a hospitalisation is 5 days.
- Throughout November, case rates flattened, but hospitalisations continued to decline, likely reflective of high vaccination coverage in the community being protective against hospitalisation.
- Cases doubled in the week ending 25 December, and the number of cases who are hospitalised also doubled. The number of cases hospitalised remained lower than the previous peak in mid-September.

Section 5: Clinical severity by vaccination status

Figure 6. COVID-19 cases by outcome, notification date and vaccination status with 7 day backward rolling average, NSW, from 16 June to 11 December 2021

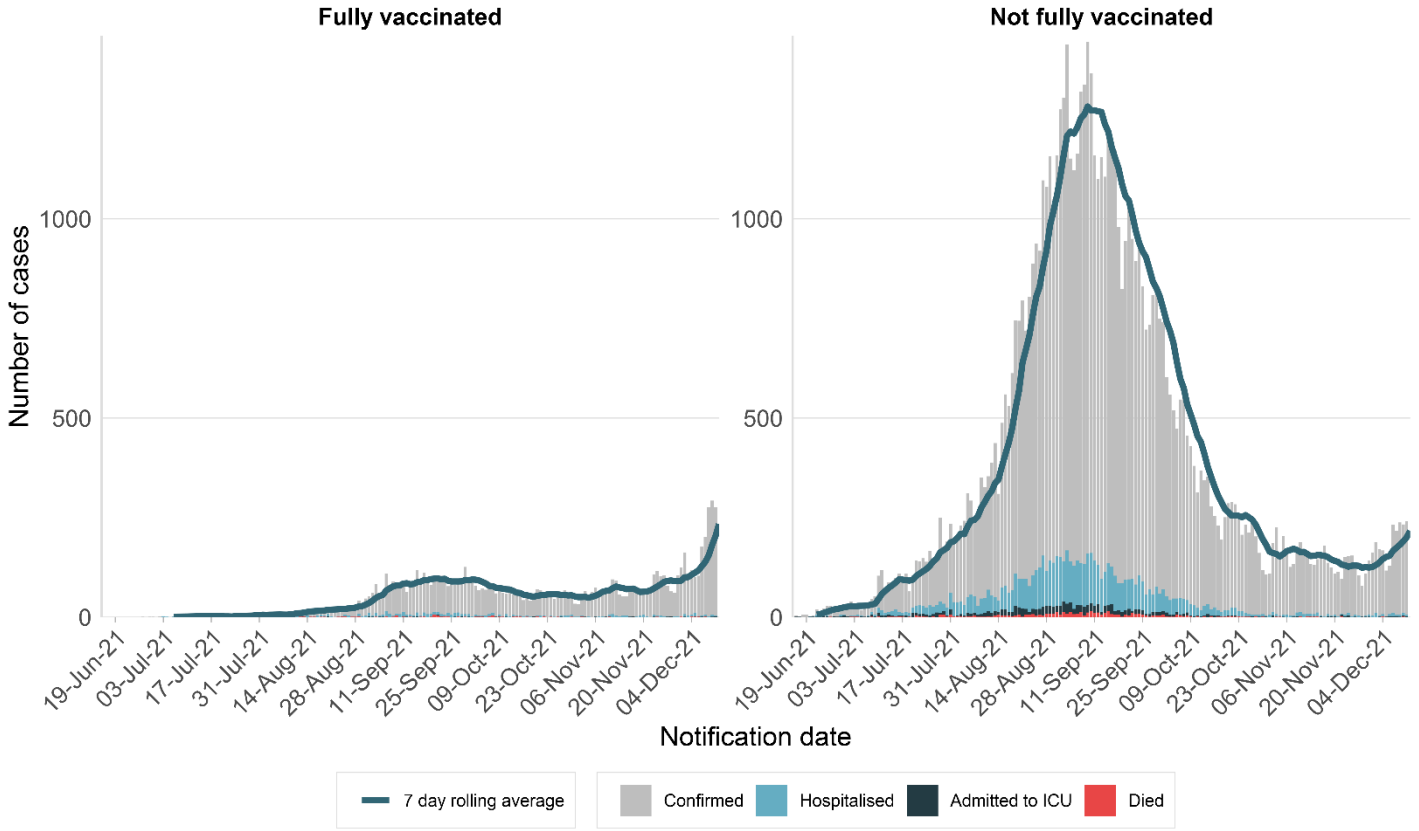


Table 5. Hospitalisations, ICU admissions and deaths among cases diagnosed with COVID-19, by vaccination status, NSW, from 16 June to 25 December 2021

Vaccination status	Total cases	Hospitalised (% of total cases)	Hospitalised and in ICU (% of total cases)	Death (% of total cases)
Fully Vaccinated	42,847	1,014 (2.4%)	106 (0.2%)	96 (0.2%)
Partially vaccinated	7,304	619 (8.5%)	97 (1.3%)	76 (1.0%)
No effective dose	45,113	5,579 (12.4%)	1,142 (2.5%)	420 (0.9%)
Under investigation	12,262	1,115 (9.1%)	213 (1.7%)	6 (<0.1%)
Not eligible for vaccination (aged 0-11 years)	19,410	359 (1.8%)	13 (0.1%)	0 (0.0%)
Total	126,936	8,686 (6.8%)	1,571 (1.2%)	598 (0.5%)

- Dates are based on the date of the case's notification rather than the date they were hospitalised, admitted to ICU, or died.
- Figure data is provided to 11 December, allowing sufficient time to capture the development of severe illness or death among the most recently notified cases.
- The proportion of cases who are fully vaccinated has increased over time, as the proportion of the general population who are fully vaccinated has increased over the same period.
- In the past week, 25,114 (72.6%) of all cases were fully vaccinated (see Appendix E)
- Since 16 June 2021, among cases aged 12 years and over with no effective dose, 12.4% of cases were hospitalised, 2.5% of cases were admitted to ICU, and 0.9% of cases died. In comparison, among fully vaccinated cases, 2.4% of cases were hospitalised, 0.2% were admitted to ICU, and 0.2% died.
- COVID-19 is relatively mild in most young children aged 0-11 years who are ineligible for vaccination: among cases in this group, 1.8% were hospitalised, 0.1% were admitted to ICU, and no cases have died.

Section 6: Deaths following recent infection with COVID-19

Table 6. Deaths following recent infection with COVID-19, by age group, from January 2020 to 25 December 2021

Age-group (years)	Since 16 Jun 2021			Jan 2020 – 15 Jun 2021	
	Number of deaths	Case fatality rate	Fatality rate per 100,000 population[1]	Number of deaths	Case fatality rate[2]
0-9	0	0%	0.0	0	0%
10-19	1	<1%	0.1	0	0%
20-29	6	<1%	0.5	0	0%
30-39	15	<1%	1.3	0	0%
40-49	28	<1%	2.7	0	0%
50-59	66	1%	6.8	1	<1%
60-69	105	2%	12.5	4	1%
70-79	138	5%	23.7	15	4%
80-89	171	13%	62.3	20	16%
90+	68	22%	98.0	16	38%
Total	598	<1%	7.4	56	1%

Table 7. Deaths following recent infection with COVID-19, by age group and location, from 16 June to 25 December 2021

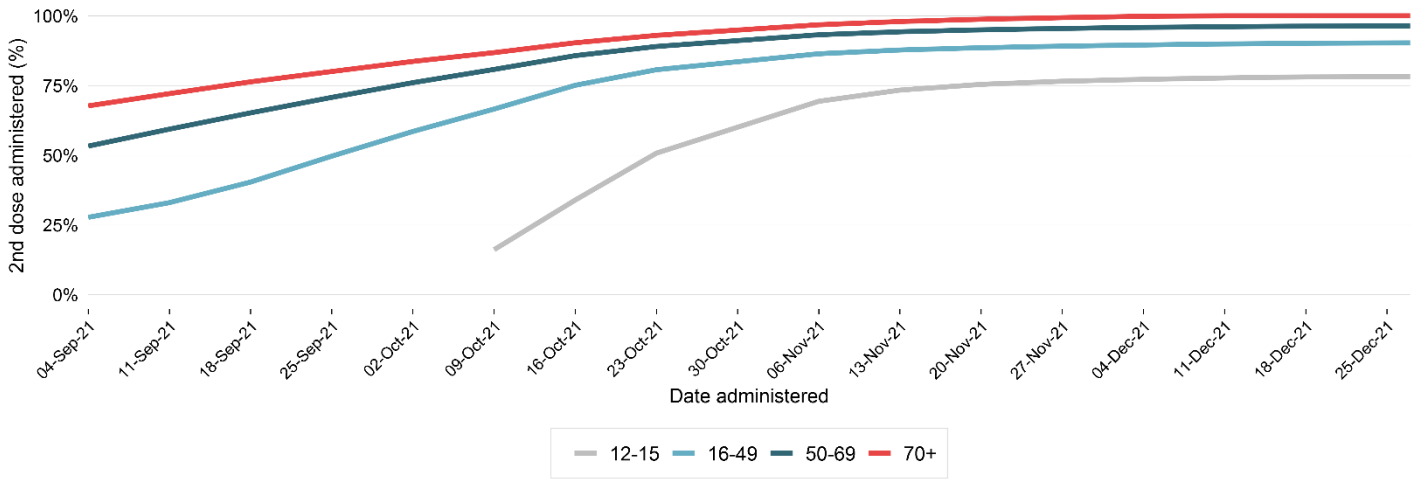
Age-group (years)	Health care facility	Aged care facility	Home
0-9	0	0	0
10-19	1	0	0
20-29	4	0	2
30-39	11	0	4
40-49	22	0	6
50-59	57	0	9
60-69	93	1	11
70-79	127	8	3
80-89	154	10	7
90+	50	18	0
Total	519	37	42

- Since the start of the pandemic, 0.7% of cases (654 people) have died.
- This includes 106 residents of aged care facilities.
- 2% (14/654) of the deaths had infections that were overseas acquired.
- 70.2% (420/598) of the deaths since 16 June 2021 had not received an effective vaccine dose (see Table 5).
- The median delay between a person becoming ill and death was 11 days.
- In the week ending 25 December, there were 8 deaths in people diagnosed with COVID-19, including
  - 6 people who were fully vaccinated (two aged 90+ years, three in their 80s and one in their 70s),
  - 2 people who had received no effective dose (one in their 40s and one in their 70s).
- The majority of deaths since 16 June 2021 have occurred in hospital (518/598, 87%).
- Among deaths occurring at home, the majority (26/42, 62%) were diagnosed after death.

[1] There is often a delay between a person becoming ill with COVID-19 and subsequently requiring a hospitalisation or dying. In the current outbreak the median time between onset and hospitalisation is 5 days and between onset and death is 11 days. Therefore hospitalisations and deaths are under-reported for the most recently notified cases.

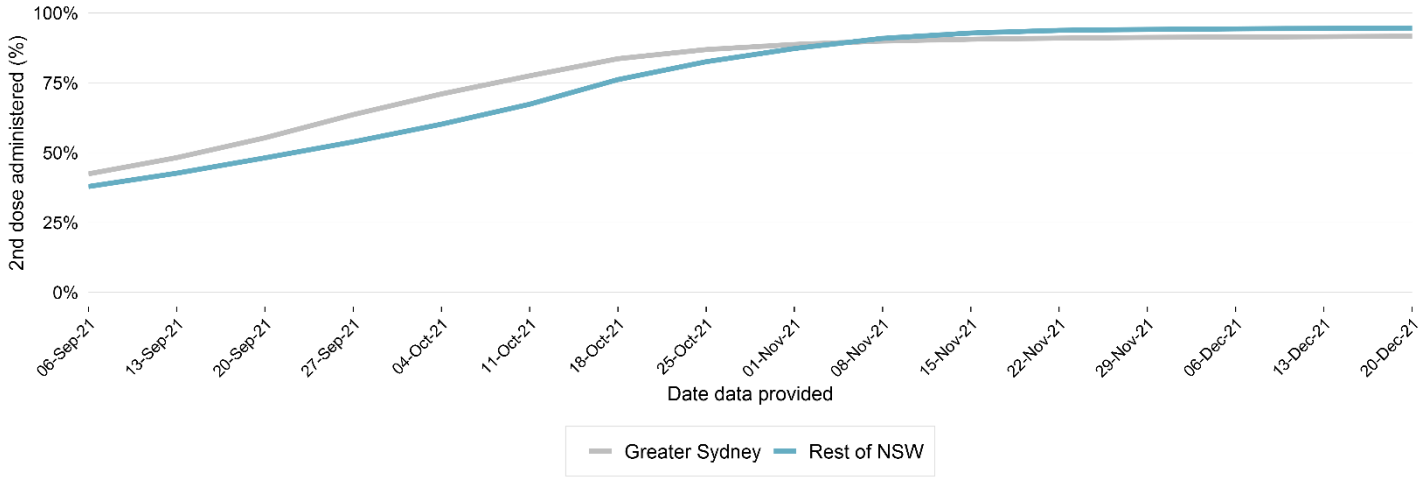
Section 7: Vaccination coverage in NSW

Figure 7. Proportion who have received two doses of COVID-19 vaccine, by age range and time, NSW, 4 September to 25 December 2021



Sources: https://www.health.gov.au/resources/collections/covid-19-vaccination-daily-rollout-update

Figure 8. Proportion who have received two doses, by region and time, for those aged 15 and over, NSW, 6 September to 20 December 2021



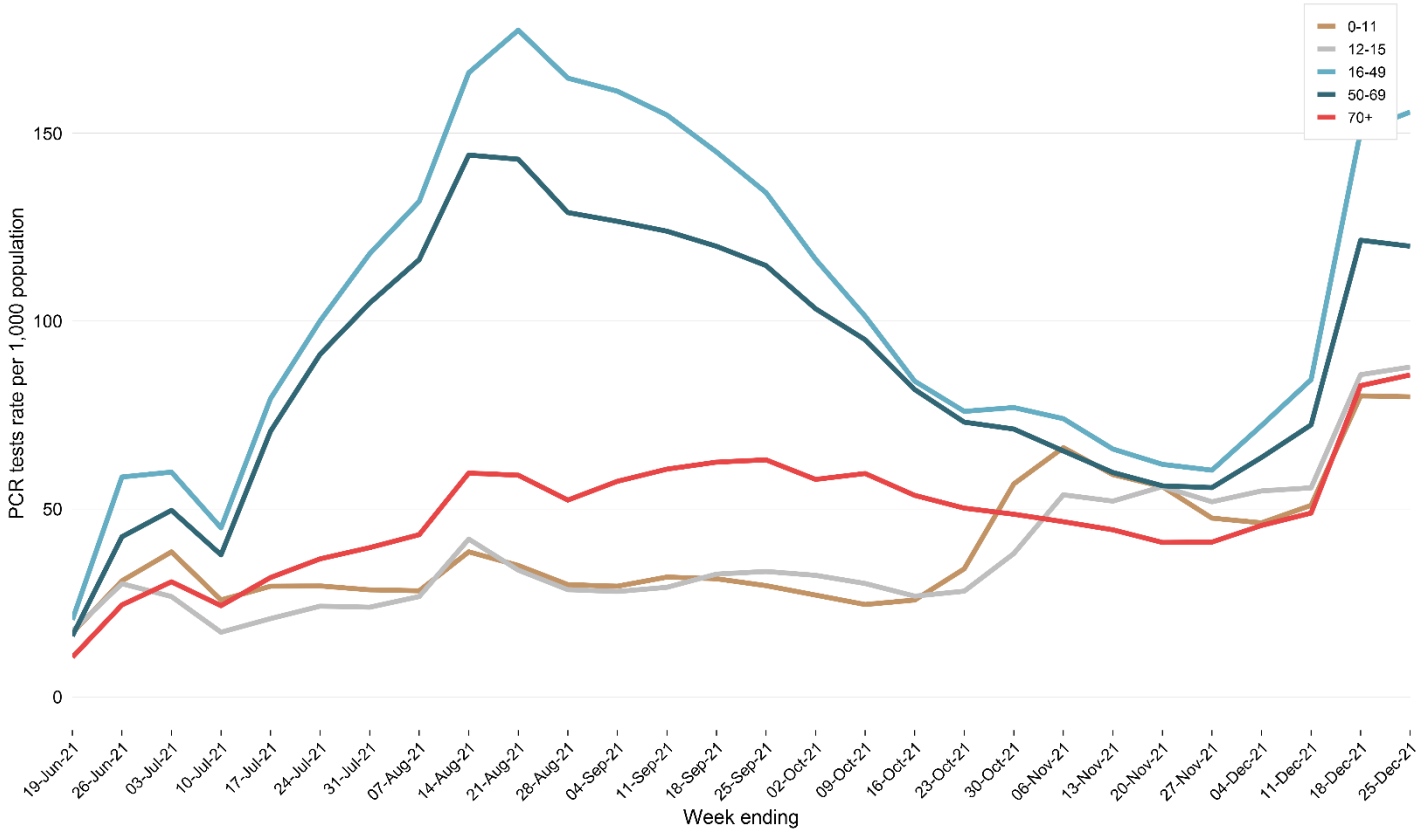
Source: https://www.health.gov.au/resources/collections/covid-19-vaccination-geographic-vaccination-rates-sa4

- The proportion of the NSW population who have received two vaccine doses has increased substantially in the last three months, reaching over 93% of those aged 16 and over by 26 December 2021.
- Children aged 12-15 years became eligible for vaccination from mid-September 2021, and showed strong uptake of vaccination immediately.
- The highest vaccination rates have been achieved among those aged 70+, who have been eligible for vaccination for the longest period.
- Vaccination rates in Greater Sydney were higher than those in the Rest of NSW to early November 2021, and since then have been higher outside Greater Sydney[2].

[2] Federal geographic vaccination data is provided publicly at the level of 28 geographic regions (Australian Bureau of Statistics Statistical Area Level 4, or SA4), designated as Greater Sydney or Rest of NSW. The total population and proportion with two vaccine doses (truncated at > 95%) is provided. Data presented in the graph are calculated as a weighted average across SA4s within each designation. Due to the truncation of the source data at 95%, the maximum vaccination rate over time will also be 95%. Other geographic representations of NSW vaccination data use other sources and will not exactly correspond to this figure.

Section 8: COVID-19 testing in NSW by age group

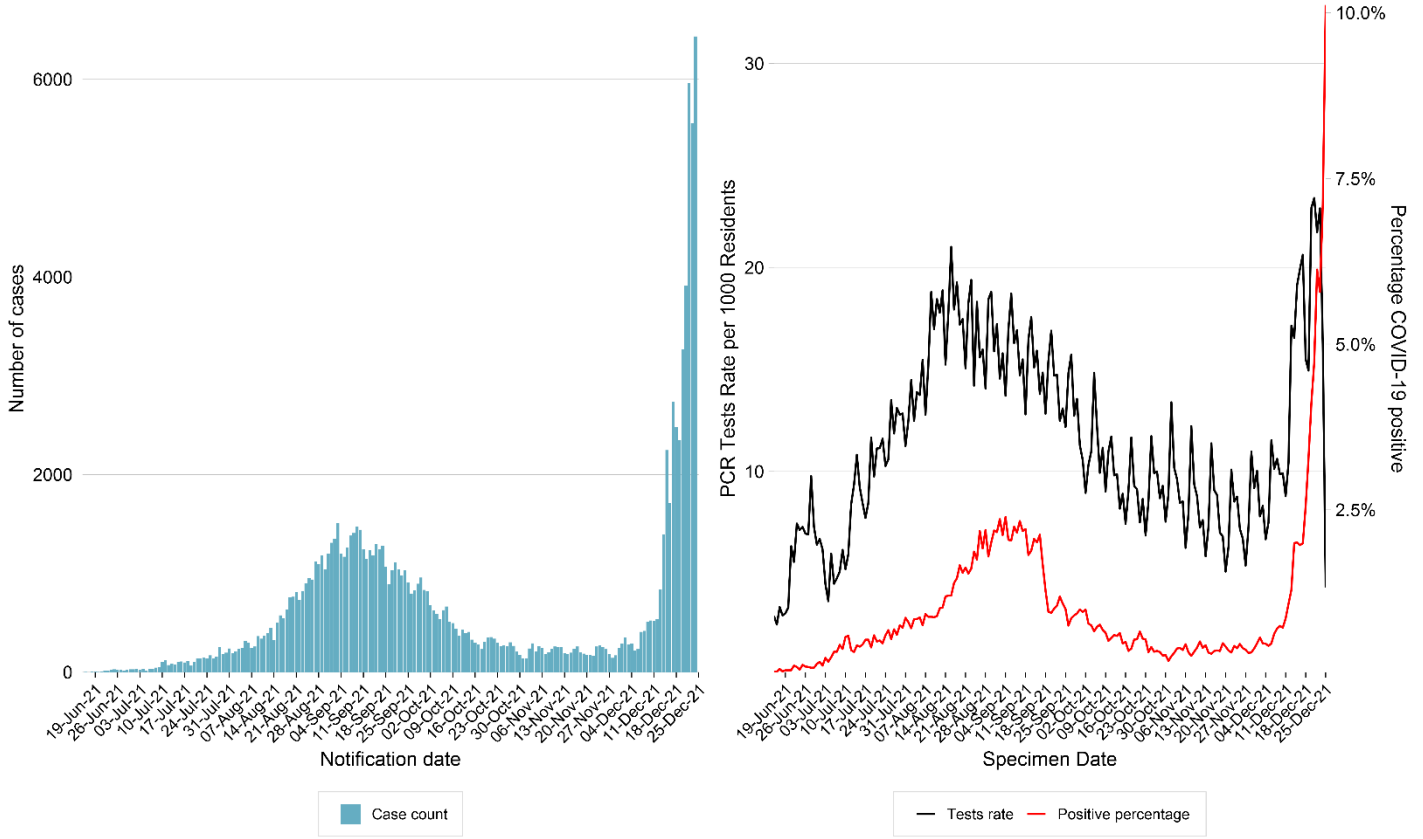
Figure 9. Number of negative PCR tests per 1,000 population, by age group, NSW, 16 June to 25 December 2021



- During the wave between 16 June and mid-October 2021, there was a sustained increase in the number of tests performed for people aged 16 years and over, which peaked in August.
- The greatest testing rate was among those aged 16-49 years.
- In December 2021 to the week ending 18 December, there was a large and sustained increase in testing for all age groups. In the week ending 25 December, testing rates remained relatively stable for all age groups.

Section 9: Testing and positivity rates

Figure 10. Cases, testing rates per 1000 population, and percentage of tests which were positive for COVID-19, NSW, 16 June to 25 December 2021



- Test positivity rates have generally between well below 3%, reflecting high surveillance capacity and rapid case identification. However, in the week ending 25 December 2021, the test positivity rate increased to above 10%. This high positivity rate likely indicates that there is undetected COVID-19 transmission in the community.

Figure 11a. Cases, testing rates per 1000 population, and percentage of tests which were positive for COVID-19, by LHD of residence, metropolitan LHDs, NSW, 16 June to 25 December 2021

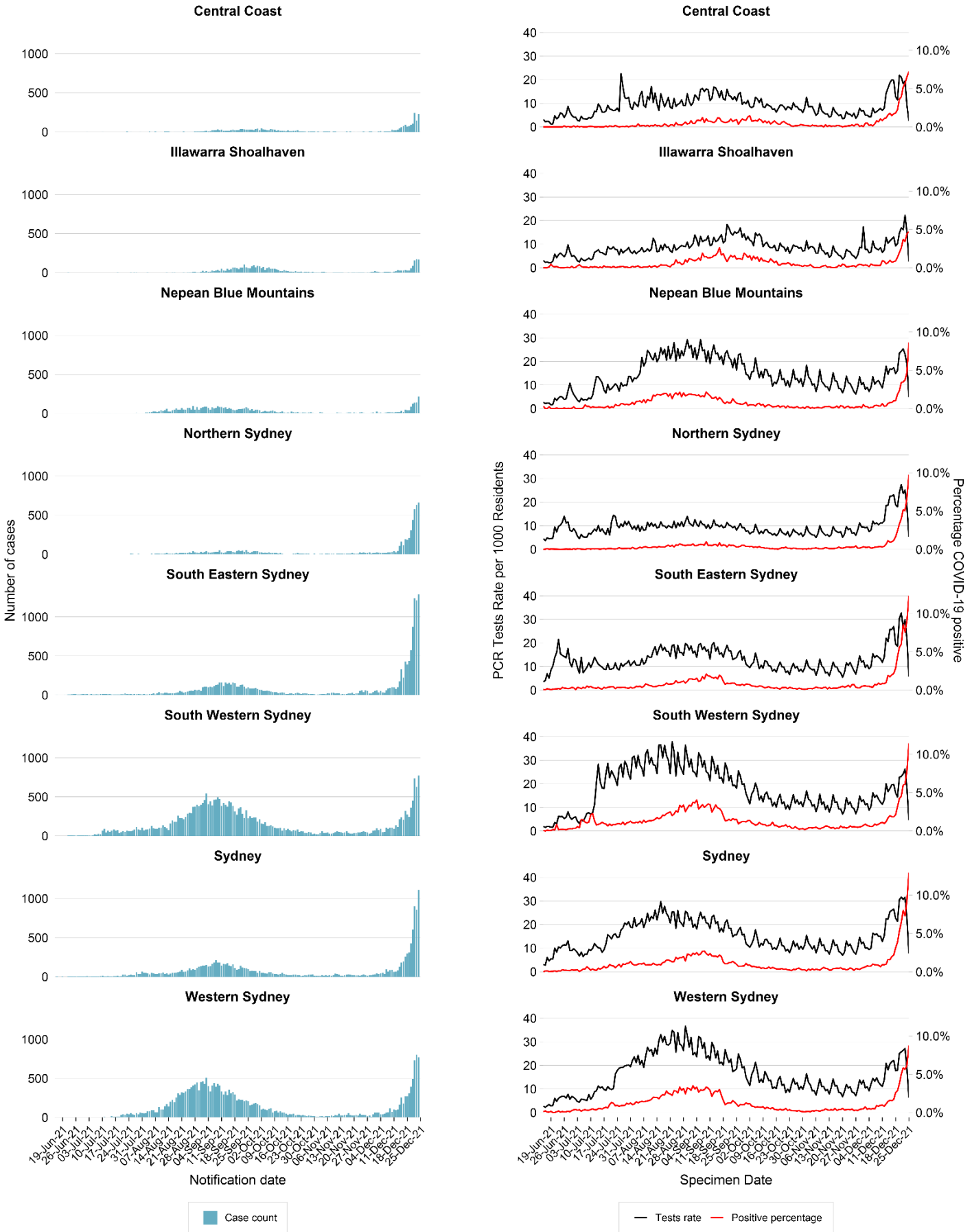
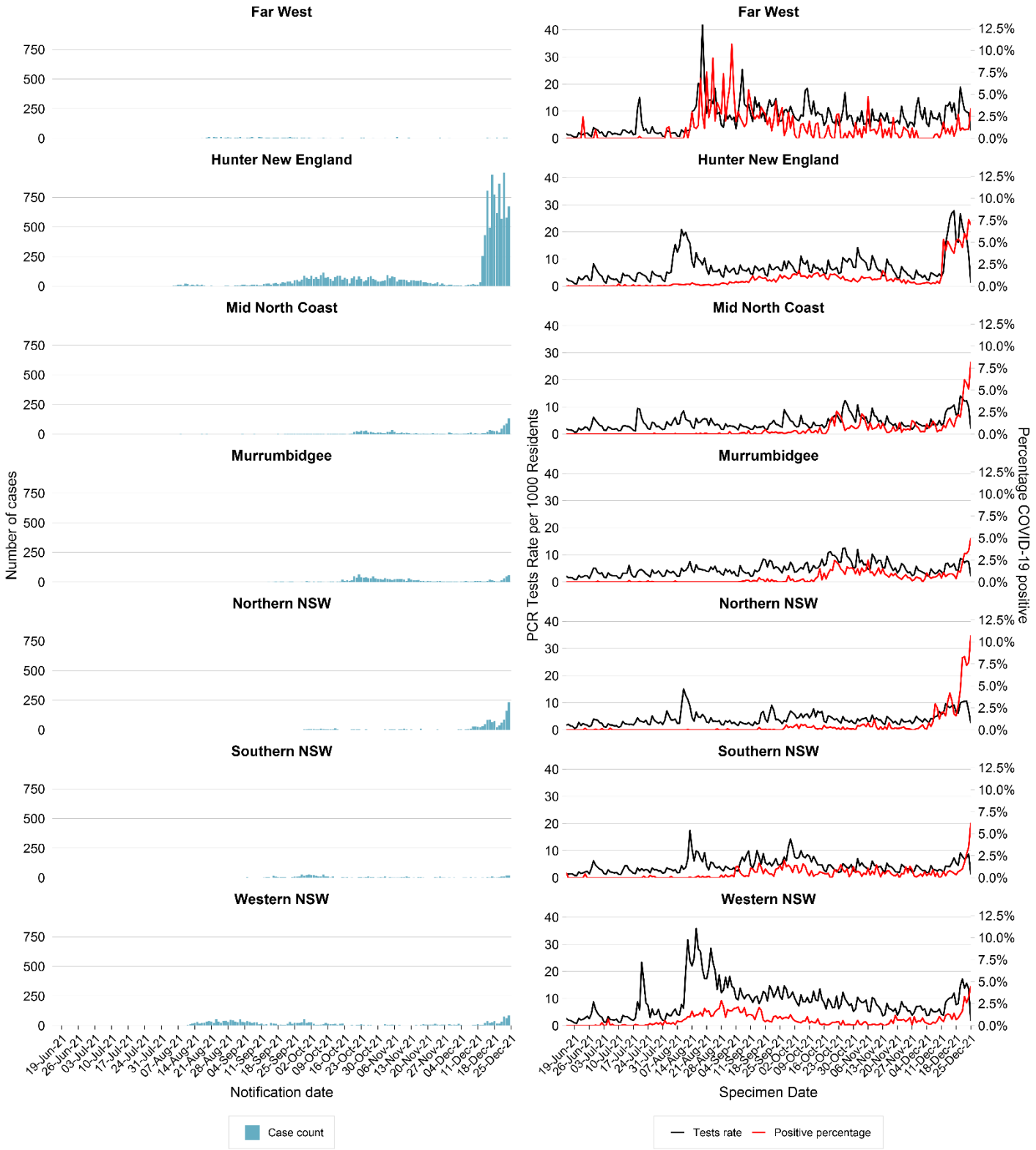


Figure 11b. Cases, testing rates per 1000 population, and percentage of tests which were positive for COVID-19, by LHD of residence, rural and regional LHDs, NSW, 16 June to 25 December 2021



- Note that the axes differ within and between figures
- Testing rates and positivity rates show larger deviations in rural compared to metropolitan LHDs because their population is small.
- The increased case numbers, increased testing, and increased test positivity during December are apparent in most LHDs.

Section 10: Case rates in Local Government Areas

Table 8a. Top 20 metropolitan LGAs of residence, ordered by total COVID-19 cases in the last 7 days, per 100,000 population rate, NSW, 16 June to 25 December 2021

LGA name	Last 7 days		16 Jun-18 Dec 2021	
	Cases	Cases per 100,000 population	Cases	Cases per 100,000 population
Sydney	3,061	1,243	6,212	2,522
Waverley	923	1,242	1,791	2,411
Hunters Hill	154	1,028	294	1,963
Woollahra	552	929	1,004	1,691
Lane Cove	342	852	564	1,405
Randwick	1,153	741	3,221	2,069
Inner West	1,414	704	2,815	1,402
Canterbury-Bankstown	2,413	638	15,738	4,164
Bayside	1,088	610	3,083	1,728
Cumberland	1,453	602	11,647	4,822
Georges River	936	587	2,563	1,607
Canada Bay	488	508	1,013	1,054
Strathfield	237	505	747	1,592
Sutherland Shire	1,111	482	2,204	956
Fairfield	960	453	6,538	3,088
North Sydney	337	449	535	713
Liverpool	1,002	440	7,598	3,339
Ryde	566	431	1,171	892
Mosman	130	420	214	691
Blacktown	1,556	416	9,292	2,481

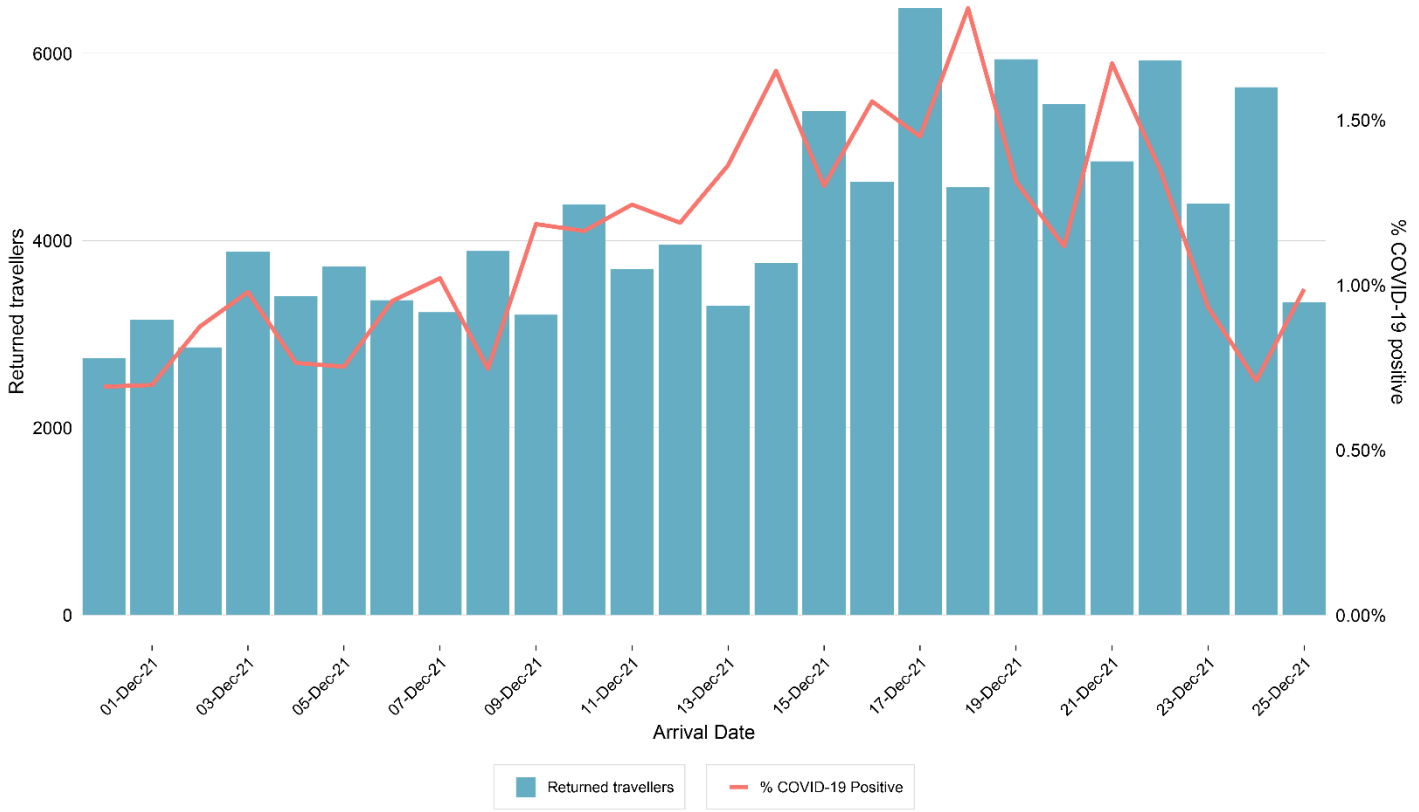
Table 8b. Top 20 regional and rural LGAs of residence, ordered by total COVID-19 cases in the last 7 days, per 100,000 population rate, NSW, 16 June to 25 December 2021

LGA name	Last 7 days		16 Jun-18 Dec 2021	
	Cases	Cases per 100,000 population	Cases	Cases per 100,000 population
Byron	407	1,160	788	2,246
Newcastle	1,606	970	4,296	2,595
Lake Macquarie	1,600	777	3,617	1,757
Maitland	633	743	1,479	1,737
Balranald	12	513	19	813
Walcha	13	415	16	511
Cessnock	226	377	850	1,417
Singleton	81	345	179	763
Port Stephens	245	333	744	1,013
Bellingen	42	323	50	385
Upper Hunter Shire	44	310	64	451
Coffs Harbour	209	270	294	380
Moree Plains	35	264	277	2,089
Coonamble	10	253	15	379
Warren	6	222	15	556
Muswellbrook	36	220	92	562
Port Macquarie-Hastings	186	220	447	529
Dungog	19	202	43	456
Orange	84	198	299	704
Tamworth Regional	117	187	390	624

- The top 20 metropolitan LGAs contributed 57% of all cases in the week ending 25 December.
- The top 20 regional and rural LGAs contributed another 16% of cases.
- The LGAs with the highest case rates per 100,000 population are predominantly metropolitan LGAs, with 15 of the top 20 LGA case rates being in metropolitan areas.
- The case numbers in some regional LGAs are relatively small, but because the population is also small the case rate is high.

Section 11: Returned travellers

Figure 12. Number of returned travellers, and percent who test COVID-19 positive within 14 days of arrival, NSW, 21 November 2021 to 25 December 2021



- Between 1 November and 21 December 2021, fully vaccinated international arrivals were no longer required to enter mandatory 14-day hotel quarantine. Rather, they were required to isolate at home for 72 hours after arrival and be tested on day 1 and day 6, with an additional test recommended on day 12. From 21 December, there are no longer any isolation requirements for fully vaccinated returned travellers.
- Because fully vaccinated returned travellers no longer need to isolate, cases reported here may include returned travellers with locally-acquired infections.
- The number of daily international arrivals has increased from an average 595 in the week ending October 31, to over 4000 in the week ending 25 December.
- Although the number of returned travellers arriving each day has increased over the past month, the proportion testing positive has remained relatively stable over the same time.

Section 12: Aboriginal people

Figure 13. Number of confirmed COVID-19 infections among Aboriginal people by date, NSW, 16 June to 25 December 2021

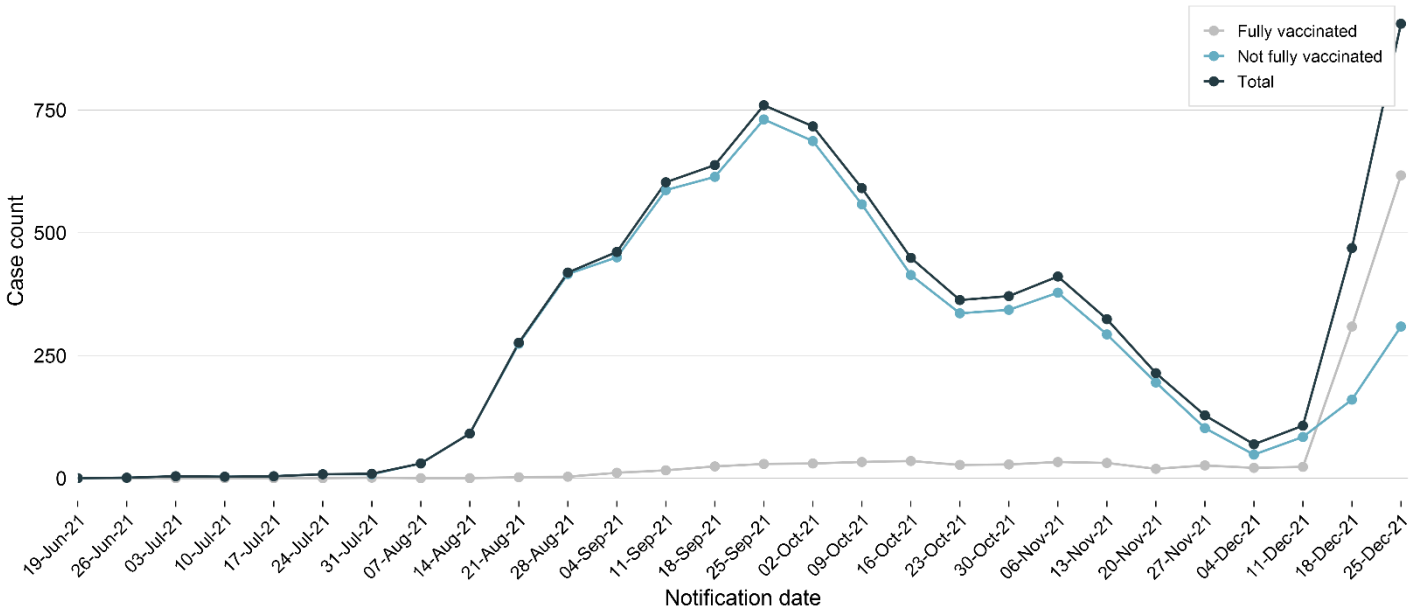


Table 9. Demographics of infections among Aboriginal people by gender, age, and vaccination status, NSW, 16 June to 25 December, 2021

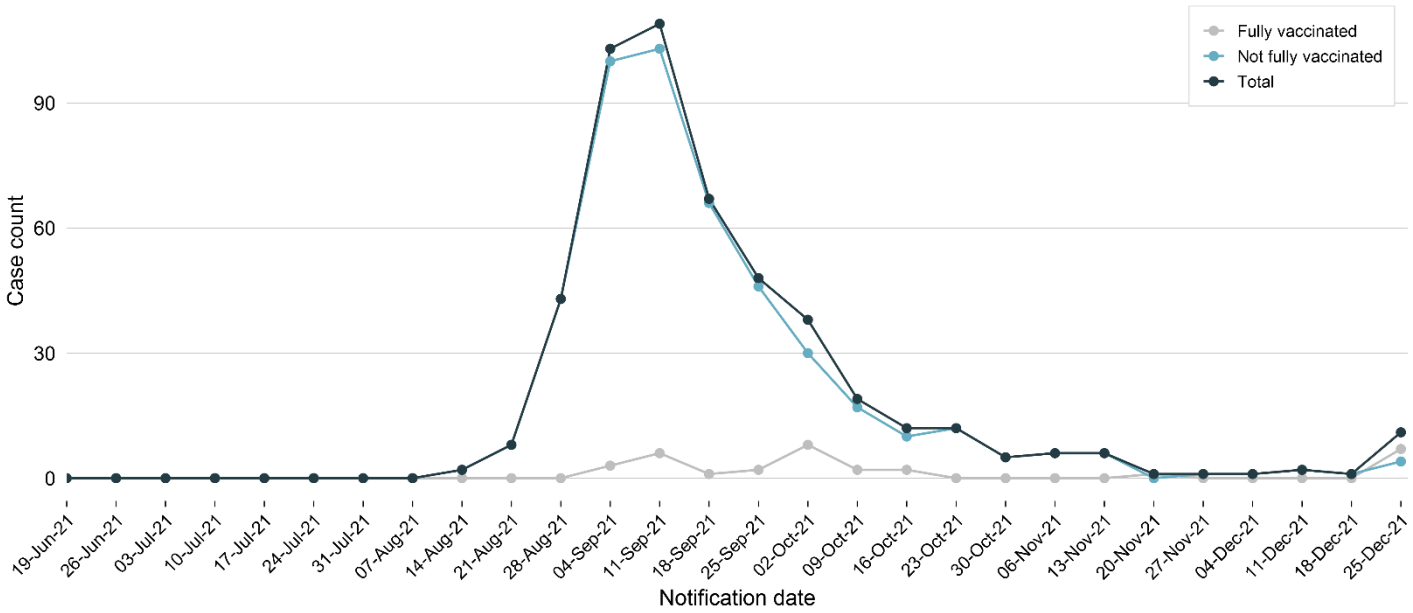
	Week ending				16 Jun to 25 Dec 2021
	25 Dec 2021	18 Dec 2021	11 Dec 2021	4 Dec 2021	
Gender					
Female	493 (53.2%)	243 (51.8%)	42 (39.3%)	39 (56.5%)	4,321 (51.2%)
Male	433 (46.8%)	226 (48.2%)	63 (58.9%)	30 (43.5%)	4,122 (48.8%)
Non-specified or non-binary	0 (0.0%)	0 (0.0%)	2 (1.9%)	0 (0.0%)	3 (<0.1%)
Age group					
0-9	99 (10.7%)	37 (7.9%)	32 (29.9%)	26 (37.7%)	2,001 (23.7%)
10-19	213 (23.0%)	115 (24.5%)	28 (26.2%)	9 (13.0%)	1,965 (23.3%)
20-29	333 (36.0%)	197 (42.0%)	28 (26.2%)	16 (23.2%)	1,799 (21.3%)
30-39	120 (13.0%)	57 (12.2%)	9 (8.4%)	9 (13.0%)	1,157 (13.7%)
40-49	91 (9.8%)	33 (7.0%)	5 (4.7%)	3 (4.3%)	778 (9.2%)
50-59	46 (5.0%)	19 (4.1%)	2 (1.9%)	3 (4.3%)	458 (5.4%)
60+	24 (2.6%)	11 (2.3%)	3 (2.7%)	3 (4.3%)	288 (3.4%)
Vaccination status					
Fully vaccinated	617 (66.6%)	309 (65.9%)	23 (21.5%)	21 (30.4%)	1,318 (15.6%)
Partially vaccinated	10 (1.1%)	12 (2.6%)	1 (0.9%)	5 (7.2%)	508 (6.0%)
No effective dose	162 (17.5%)	98 (20.9%)	38 (35.5%)	14 (20.3%)	3,751 (44.4%)
Under investigation*	7 (0.8%)	3 (0.6%)	0 (0.0%)	1 (1.4%)	448 (5.3%)
Not eligible for vaccination (aged 0-11 years)	130 (14.0%)	47 (10.0%)	45 (42.1%)	28 (40.6%)	2,421 (28.7%)
Total	926 (100%)	469 (100%)	107 (100%)	69 (100%)	8,446 (100%)

* Vaccination status is updated regularly using both the Australian Immunisation Register and the patient's interview.

- Since 16 June 2021 there have been 8,446 Aboriginal people diagnosed with COVID-19, representing 6.7% of all cases in that time.
- This is an over-representation among Aboriginal and Torres Strait Islander people, who represent 3.4% of the NSW population, according to the Australian Bureau of Statistics.
- Since 16 June 2021, approximately a quarter of cases of COVID-19 among Aboriginal people have been in children aged 0-9 years. However, the proportion of cases of COVID-19 in Aboriginal people in the 20-29 year age group has increased in December, reflecting the high case numbers in this age group in the population as a whole.

Section 13: Correctional settings

Figure 14. Number of confirmed COVID-19 infections among people residing in correctional settings by date, NSW, 16 June to 25 December 2021



- Note that cases in correctional settings may have acquired their infection prior to entry into the setting.
- Most cases of COVID-19 among people residing in correctional settings were male and aged 30-39 years, consistent with the demographics of correctional populations generally.

Table 10. Demographics of infections in correctional settings by gender, age, and vaccination status, NSW, 16 June to 25 December, 2021

	Week ending				16 Jun to 25 Dec 2021
	25 Dec 2021	18 Dec 2021	11 Dec 2021	4 Dec 2021	
Gender					
Male	11 (100%)	1 (100%)	2 (100%)	1 (100%)	468 (94.5%)
Female	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	27 (5.5%)
Age group					
10-19	4 (36.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	32 (6.5%)
20-29	3 (27.3%)	1 (100%)	1 (50.0%)	1 (100%)	148 (29.9%)
30-39	1 (9.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	170 (34.3%)
40-49	1 (9.1%)	0 (0.0%)	1 (50.0%)	0 (0.0%)	97 (19.6%)
50-59	2 (18.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	37 (7.5%)
60-69	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (1.4%)
70-79	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.6%)
80-89	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
Vaccination status					
Fully vaccinated	7 (63.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	32 (6.5%)
Partially vaccinated	4 (36.4%)	1 (100%)	1 (50.0%)	0 (0.0%)	128 (25.9%)
No effective dose	0 (0.0%)	0 (0.0%)	1 (50.0%)	1 (100%)	61 (12.3%)
Under investigation*	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	274 (55.4%)
Total	11 (100%)	1 (100%)	2 (100%)	1 (100%)	495 (100%)

* Vaccination status is updated regularly using both the Australian Immunisation Register and the patient's interview.

Section 14: Venues attended by COVID-19 cases

Figure 15. Number of COVID-19 exposures in selected high transmission risk and vulnerable group settings, by setting and date, NSW, 21 November to 25 December 2021

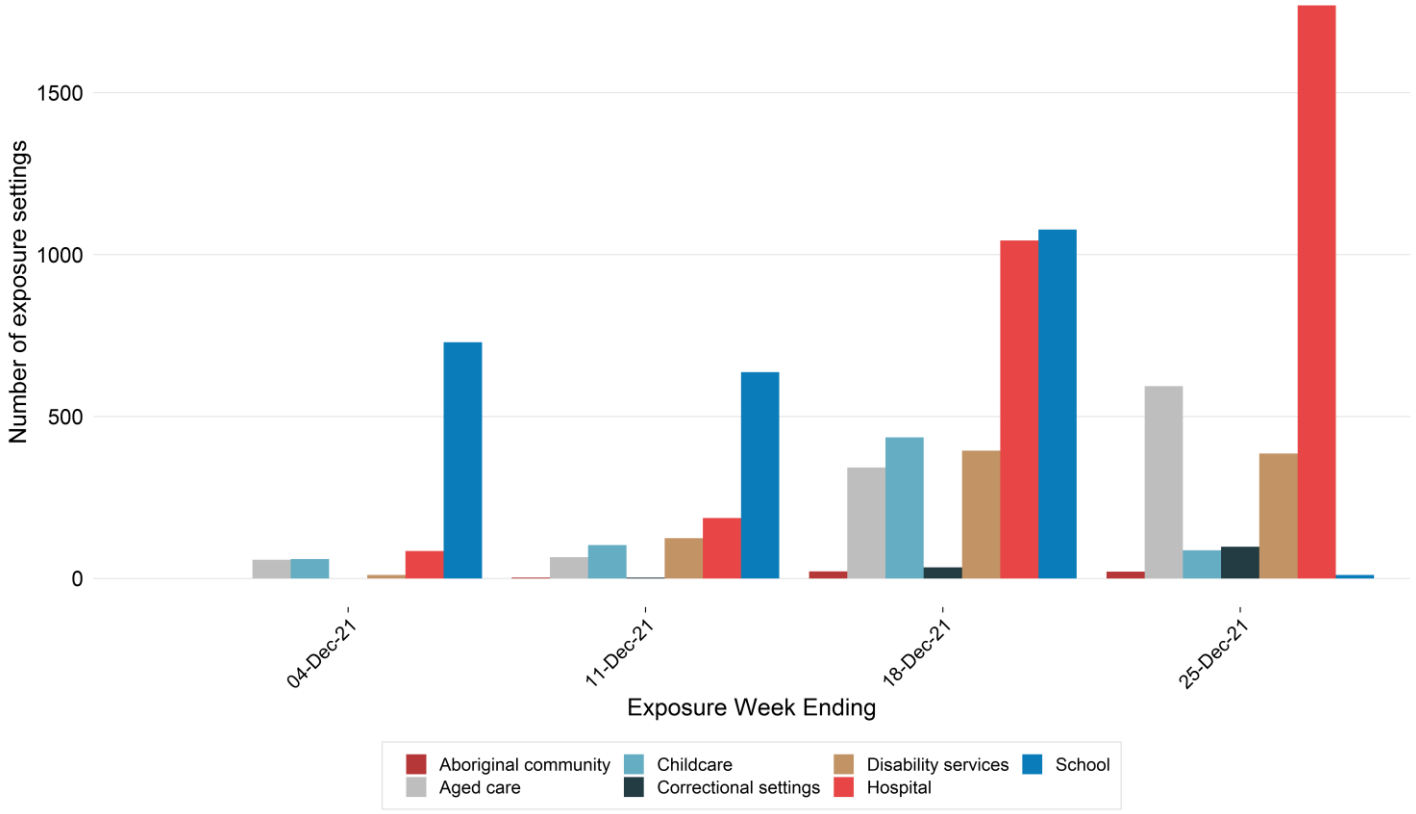


Table 11. Number of COVID-19 exposures in high transmission risk and vulnerable group settings while infectious, by setting and date, NSW, 28 November to 25 December 2021*

	Week ending			
	25 Dec 2021	18 Dec 2021	11 Dec 2021	4 Dec 2021
High Transmission Risk				
Childcare	87 (3%)	433 (14%)	99 (9%)	68 (8%)
School	11 (<1%)	1,073 (34%)	647 (61%)	706 (80%)
Vulnerable Group				
Aboriginal Community	19 (1%)	21 (1%)	2 (<1%)	0 (0%)
Aged Care	526 (20%)	267 (8%)	81 (8%)	25 (3%)
Corrections	88 (3%)	27 (1%)	1 (<1%)	0 (0%)
Disability Services	359 (13%)	370 (12%)	88 (8%)	9 (1%)
Hospital	1,574 (66%)	951 (30%)	151 (14%)	72 (8%)

* Venues are counted for each day a case attended while infectious. They are counted multiple times when a case attends on multiple days and when different cases attend on the same day.

- The number of cases attending aged care, correctional settings and hospitals while infectious has increased through December.
- In the week ending 25 December 2021, the highest number of COVID-19 exposures were in hospital settings. This may be due to the increase in case numbers and an increase in COVID-19 cases seeking care as a result. The largest increase this week was in aged care and correctional settings.
- Schools and childcare were previously the settings with the highest number of COVID-19 exposures, but have decreased with school holidays and the holiday period.

Section 15: Variants of Concern (VoC)

Table 12. Variants identified among locally acquired COVID-19 cases by week reported, NSW, 29 November 2020 to 25 December 2021

Variant	Week ending				29 Nov 2020 to 27 Nov 2021	Total since 29 Nov 2020
	25 Dec*	18 Dec*	11 Dec	4 Dec		
Total variants identified	96	981	1,092	837	16,597	19,603
Alpha (B.1.1.7)	0	0	0	0	6	6
Beta (B.1.351)	0	0	0	0	1	1
Gamma (P.1)	0	0	0	0	0	0
Delta (B.1.617.2)	16	324	988	818	16,588	18,734
Omicron (B.1.1.529)	80	657	104	19	2	862

***Note:** identification of variants of concern is through whole genome sequencing. Results for reported cases in the most recent weeks may not be available at the time of reporting.

Table 13. Variants identified among overseas and interstate acquired COVID-19 cases by week reported, NSW, 29 November 2020 to 25 December 2021

Variant	Week ending				29 Nov 2020 to 27 Nov 2021	Total since 29 Nov 2020
	25 Dec*	18 Dec*	11 Dec	4 Dec		
Total variants identified	3	10	37	44	455	549
Alpha (B.1.1.7)	0	0	0	0	194	194
Beta (B.1.351)	0	0	0	0	33	33
Gamma (P.1)	0	0	0	0	6	6
Delta (B.1.617.2)	1	2	25	35	221	284
Omicron (B 1.1.529)	2	8	12	9	1	32

***Note:** identification of variants of concern is through whole genome sequencing. Results for reported cases in the most recent weeks may not be available at the time of reporting.

Section 16: Other respiratory infections in NSW

Figure 16. Proportion of tests positive for influenza, NSW, 1 January 2016 to 5 December 2021

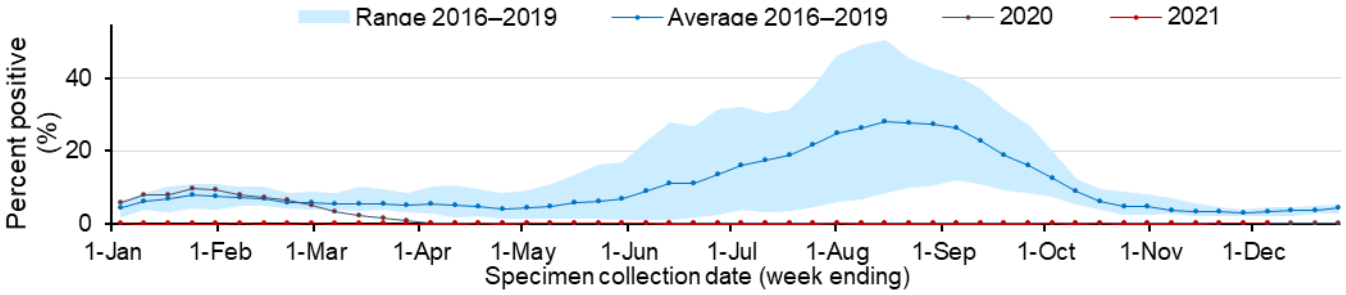


Figure 17. Proportion of FluTracker participants reporting influenza-like illness, NSW, 1 January 2016 to 19 December 2021

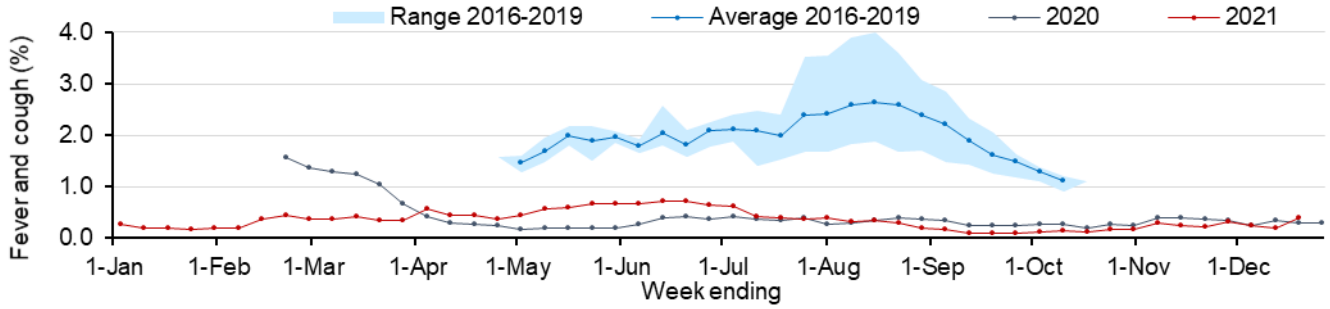


Figure 18. Emergency Department pneumonia presentations, NSW, 1 January 2016 to 26 December 2021

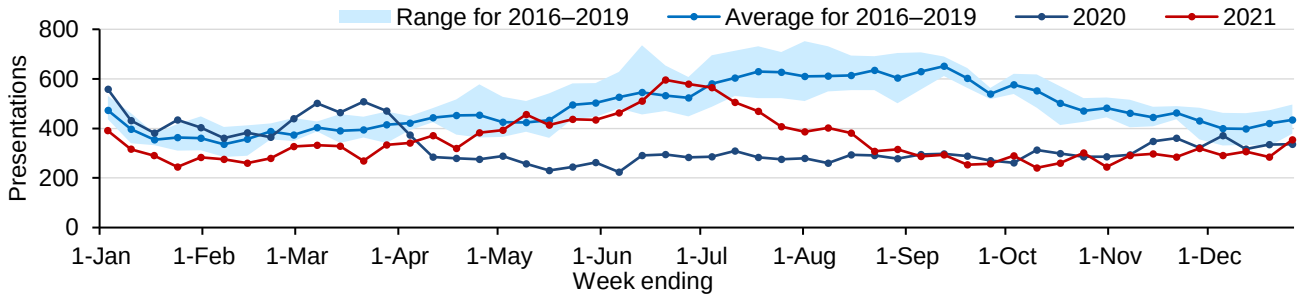
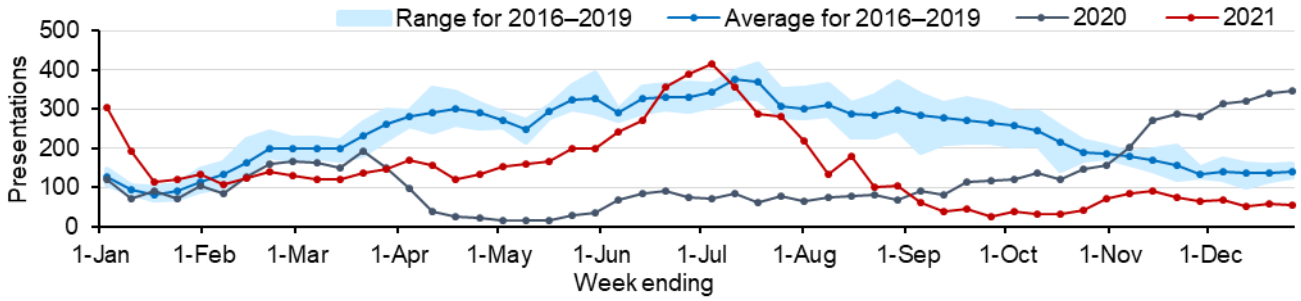


Figure 19. Emergency Department bronchiolitis presentations, NSW, 1 January 2016 to 26 December 2021



- The percentage of influenza tests that were positive has been very low (<0.01%) relative to the usual seasonal range, indicating limited influenza transmission in the community
- There have been 26 influenza cases reported in 2021
- In the week ending 19 December, 14,690 people were surveyed, and 60 people (0.4%) reported flu-like symptoms
- In the last four weeks, 66% (122/184) of new cases of flu-like illness reported having a COVID-19 test
- Improved hygiene and social distancing measures implemented during the COVID-19 pandemic have impacts on a broad range of other viral and bacterial infections.
- Both pneumonia presentations and bronchiolitis presentations to emergency departments decreased in March 2020 and again in June 2021 to remain below the seasonal range for this time of year.
- Data is pending from several labs for the weeks since 5 December due to high demand on testing laboratories in the past weeks.

Appendix A: COVID-19 PCR tests in NSW by Local Government Area

		Week ending				Total since January 2021	
		25 Dec		18 Dec			
Local Health District	Local Government Area	No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Central Coast	*LHD Total**	34,982	14.2	38,181	15.5	695,848	281.7
Illawarra Shoalhaven	Kiama	2,222	13.6	1,674	10.2	38,835	237.2
	Shellharbour	6,464	12.6	4,997	9.8	155,866	304.1
	Shoalhaven	5,811	7.9	5,332	7.2	131,315	177.6
	Wollongong	25,294	16.6	19,908	13.0	469,110	307.3
	*LHD Total**	39,791	13.6	31,911	10.9	795,126	270.7
Nepean Blue Mountains	Blue Mountains	10,422	18.8	7,210	13.0	177,346	320.2
	Hawkesbury	8,358	17.7	8,010	17.0	220,418	467.9
	Lithgow	1,068	7.1	945	6.3	22,331	147.7
	Penrith	31,664	21.2	27,347	18.3	737,328	494.6
	*LHD Total**	50,989	18.6	43,047	15.7	1,143,508	417.8
Northern Sydney	Hornsby	14,699	13.8	15,626	14.7	252,292	237.0
	Hunters Hill	3,930	37.5	3,733	35.6	62,433	595.4
	Ku-ring-gai	20,059	22.5	19,886	22.3	285,901	321.2
	Lane Cove	10,661	37.9	9,656	34.4	145,784	518.7
	Mosman	3,976	18.3	3,944	18.2	57,214	263.8
	North Sydney	8,207	15.6	7,986	15.2	117,543	223.8
	Northern Beaches	34,774	18.2	36,396	19.0	637,879	333.2
	Parramatta#	29,326	16.3	28,375	15.8	637,212	353.9
	Ryde	17,526	19.1	16,593	18.1	329,740	358.8
	Willoughby	8,985	15.8	9,527	16.8	122,155	214.9
	*LHD Total**	128,463	19.2	129,032	19.3	2,111,314	315.5
South Eastern Sydney	Bayside	24,861	19.9	24,055	19.3	527,142	422.1
	Georges River	22,974	20.6	19,560	17.5	446,620	400.1
	Randwick	25,256	23.2	29,113	26.7	498,875	457.9
	Sutherland Shire	34,361	21.3	31,647	19.6	553,000	342.6
	Sydney#	44,051	25.6	43,189	25.1	694,209	402.6
	Waverley	14,243	27.4	15,511	29.8	242,286	465.9
	Woollahra	10,730	25.8	11,793	28.4	181,109	435.7
	*LHD Total**	147,559	22.0	145,571	21.7	2,674,558	398.4
South Western Sydney	Camden	15,872	22.4	14,728	20.7	367,990	518.3
	Campbelltown	21,515	18.0	22,091	18.5	584,960	488.9
	Canterbury-Bankstown#	54,550	20.6	50,222	19.0	1,556,051	588.2
	Fairfield	25,825	17.4	25,404	17.1	873,258	589.3
	Liverpool	31,324	19.7	30,678	19.3	862,998	541.7
	Wingecarribee	4,322	12.1	3,818	10.7	82,953	231.8
	Wollondilly	4,335	11.7	3,049	8.2	99,357	267.1
	*LHD Total**	130,295	17.9	125,803	17.3	3,661,579	503.7
Sydney	Burwood	4,565	16.1	4,053	14.3	94,957	334.0
	Canada Bay	13,690	20.4	14,187	21.1	243,570	362.2
	Canterbury-Bankstown#	54,550	20.6	50,222	19.0	1,556,051	588.2
	Inner West	30,681	21.8	31,137	22.2	504,992	359.3
	Strathfield	9,458	28.8	7,994	24.3	204,039	621.2

		Week ending				Total since January 2021	
		25 Dec		18 Dec			
Local Health District	Local Government Area	No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	Sydney[#]	44,051	25.6	43,189	25.1	694,209	402.6
	LHD Total[*]	113,893	23.4	109,957	22.5	2,252,141	461.8
Western Sydney	Blacktown	54,315	20.7	52,459	20.0	1,321,643	504.2
	Cumberland	35,471	21.0	32,822	19.4	1,075,328	636.1
	Parramatta[#]	29,326	16.3	28,375	15.8	637,212	353.9
	The Hills Shire	30,987	24.9	30,229	24.3	539,752	433.3
	LHD Total[*]	145,867	19.8	139,589	18.9	3,518,072	477.1
Far West	Balranald	134	8.2	88	5.4	2,274	139.0
	Broken Hill	1,399	11.4	1,487	12.2	31,540	257.8
	Central Darling	92	7.2	84	6.5	4,709	365.8
	Wentworth	543	11.0	465	9.4	10,141	205.4
	LHD Total[*]	2,168	10.3	2,124	10.1	48,664	230.6
Hunter New England	Armidale Regional	2,519	11.7	1,810	8.4	36,184	167.9
	Cessnock	4,196	10.0	4,961	11.8	72,009	171.5
	Dungog	640	9.7	599	9.1	8,414	127.6
	Glen Innes Severn	336	5.4	304	4.9	6,352	102.3
	Gunnedah	961	10.8	662	7.5	12,137	136.7
	Gwydir	174	4.6	139	3.7	2,997	80.0
	Inverell	824	7.0	626	5.3	17,234	145.8
	Lake Macquarie	29,171	20.2	35,082	24.3	374,950	260.2
	Liverpool Plains	343	6.2	217	3.9	6,528	118.0
	Maitland	13,516	22.7	17,487	29.3	189,476	317.8
	Mid-Coast	3,949	6.0	4,700	7.2	95,313	145.1
	Moree Plains	1,778	19.2	1,118	12.0	20,449	220.3
	Muswellbrook	1,148	10.0	917	8.0	14,757	128.7
	Narrabri	1,217	13.2	699	7.6	9,888	107.5
	Newcastle	26,845	23.2	37,827	32.6	330,762	285.4
	Port Stephens	6,760	13.1	9,849	19.2	105,015	204.2
	Singleton	2,676	16.3	3,417	20.8	35,620	216.9
	Tamworth Regional	4,700	10.7	3,075	7.0	87,004	198.7
	Tenterfield	204	4.4	191	4.1	4,055	87.9
	Upper Hunter Shire	809	8.2	880	8.9	12,204	123.0
	Uralla	291	6.9	216	5.1	4,461	106.0
	Walcha	233	10.6	162	7.4	2,907	132.5
	LHD Total[*]	103,265	15.5	124,901	18.7	1,448,184	217.2
Mid North Coast	Bellingen	961	10.6	683	7.5	10,672	117.3
	Coffs Harbour	6,422	11.9	4,439	8.2	63,052	116.6
	Kempsey	1,717	8.3	1,717	8.3	43,821	210.5
	Nambucca	1,086	7.8	1,087	7.8	14,552	105.0
	Port Macquarie-Hastings	5,183	8.8	5,105	8.6	88,632	149.8
	LHD Total[*]	15,369	9.7	13,031	8.3	220,729	139.7
Murrumbidgee	Albury	2,481	6.5	2,194	5.8	80,817	212.4
	Berrigan	112	1.8	145	2.4	4,559	74.4
	Bland	150	3.6	110	2.6	4,167	99.7
	Carrathool	97	5.0	57	2.9	1,246	63.6

		Week ending				Total since January 2021	
		25 Dec		18 Dec			
Local Health District	Local Government Area	No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	Coolamon	163	5.4	121	4.0	4,060	133.6
	Cootamundra-Gundagai Regional	339	4.3	361	4.6	9,543	121.3
	Edward River	279	4.4	242	3.8	9,397	147.8
	Federation	358	4.1	454	5.2	12,677	145.6
	Greater Hume Shire	334	4.4	396	5.3	12,734	169.0
	Griffith	1,444	7.6	1,167	6.2	23,696	125.2
	Hay	86	4.2	83	4.0	1,868	90.5
	Hilltops	919	7.0	542	4.1	24,351	186.0
	Junee	218	4.7	187	4.0	5,109	109.2
	Lachlan[#]	224	5.3	144	3.4	4,029	94.7
	Leeton	352	4.4	330	4.1	7,390	92.2
	Lockhart	125	5.4	215	9.4	3,330	144.8
	Murray River	309	3.6	309	3.6	5,808	68.5
	Murrumbidgee	107	3.9	100	3.7	2,655	96.8
	Narrandera	184	4.5	168	4.1	3,193	77.3
	Snowy Valleys	557	5.5	403	4.0	9,993	98.6
	Temora	156	3.5	109	2.5	4,168	94.4
	Wagga Wagga	4,461	9.8	3,747	8.2	90,465	198.0
	LHD Total[*]	13,277	6.4	11,471	5.5	322,482	154.5
	Ballina	2,530	8.1	3,158	10.1	56,891	182.1
	Byron	3,660	14.9	4,617	18.8	48,276	196.6
	Clarence Valley	2,267	6.3	1,371	3.8	41,707	115.3
	Kyogle	239	3.9	215	3.5	6,291	102.2
Northern NSW	Lismore	2,479	8.1	2,553	8.4	50,726	165.9
	Richmond Valley	908	5.5	1,007	6.1	26,822	163.3
	Tenterfield	204	4.4	191	4.1	4,055	87.9
	Tweed	4,328	6.4	4,283	6.3	80,559	118.6
	LHD Total[*]	16,424	7.6	17,228	7.9	312,170	143.7
	Bega Valley	1,002	4.2	1,199	5.0	25,358	105.1
	Eurobodalla	1,392	5.2	1,208	4.5	30,643	113.8
	Goulburn Mulwaree	1,993	9.2	1,303	6.0	41,675	191.2
Southern NSW	Queanbeyan-Palerang Regional	3,305	7.7	2,051	4.8	66,375	155.2
	Snowy Monaro Regional	1,104	7.6	742	5.1	27,345	187.9
	Upper Lachlan Shire	361	6.4	197	3.5	7,180	127.3
	Yass Valley	602	5.0	395	3.3	15,636	130.7
	LHD Total[*]	9,764	6.4	7,100	4.7	214,349	141.1
	Bathurst Regional	3,477	11.4	2,948	9.7	80,366	263.2
	Blayney	532	10.3	496	9.6	11,770	227.9
	Bogan	184	10.2	89	4.9	2,906	160.9
Western NSW	Bourke	198	10.9	99	5.5	7,226	398.6
	Brewarrina	53	4.7	40	3.6	2,529	224.3
	Cabonne	646	6.8	648	6.8	16,015	167.8
	Cobar	256	7.9	212	6.5	4,775	146.5

		Week ending				Total since January 2021	
		25 Dec		18 Dec			
Local Health District	Local Government Area	No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	Coonamble	241	8.7	119	4.3	4,085	147.4
	Cowra	525	5.9	346	3.9	20,388	228.6
	Dubbo Regional	7,185	19.1	4,198	11.2	175,307	466.2
	Forbes	387	5.6	273	3.9	8,090	116.7
	Gilgandra	253	8.5	98	3.3	5,333	179.7
	Lachlan#	224	5.3	144	3.4	4,029	94.7
	Mid-Western Regional	1,863	10.5	1,462	8.3	34,218	193.6
	Narromine	618	13.6	353	7.7	12,589	276.0
	Oberon	293	7.7	217	5.7	8,796	232.2
	Orange	4,743	16.0	4,535	15.3	92,821	312.4
	Parkes	677	6.5	471	4.5	15,007	144.5
	Walgett	277	6.7	215	5.2	9,282	222.7
	Warren	346	18.3	178	9.4	7,241	383.6
	Warrumbungle Shire	538	8.3	349	5.4	11,918	183.5
	Weddin	142	5.6	99	3.9	3,126	123.6
	*LHD Total**	23,618	11.8	17,561	8.8	536,688	269.0
NSW Total	**NSW Total^**	975,724	17.2	956,507	16.9	19,956,086	352.4

Source - Notifiable Condition Information Management System, accessed as at 8pm 27 Dec 2021

* Local Health District total counts and rates includes tests for LHD residents only. Murrumbidgee includes Albury LGA residents.
# Local Government Area (LGA) spans multiple Local Health Districts.
^ NSW Total counts and rates since January 2021 include tests where residential information is incomplete. See https://www.health.nsw.gov.au/Infectious/covid-19/Pages/counting-tests.aspx for detail on how tests are counted.

Appendix B: Number of positive PCR test results for influenza and other respiratory viruses at sentinel NSW laboratories, January 2021 to 5 December 2021

The reported testing numbers reflect the number of influenza PCR tests conducted. Not all samples are tested for all of the other respiratory viruses. Therefore, data presented may tend to under-represent current respiratory virus activity in NSW.

Testing numbers in NSW from 28 December 2020 – 5 December 2021

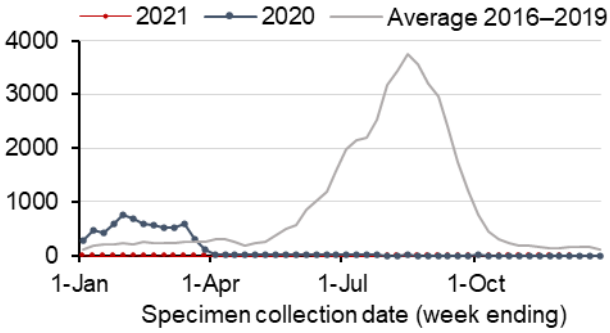
Specimen collection date	PCR tests conducted	Influenza A		Influenza B		Adeno-virus	Para-influenza	RSV	Rhino-virus	HMPV	Entero-virus
		No.	%Pos.	No.	%Pos.						
Total	774,951	16	<0.01%	10	<0.01%	7,984	18,675	17,578	62,968	5,853	6,653
Month ending											
31 January*	63,814	1	<0.01%	0	-	416	88	3,275	3,541	23	560
28 February	54,010	2	<0.01%	0	-	419	106	2,386	8,667	22	910
28 March	42,760	0	-	0	-	507	354	1,909	8,891	18	1,187
2 May*	53,506	0	-	3	<0.01%	802	1,515	1,653	8,141	48	1,128
30 May	52,445	0	-	6	<0.01%	946	3,129	1,491	8,982	78	843
27 June	73,605	1	< 0.01%	0	-	1,551	7,104	2,794	9,915	635	811
26 July	78,704	0	-	0	-	1,463	4,603	3,014	5,089	1,991	587
29 August*	126,147	0	-	1	< 0.01%	869	1,497	852	2,252	2,035	259
26 September	75,074	0	-	0	-	321	151	124	715	454	70
31 October*	88,568	6	< 0.01%	0	-	304	59	40	1,898	188	82
Week ending											
7 November	16,747	0	-	0	-	76	5	5	1,113	32	30
14 November	14,621	0	-	0	-	81	12	12	1,037	40	31
21 November	12,920	1	< 0.01%	0	-	86	12	6	1,108	65	52
28 November	11,437	2	0.02%	0	-	71	16	8	828	95	54
5 December	10,593	3	0.03%	0	-	72	24	9	791	129	49

Notes: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included. Data is pending from several labs for the weeks since 5 December due to high demand on testing laboratories in the past weeks.
HMPV – Human metapneumovirus
RSV - Respiratory syncytial virus
*Five-week period

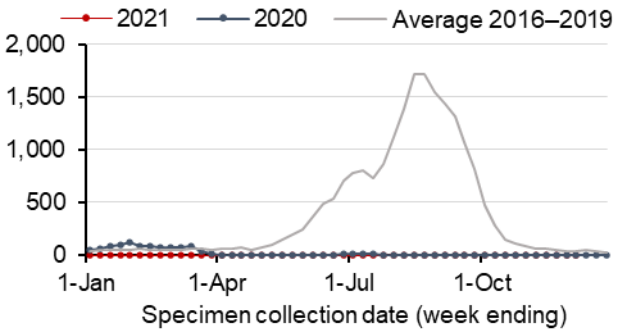
Appendix C: Number of positive PCR test results for influenza and other respiratory viruses at sentinel NSW laboratories, January 2020 to 5 December 2021

Not all samples are tested for all respiratory viruses. Therefore, data presented may tend to under-represent current respiratory virus activity in NSW. Data is pending from several labs for the weeks since 5 December due to high demand on testing laboratories in the past weeks.

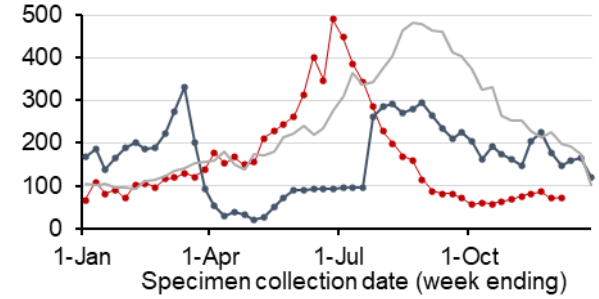
Influenza A



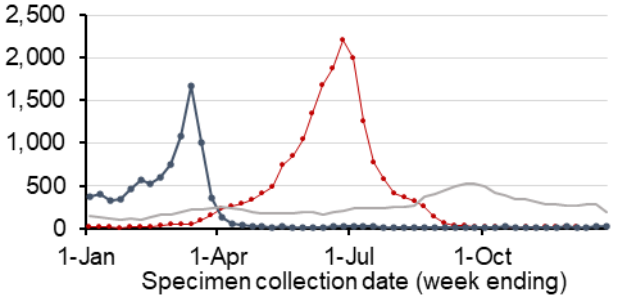
Influenza B



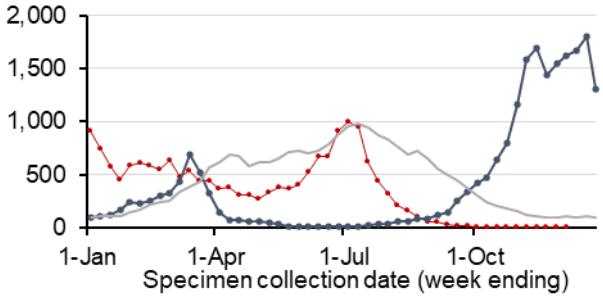
Adenovirus



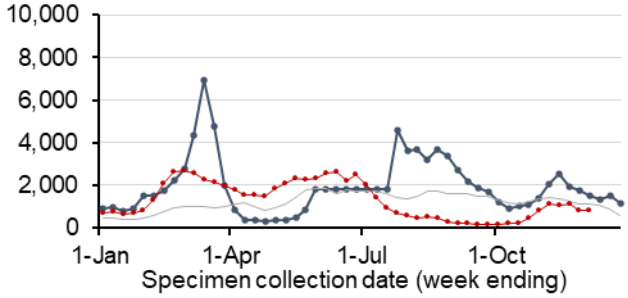
Parainfluenza



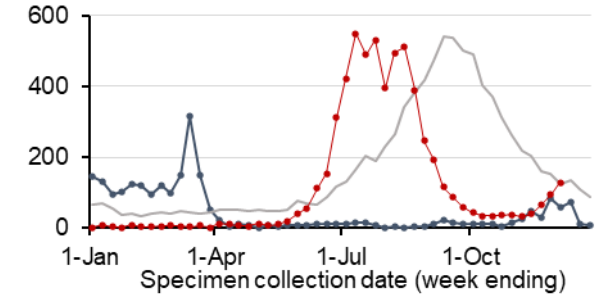
Respiratory Syncytial Virus



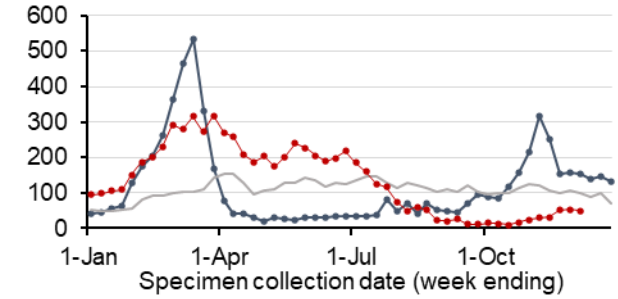
Rhinovirus



Human metapneumovirus



Enterovirus



Note: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included.

Appendix D: NSW Sewage Surveillance Program

In the week ending 25 December, 169 sewage samples were tested for fragments of SARS-CoV-2. Of these, there were 102 detections:

- Detections outside Sydney

There were 97 detections outside Sydney taken from the sewage treatment plants at Albury, Ballina, Balranald, Bangalow, Bateau Bay, Batemans Bay, Bathurst, Blayney, Boggabri, Bomaderry, Bonny Hills, Bowral, Broken Hill, Broken Hill South, Buladelah, Buronga, Byron Bay, Canowindra, Casino, Charmhaven, Coffs Harbour, Cooma, Crescent Head, Culburra Beach, Dareton, Denman, Dubbo, Dunbogan, Evans Head, Forster, Gloucester, Gosford – Kincumber, Goulburn, Grafton composite, Gunnedah, Gulgong, Hallidays Point, Harrington, Hawks Nest, Inverell, Jindabyne, Leeton, Lennox Head, Lismore composite, Lockhart, Macksville, Manilla, Mannering Park, Mittagong, Molong, Moonee, Moree, Moruya, Moss Vale, Mudgee, Mullumbimby, Mungindi, Murrurundi, Muswellbrook, Nambucca Heads, Narooma, Narrabri, Nowra, Ocean Shores, Old Bar, Parkes, Port Macquarie, Scotts Head, Singleton, South Kempsey, St Georges Basin, Tamworth, Taree, Temora, Tomakin, Tuross, Tweed - Banora Point, Hastings Point, Kingscliff and Murwillumbah, Ulladulla, Vincentia, Walcha, Wardell, Wauchope, Wellington, Wentworth, West Kempsey, West Wyalong, Wingham, Woolgoolga, Woy Woy, Wyong - Toukley, Wyong South, and Yass.

- Sydney detections

Results for Sydney sites may be delayed to prioritise analysis of regional sites. In Sydney there were detections from the sewage treatment plants at Liverpool, McGraths Hill, Quakers Hill and South Windsor and the network at Padstow (4).

- Detections with no known cases

Detections from Balranald, Buladelah, Buronga, Narooma, Tomakin, Wentworth, West Wyalong occurred with no known or recent cases in the catchment. Cases were also identified in Batemans Bay, Buronga, Cowra, Leeton, Manilla, Merriwa, Moonee, Moruya, Moss Vale, Walcha, Wauchope, and Yass following recent detections.

- Sampled sites with no SARS-CoV-2 fragment detections

There were no detections in the following catchments: Ashford, Bingara, Bodalla, Boorowa, Bowraville, Cobar, Condoblin, Coraki, Darlington Point, Delungra, Gilgandra, Grenfell, Gundagai, Guyra, Harden, Hay, Holbrook, Jerilderie, Junee, Kew Kendall, Kyogle, Lightning Ridge, Lake Cargelligo, Quirindi, Tenterfield, Uralla, Walgett, Wardell, Warialda, Wee Waa, Werris Creek, and Woodenbong.

Due to the current wide spread of COVID in the community, the sewage surveillance program is no longer useful in identifying the introduction of cases into previously unaffected communities. It therefore ceased in its current form from 22 December 2021.

Appendix E: Additional tables

Total COVID-19 cases by LHD of residence and week reported, NSW, 21 November to 25 December 2021

	Local Health District	Week ending				Total
		25 Dec	18 Dec	11 Dec	4 Dec	
Metropolitan Local Health Districts	South Eastern Sydney	7,025	1,723	507	274	9,529
	South Western Sydney	5,419	1,199	488	216	7,322
	Western Sydney	4,347	1,342	515	307	6,511
	Sydney	4,088	1,506	605	467	6,666
	Northern Sydney	3,663	830	163	128	4,784
	Central Coast	1,087	390	71	27	1,575
	Nepean Blue Mountains	1,008	201	72	60	1,341
	Illawarra Shoalhaven	780	198	73	74	1,125
Rural and Regional Local Health Districts	Hunter New England	4,861	3,738	80	67	8,746
	Northern NSW	720	417	107	12	1,256
	Western NSW	499	123	47	34	703
	Mid North Coast	344	165	38	61	608
	Murrumbidgee	199	70	41	22	332
	Southern NSW	100	29	17	14	160
	Far West	22	11	2	4	39
	Correctional settings	11	1	2	1	15
	Hotel Quarantine*	0	0	1	0	1
	NSW#	34,582	12,013	2,835	1,768	51,198

* Includes people who were placed into Hotel Quarantine after time in the community.

Includes people with a usual place of residence outside of NSW, and those for whom LHD was not available at the time of data extraction.

Total COVID-19 cases by vaccination status and week reported, NSW, 16 June to 25 December 2021

	Fully vaccinated	Partially vaccinated	No effective dose	Under investigation*	Not eligible for vaccination (aged 0-11 years)	Total
Total cases since 16 June 2021	42,847 (33.8%)	7,304 (5.8%)	45,113 (35.5%)	12,262 (9.7%)	19,410 (15.3%)	126,936 (100%)
Month						
June 2021	3 (1.3%)	11 (4.6%)	199 (84.0%)	0 (0.0%)	24 (10.1%)	237 (100%)
July 2021	71 (2.1%)	96 (2.9%)	2,676 (80.9%)	30 (0.9%)	434 (13.1%)	3,307 (100%)
August 2021	558 (2.9%)	806 (4.2%)	13,558 (71.4%)	925 (4.9%)	3,134 (16.5%)	18,981 (100%)
September 2021	2,623 (7.5%)	3,895 (11.2%)	16,481 (47.3%)	5,480 (15.7%)	6,395 (18.3%)	34,874 (100%)
October 2021	1,898 (15.4%)	1,719 (13.9%)	5,188 (42.0%)	418 (3.4%)	3,138 (25.4%)	12,361 (100%)
November 2021	2,185 (33.4%)	299 (4.6%)	1,941 (29.7%)	21 (0.3%)	2,095 (32.0%)	6,541 (100%)
Week ending						
04 Dec 2021	746 (42.2%)	38 (2.1%)	501 (28.3%)	4 (0.2%)	479 (27.1%)	1,768 (100%)
11 Dec 2021	1,428 (50.4%)	50 (1.8%)	778 (27.4%)	12 (0.4%)	567 (20.0%)	2,835 (100%)
18 Dec 2021	8,452 (70.4%)	96 (0.8%)	1,804 (15.0%)	656 (5.5%)	1,005 (8.4%)	12,013 (100%)
25 Dec 2021	25,114 (72.6%)	301 (0.9%)	2,147 (6.2%)	4,717 (13.6%)	2,303 (6.7%)	34,582 (100%)

* Vaccination status is updated regularly using both the Australian Immunisation Register and the patient's interview. See Glossary for details of vaccination status categories.

Demographics of infections among total cases by gender and age, NSW, 16 June to 25 December 2021

	Week ending				16 Jun to 25 Dec 2021
	25 Dec 2021	18 Dec 2021	11 Dec 2021	4 Dec 2021	
Gender					
Female	17,038 (49.3%)	5,939 (49.4%)	1,299 (45.8%)	917 (51.9%)	61,168 (48.2%)
Male	17,496 (50.6%)	6,067 (50.5%)	1,488 (52.5%)	850 (48.1%)	65,622 (51.7%)
Non-specified or non-binary	48 (0.1%)	7 (0.1%)	48 (1.7%)	1 (0.1%)	146 (0.1%)
Age group					
0-9	1,755 (5.1%)	779 (6.5%)	408 (14.4%)	360 (20.4%)	15,789 (12.4%)
10-19	5,173 (15.0%)	1,839 (15.3%)	475 (16.8%)	339 (19.2%)	20,202 (15.9%)
20-29	12,412 (35.9%)	4,926 (41.0%)	698 (24.6%)	332 (18.8%)	33,188 (26.1%)
30-39	6,746 (19.5%)	1,997 (16.6%)	493 (17.4%)	250 (14.1%)	22,445 (17.7%)
40-49	3,701 (10.7%)	1,070 (8.9%)	339 (12.0%)	219 (12.4%)	14,648 (11.5%)
50-59	2,664 (7.7%)	740 (6.2%)	210 (7.4%)	114 (6.4%)	10,506 (8.3%)
60-69	1,309 (3.8%)	409 (3.4%)	127 (4.5%)	72 (4.1%)	5,808 (4.6%)
70-79	556 (1.6%)	165 (1.4%)	58 (2.0%)	53 (3.0%)	2,757 (2.2%)
80-89	215 (0.6%)	71 (0.6%)	26 (0.9%)	19 (1.1%)	1,275 (1.0%)
90+	49 (0.1%)	16 (0.1%)	1 (0.0%)	10 (0.6%)	315 (0.2%)
Total	34,582 (100%)	12,013 (100%)	2,835 (100%)	1,768 (100%)	126,936 (100%)

Proportion of cases with a severe outcome (ICU and/or death) amongst all cases, by age, time of infection, and vaccination status, NSW, 1 January 2020 to 25 December 2021

Age-group (years)	% cases with severe outcomes (ICU and/or death)					
	Jan 2020 - 15 Jun 2021		16 Jun – 25 Dec 2021: Fully vaccinated		16 Jun – 25 Dec 2021: Un-vaccinated	
0-9	0%	(0 / 251)	-	-	<1%	(11 / 15,789)
10-19	<1%	(1 / 325)	<1%	(1 / 5,238)	<1%	(33 / 12,303)
20-29	<1%	(4 / 1,115)	<1%	(4 / 15,250)	1%	(109 / 12,483)
30-39	1%	(15 / 1,098)	<1%	(7 / 8,354)	2%	(161 / 9,612)
40-49	2%	(12 / 718)	<1%	(8 / 5,435)	3%	(189 / 6,431)
50-59	4%	(30 / 710)	1%	(22 / 4,243)	7%	(286 / 4,325)
60-69	7%	(44 / 656)	1%	(28 / 2,357)	11%	(243 / 2,138)
70-79	12%	(46 / 394)	4%	(44 / 1,245)	20%	(177 / 902)
80-89	21%	(26 / 122)	8%	(45 / 557)	30%	(135 / 450)
90+	38%	(16 / 42)	17%	(28 / 168)	33%	(30 / 90)
Total	4%	(194 / 5,431)	<1%	(187 / 42,847)	2%	(1,374 / 64,523)

* For this table, un-vaccinated includes those with no effective dose, and those who are ineligible for vaccination (aged 0-11 years).

Hospitalisations among people diagnosed with COVID-19, by age group, NSW

Age-group (years)	Since 16 Jun 2021			Jan 2020 – 15 Jun 2021	
	Hospitalised	Percentage of cases hospitalised*	Hospitalised per 100,000 population	Hospitalised	Percentage of cases hospitalised*
0-9	303	2%	30.0	4	2%
10-19	387	2%	40.1	10	3%
20-29	1,050	5%	89.6	27	2%
30-39	1,319	8%	112.7	46	4%
40-49	1,357	12%	131.4	48	7%
50-59	1,333	16%	137.1	78	11%
60-69	1,106	23%	131.6	117	18%
70-79	843	36%	144.7	92	23%
80-89	562	49%	204.9	52	43%
90+	143	51%	206.2	16	38%
Total	8,403	8%	103.9	490	9%

* There is often a delay between a person becoming ill with COVID-19 and subsequently requiring a hospitalisation or dying. Since 16 June 2021, the median time between onset and hospitalisation is 6 days and between onset and death is 11 days. Therefore hospitalisations and deaths are under-reported for the most recently notified cases.

ICU hospitalisations among people diagnosed with COVID-19, by age group, NSW

Age-group (years)	Since 16 Jun 2021			Jan 2020 – 15 Jun 2021	
	Admitted to ICU	Percentage of cases admitted to ICU	ICU admission per 100,000 population	Admitted to ICU	Percentage of cases admitted to ICU
0-9	11	<1%	1.1	0	0%
10-19	37	<1%	3.8	1	<1%
20-29	128	1%	10.9	4	<1%
30-39	196	1%	16.7	15	1%
40-49	234	2%	22.7	12	2%
50-59	349	4%	35.9	29	4%
60-69	303	6%	36.1	43	7%
70-79	220	9%	37.8	39	10%
80-89	64	6%	23.3	13	11%
90+	1	<1%	1.4	0	0%
Total	1,543	2%	19.1	156	3%

Glossary

Term	Description
Case	A person infected who has tested positive to a validated specific SARS-CoV-2 nucleic acid test or has had the virus identified by electron microscopy or viral culture. Blood tests (serology) is only used in special situations following a public health investigation and require other criteria to be met in addition to the positive serology result (related to timing of symptoms and contact with known COVID-19 cases). Case counts include: - NSW residents diagnosed in NSW who were infected overseas or in Australia (in NSW or interstate), and - interstate or international visitors diagnosed in NSW who were under the care of NSW Health at the time of diagnosis
Health care workers	Individuals who work within a hospital or other healthcare settings, including staff in direct or indirect contact with patients or infectious materials. HCWs includes roles such as doctor, nurse, orderly, paramedic, laboratory technician, pharmacist, administrative staff, cleaners, and other support staff. Public health units routinely undertake investigations of COVID-19 cases in healthcare workers to identify ongoing risks in healthcare settings. See COVID-19 in healthcare workers in NSW for a detailed report on infections to August 2020 in 35 HCWs who had worked in a health facility in the 14 days prior to symptom onset or date or testing.
Incubation period	The time in which the case was infected. The incubation period for COVID-19 is between 1 and 14 days prior to symptom onset.
Overseas acquired case	Case who travelled overseas during their incubation period. While testing rates in NSW are high and case counts are low, cases who have travelled overseas in their incubation period are considered to have acquired their infection overseas.
Interstate acquired case	Case who travelled interstate during their infection and the public health investigation concludes the infection was likely acquired interstate.
Cluster	Group of cases sharing a common source of infection or are linked to each other in some way.
Fully vaccinated	Cases reported as fully vaccinated completed the recommended vaccine course at least 14 days prior to known exposure to COVID-19 or arrival in Australia. The COVID-19 vaccines available in Australia are very effective with evidence showing that people who are fully vaccinated are 70–95% less likely to get sick with COVID-19 compared with those who are not vaccinated. However, a small proportion of fully vaccinated people may still get the disease. As the proportion of the population who are vaccinated increases, the numbers of cases who are fully vaccinated will increase but this does not mean the vaccines are not working.
Partially vaccinated	Cases reported as partially vaccinated (one effective dose): • received their first dose of a two-dose vaccination course at least 21 days prior to known exposure to COVID-19 or arrival in Australia, or • received their second dose of a two-dose vaccination course less than 14 days prior to known exposure to COVID-19 or arrival in Australia, or • received a single-dose vaccination course (currently only Johnson & Johnson vaccine) less than 14 days prior to known exposure to COVID-19 or arrival in Australia.
No effective dose	Cases reported as no effective dose: • received their first dose of a two-dose vaccination course less than 21 days prior to known exposure to COVID-19 or arrival in Australia, or • have not received any vaccine dose. Using the phrase “no effective dose” indicates that an insufficient period of time has elapsed to allow for maximal immune response provided by the vaccine. It does not indicate that vaccines are ineffective.
Under investigation	For cases reported as under investigation, vaccination status could not be determined through searching the Australian Immunisation Register (AIR). Based on self-reported data at interview, for cases to September 2021, those with an unknown status are likely to be un-vaccinated. Cases from October with an unknown status are likely to have received at least one dose, but their record could not be matched in AIR.

Hospitalisation	People with COVID-19 can be hospitalised because of the disease but may also be hospitalised for other reasons not related to their COVID-19 diagnosis. For the purposes of surveillance, reported hospitalisation counts include all people who were admitted to any hospital ward, including emergency departments, around the time of their COVID-19 diagnosis. This does not mean that all the hospitalisations reported are due to a worsening of COVID-19 symptoms. The count does not include people managed in the community (e.g., including Hospital in the Home schemes).
Death	A COVID-19 death is defined for surveillance purposes as a death in a confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID-19 (e.g., trauma). There should be no period of complete recovery from COVID-19 between illness and death.
Variants of concern	Global surveillance monitors the prevalence of mutations in the SARS-CoV-2 virus, focusing particularly on mutations that may reduce vaccine effectiveness or enable re-infection. This report reflects the recommendations of Australia's Communicable Diseases Genomics Network (CDGN) for reporting of Variants of Concern (VoC) in NSW. The CDGN reports on the Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), and Delta (B.1.617.2) internationally recognised VoCs. The first recognised VoC was the Alpha variant, in December 2020. The Delta lineage (B.1.617.2) was internationally recognised as a VoC on 11 May 2021 and is responsible for almost all cases in the NSW outbreak from 16 June 2021. A new variant, Omicron (B.1.1.529) was recognised internationally on 26 November 2021 and the first notification of a case in NSW occurred on 28 November 2021.
Pneumonia presentations	Pneumonia presentations to Emergency Departments include people with diagnoses of viral, bacterial, atypical or unspecified pneumonia, and Legionnaires' disease, but excludes 'pneumonia with influenza' and provides an indicator of more severe respiratory conditions.
Bronchiolitis presentations	Bronchiolitis is a common disease of infants often caused by respiratory syncytial virus (RSV). Public health measures introduced last year around social distancing and improved hygiene practices coincided with a large decrease in bronchiolitis presentations for the majority of 2020. A rise in bronchiolitis presentations in the later part of 2020 corresponds to an increase in RSV detections (see Appendix C). Since 16 June 2021, there has again been a steady decrease in bronchiolitis presentations.
FluTracking	FluTracking is an online weekly survey asking participants to report flu-like symptoms. It usually runs only between May and October in line with flu season but has continued every week since the start of the pandemic.

Dates used in COVID-19 reporting

Event	Date name	Source
Person first starts to feel unwell	Date of symptom onset	Public health staff interview all cases at the time of diagnosis. This is the date provided to NSW Health by the case.
Person has a swab taken	Date of test	This date is provided to NSW Health by the laboratory when the test result (positive or negative) is notified.
Laboratory notifies NSW Health of result	Date of notification	This date is provided to NSW Health by the laboratory. Laboratories prioritise notification of positive results to allow prompt public health action. Positive cases: The date of notification is collected by NSW Health on the day of notification. Cases are informed of their diagnosis by their doctor or public health staff as soon as the result is available. The date of notification to NSW Health is usually the same day as the date the case finds out about the result. Negative cases: Some laboratories notify NSW Health of negative results in batches at regular intervals. For these laboratories the date of notification to NSW Health does not reflect the date the negative result was available at the laboratory. NSW Health does not collect information on the date the person was informed of the result.