COVID-19 WEEKLY SURVEILLANCE IN NSW

EPIDEMIOLOGICAL WEEK 10, ENDING 13 MARCH 2021

Published xx March 2021

Summary for the week ending 13 March 2021

- There was one locally acquired case of COVID-19 reported in the week ending 13 March. The case is a security guard working in the hotel quarantine program.
- There were 29 cases reported in overseas returned travellers in the last week, a decrease compared to the week ending 6 March, where 32 cases were reported.
- There were 11 cases reported in the week ending 13 March found to have a SARS-CoV-2 variants of concern (VOCs). Ten cases were reported in returned travellers who acquired their infection overseas and one case was reported in the locally acquired case. VOCs are of increased public health importance as these variants maybe more transmissible than other strains of SARS-CoV-2.
- Of all 444 returned travellers diagnosed with COVID-19 since 29 November 2020, there were 71 (16%) diagnosed with a VOC.
- Testing rates decreased compared to the previous week (down 11%). Testing rates decreased across all LHDs and in all age groups.
- The NSW Sewage Surveillance Program reported four detections – taken from the Bondi and Malabar treatment plants, and the sewage network at Paddington (within the Bondi catchment) and Botany (within the Malabar catchment). There were no regional detections. All detections were associated with known cases in returned travellers.

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Section 1: How is the outbreak tracking in NSW?

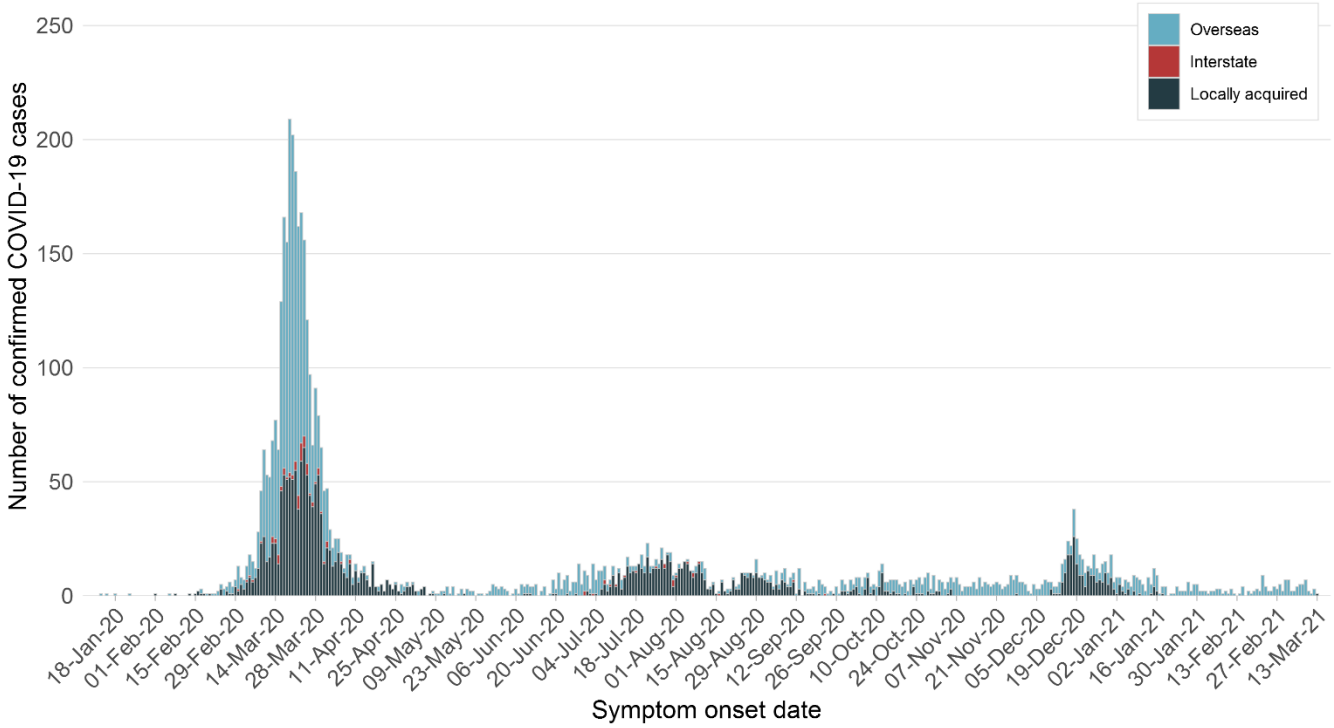
Table 1. COVID-19 cases and tests reported, NSW, from 25 January 2020 to 13 March 2021

	Week ending 13 Mar	Week ending 6 Mar	% change	Pandemic total
Number of cases	30	32	↓ 6%	5,049
Overseas acquired	29	32	↓9%	2,871
Interstate acquired	0	0	-	90
Locally acquired	1	0	-	2,088
No epidemiological links to other cases or clusters	0	0	-	447
Number of deaths	0	0	-	56
Number of tests	74,455	83,632	↓ 11%	5,182,664

Note: The case numbers reported for previous weeks is based on the most up to date information from public health investigations.

To understand how the outbreak is tracking we look at how many new cases are reported each day and the number of people being tested. Each bar in the graph below represents the number of new cases based on the date of symptom onset.

Figure 1. COVID-19 cases by likely infection source and illness onset, NSW, 18 January 2020 to 13 March 2021



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

Interpretation: Almost all COVID-19 cases diagnosed in the last four weeks in NSW were overseas acquired (98.9%).

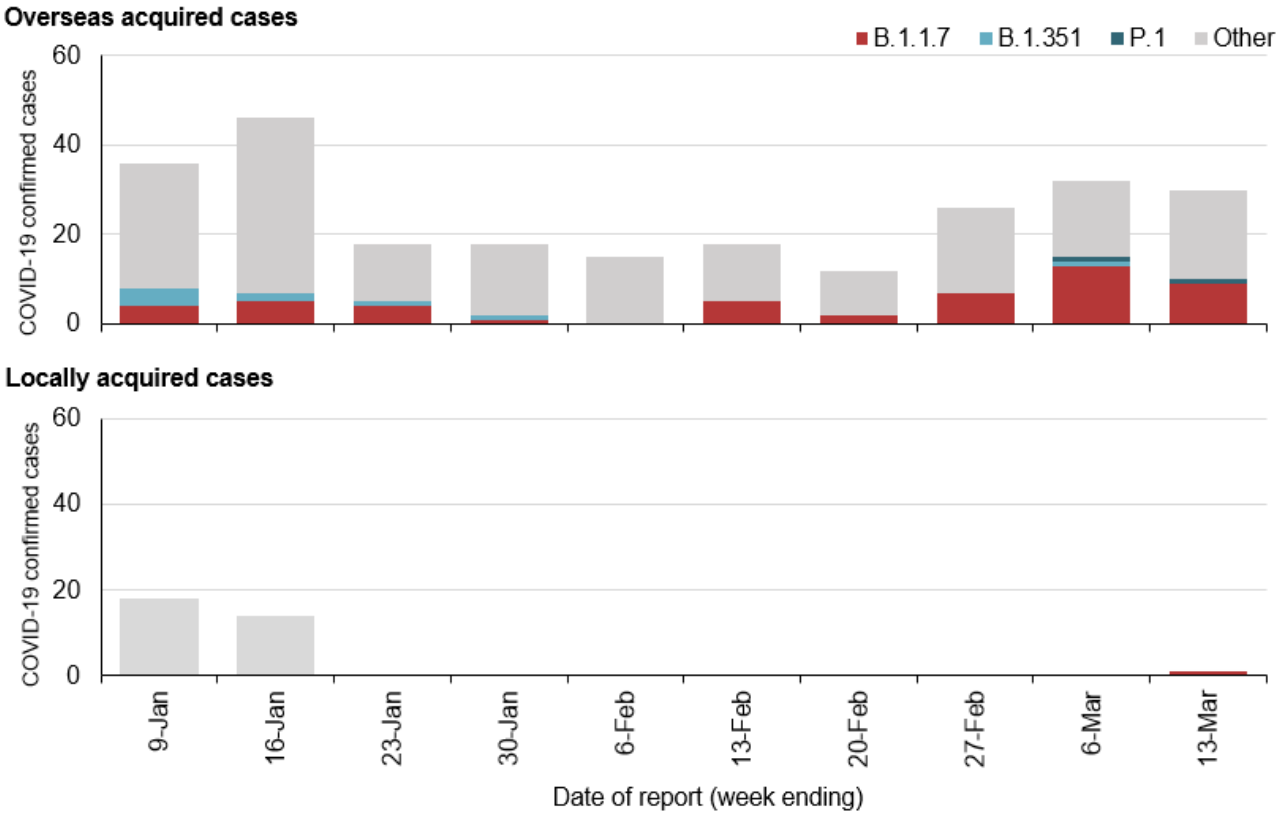
Section 2: Variants of concern (VOC)

Like other viruses, the SARS-CoV-2 virus that causes COVID-19 acquires mutations over time. Some of these mutations occur in regions that are critical to virus function, such as the spike protein. The spike protein allows the virus to enter human cells, which is why it is the target of many COVID-19 vaccines and part of our own immune response to the virus. Global surveillance is done to monitor the prevalence of mutations in the SARS-CoV-2 virus, with particular focus on those occurring in the spike protein that may reduce vaccine effectiveness or enable re-infection.

Currently, there are three internationally recognised variants of concern (VOCs), B.1.1.7, B.1.351 and P.1, that were first identified in the United Kingdom, South Africa and Brazil, respectively. All three VOCs have since spread beyond their initial country of origin with B.1.1.7 the most widely distributed worldwide, followed by B.1.351 and P.1. Whilst B.1.1.7 is thought to be more transmissible, B.1.351 and P.1 both carry the same mutation thought to reduce the effectiveness of vaccines and immune responses. NSW Health Pathology has identified all three VOCs (B.1.1.7, B.1.351, P.1) in returned travellers in hotel quarantine and one VOC (B.1.1.7) in this week's locally acquired case. This locally acquired case was a security guard who acquired their infection while working in a quarantine hotel.

NSW Health has strict protocols in place for managing the health of those identified to have a VOC to address the additional risk associated with the new variants. Since 29 November, VOCs have been identified in 71 returned travellers and one locally acquired case.

Figure 2. Confirmed COVID-19 cases reported date in the last 10 weeks, by place of acquisition and VOC, NSW, 3 January to 13 March 2021



Interpretation: In the week ending 13 March, ten returned travellers and the one locally acquired case (which was transmitted from an overseas traveller in hotel quarantine) were reported as having a COVID-19 VOC. Since 29 November 2020, travellers with a VOC likely acquired their infection in Lebanon (20), the United Kingdom (13), South Africa (7), India (6), the United Arab Emirates (5), USA (5), Germany (3), and one case each in Finland, France, Jordan, Netherlands, Nigeria, Pakistan, Spain and Zambia. There are four cases where the likely country of acquisition was unable to be determined.

Section 3: Locally acquired COVID-19 transmission in NSW in the last four weeks

Information from cases who were diagnosed in the last four weeks is used to understand where COVID-19 is spreading in the community. This takes into account the incubation period and the time it takes for people to seek testing and for the laboratory to perform the test. This section summarises cases based on the date the case was reported to NSW Health.

Table 2. Locally acquired COVID-19 cases by LHD of residence and week reported, NSW, 14 February to 13 March 2021

Local Health District	Week ending				Total	Days since last case reported
	13 Mar	6 Mar	27 Feb	20 Feb		
Central Coast	0	0	0	0	0	74
Illawarra Shoalhaven	0	0	0	0	0	70
Nepean Blue Mountains	0	0	0	0	0	179
Northern Sydney	0	0	0	0	0	61
South Eastern Sydney	1	0	0	0	0	0
South Western Sydney	0	0	0	0	0	64
Sydney	0	0	0	0	0	61
Western Sydney	0	0	0	0	0	56
Far West	0	0	0	0	0	345
Hunter New England	0	0	0	0	0	219
Mid North Coast	0	0	0	0	0	326
Murrumbidgee	0	0	0	0	0	187
Northern NSW	0	0	0	0	0	231
Southern NSW	0	0	0	0	0	145
Western NSW	0	0	0	0	0	226
NSW	**1**	**0**	**0**	**0**	**0**	**0**

Interpretation: In the week ending 13 March, there was one locally acquired case who is a resident of South Eastern Sydney LHD. The confirmed case is a security guard working in the hotel quarantine program. Whole genome sequencing results indicate that there is a match to a case who is a returned traveller who was quarantined in a police-managed quarantine hotel while the case worked at the hotel. The returned traveller and hotel quarantine worker both have the B.1.1.7 lineage (also known as the UK variant).

Section 4: Current COVID-19 clusters in NSW

Public health staff interview all new cases at the time of diagnosis to identify the likely source of their infection. Cases are also asked to report all the locations visited and people with whom they have been in contact within their infectious period (generally two days prior to symptom onset until the time of isolation and three days in high risk settings). Close contacts are quarantined to limit the spread of infection to others and encouraged to seek testing.

Clusters are defined as a group of cases that are infected with the same virus (with the identical genetic sequence) that are linked epidemiologically to each other. This means that a direct source of infection can be identified for each case in the cluster, through contact with a known case where transmission likely occurred.

A case that shares the same virus (with an identical genetic sequence) is not counted as part of the cluster if an epidemiological link to another case in the cluster has not been found. Although the case must have been infected through contact with an infectious person in the cluster, that contact or that infectious person has not been found.

Cases in community settings

There were no cases reported in the last week who were linked to recent community clusters.

Section 5: COVID-19 in returned travellers

To limit the spread of COVID-19 into NSW, travel restrictions were introduced for all non-Australian citizens and permanent residents in mid-March 2020. In addition:

- From 29 March 2020 returned travellers have been quarantined in hotels for a 14-day period and travellers who develop symptoms are isolated until no longer infectious. Returned travellers are screened on entry and exit from quarantine and following release from quarantine.
- From 22 January 2021 (local time at departure point) all people travelling to Australia on flights must provide proof of a negative COVID-19 PCR test result at the time of check-in.

The figure below shows the number of returned travellers screened at Sydney International Airport since 2 January 2021. Returned travellers include international flight crew who are required to be tested before leaving the airport.

Figure 3. Returned travellers screened at Sydney International Airport by week of arrival and percent arrival date into NSW, 2 January to 13 March 2021

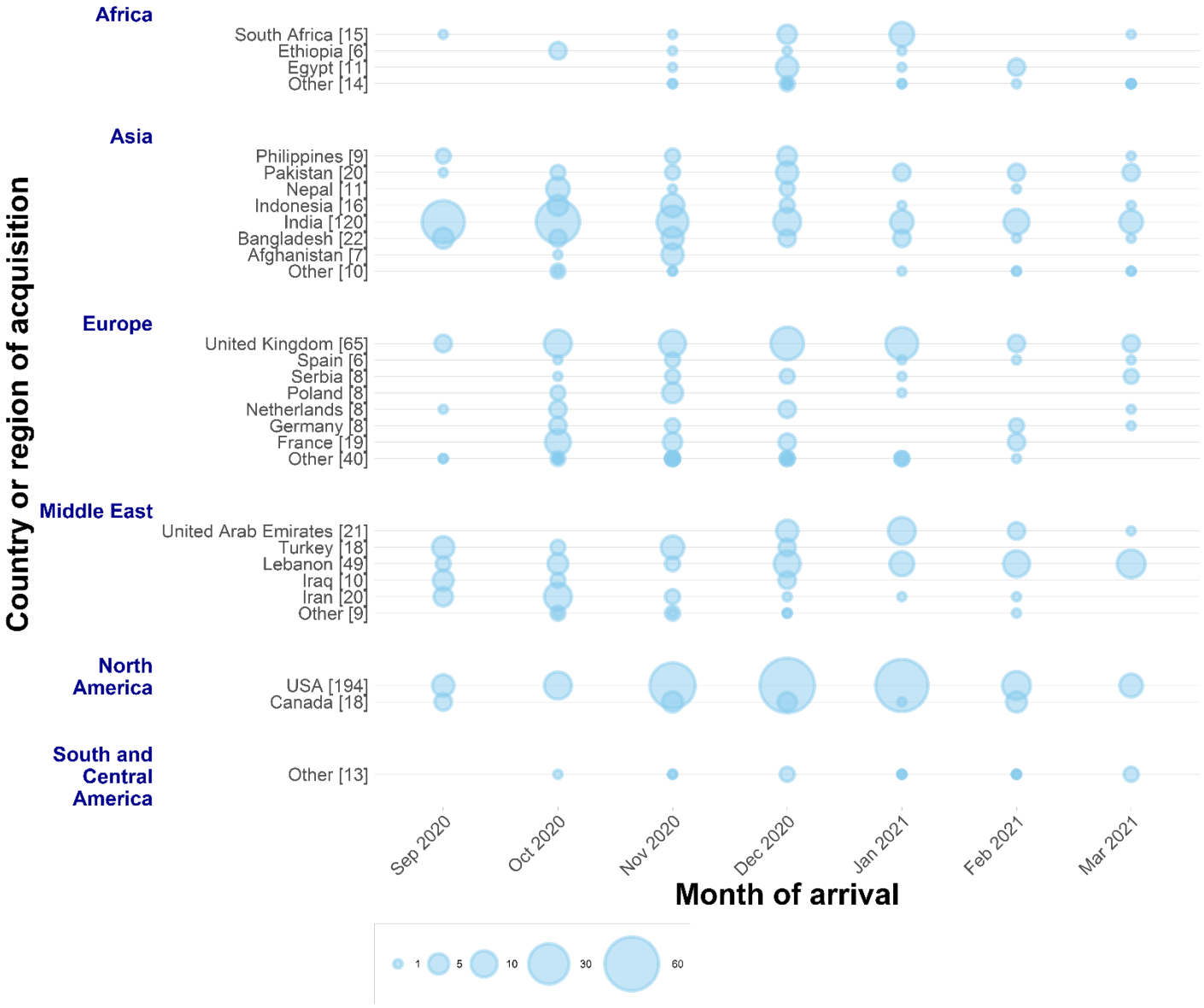
*Returned travellers in entering Australia in the past 14 days are still in quarantine and may return a positive result

Interpretation: Since 2 January 2021**,** there has been on average 600 people screened on arrival through Sydney International Airport daily. In the last four weeks, 99 COVID-positive travellers have arrived in NSW. The proportion of tests positive for COVID-19 in returned travellers has remained very low, at less than 1%.

Country of acquisition of COVID-19 for overseas travellers

The following figure displays the countries and regions with the greatest numbers of international travellers diagnosed with COVID-19 in NSW.

Figure 4. Overseas acquired COVID-19 cases by country of acquisition and arrival month, NSW, 1 September 2020 to 13 March 2021



Interpretation: In recent months, most detections of COVID-19 were in travellers from the United States of America, with travellers from Lebanon, United Arab Emirates, India and the United Kingdom also having high numbers of cases detected. The pattern seen in COVID-positive travellers over time reflects the evolving nature of the pandemic in those areas and the country of origin of returned travellers. In the last four weeks, travellers returning from Lebanon accounted for the largest number of overseas acquired cases (20, 20%), followed by travellers returning from India (15, 15%) and the United States of America (13, 13%).

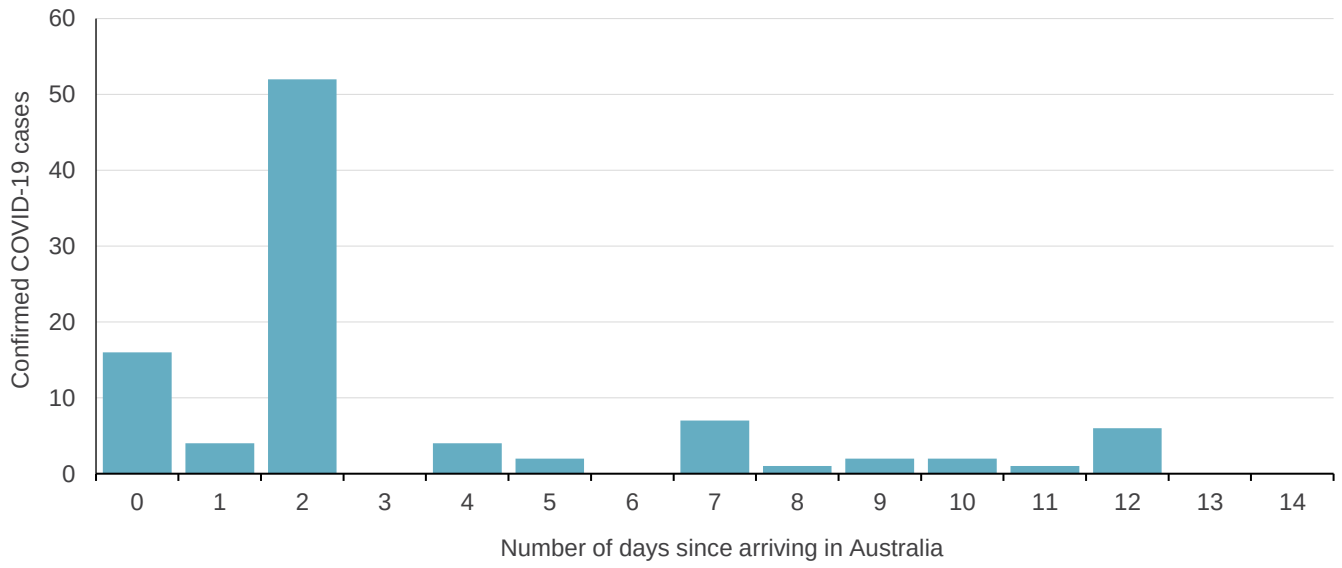
Hotel quarantine

The program of screening all overseas travellers after arrival in NSW commenced on 15 May 2020. From 30 June 2020, the program was extended to include screening of travellers on entry to quarantine, day 2 after arrival, and exit of quarantine. On 11 January 2021, exit screening of travellers was moved from day 10 to day 12 of quarantine. Testing is also carried out on individuals that became symptomatic in addition to these two tests, including those that are symptomatic on arrival.

Overseas returned travellers complete their quarantine in several facilities with majority of people in police-managed hotels or hotels managed by NSW Health (known as Special Health Accommodation). Since September 2020 international flight crew are also required to quarantine in police-managed hotels.

The figure below shows the number of overseas returned travellers within the quarantine program that have tested positive for COVID-19, by the number of days since they arrived in Australia.

Figure 5. Number of overseas returned travellers who test positive for SARS-CoV-2 by day since arrival in NSW, NSW, 14 February to 13 March 2021



Interpretation: In the four weeks ending 13 March 2021, 73% of overseas acquired COVID-19 cases have tested positive within 2 days of arriving to Australia, with most people testing positive on Day 2 screening.

Section 6: COVID-19 in specific populations

Healthcare workers

The following describes infections of COVID-19 in healthcare workers (HCWs). HCWs in this section 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.

There were no locally acquired cases of COVID-19 reported in HCWs in the week ending the 13 March.

In total, there have been 48 cases of COVID-19 in health care workers since 1 August 2020. Of these, 25 HCWs were potentially infected in healthcare settings. A further nine cases were social or household contacts of a known case, eight were exposed in community settings, and for six cases the source of infection is unknown. Prior to August 2020, there were 206 cases identified in HCWs who had worked in a health facility in the 14 days prior to symptom onset or date of testing (see COVID-19 in healthcare workers in NSW).

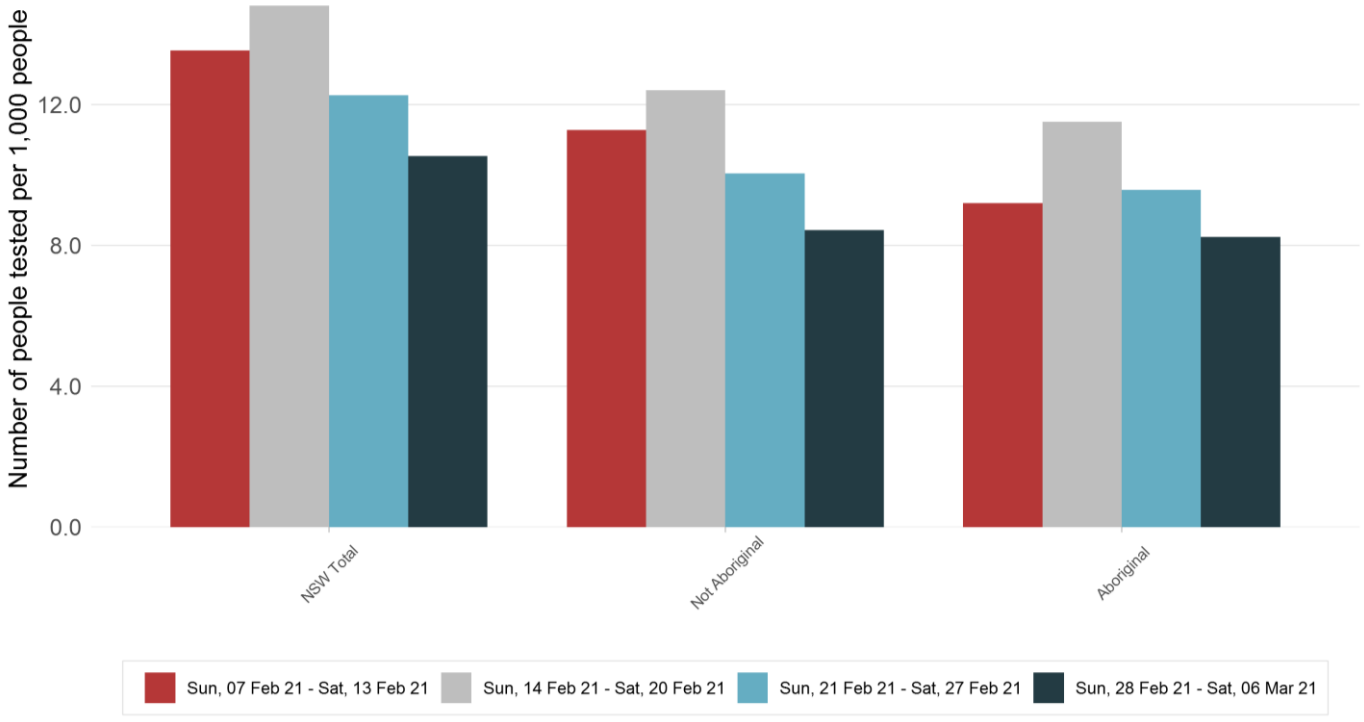
Aboriginal people

There were no cases of COVID-19 reported in Aboriginal people in the week 13 March.

In total, 47 Aboriginal people have been diagnosed with COVID-19, representing 1% of all cases in NSW. Aboriginal and Torres Strait Islander communities are recognised as a priority group due to key drivers of increased risk of transmission and severity of COVID-19 which include mobility, remoteness, barriers to access including institutional racism and mistrust of mainstream health services, crowded and inadequate housing, and burden of disease.

Aboriginal status for those tested can be ascertained through linkage with other health information systems, including emergency department and hospitalisation data, but there is a delay in getting this information. Results of the most recent linkage are available for people tested up to 6 March 2021, with Aboriginal status ascertained for approximately 90% of all COVID-19 test records.

Figure 6. Testing rate per 1,000 people by Aboriginality and week, NSW, 7 February to 6 March 2021



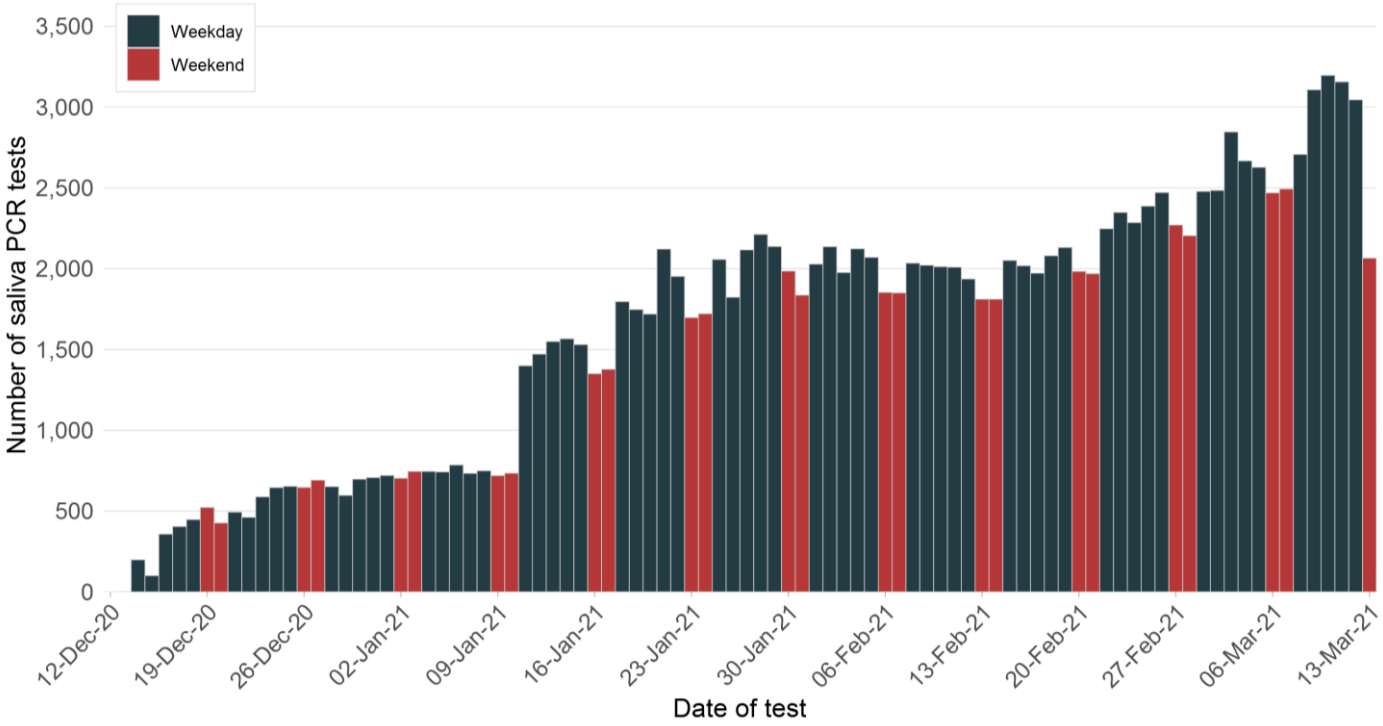
Note: NSW Total includes persons tested in NSW without Aboriginality recorded.

Interpretation: Testing rates decreased in the week ending 6 March compared to the previous week for Aboriginal people and have remained slightly below the rates reported for non-Aboriginal people. Similar declines have been seen for non-Aboriginal people.

Quarantine workers – Screening Program

As the number of COVID-19 cases rise across the world and more people return to Australia from overseas, increased numbers of COVID-19 cases are seen in returned overseas travellers in quarantine facilities. Routine screening of quarantine workers is implemented out of care and caution for staff members who work in NSW quarantine facilities. Screening involves a daily COVID-19 saliva PCR testing, which is painless and quick (see NSW hotel quarantine worker surveillance and testing program).

Figure 7. Daily numbers of saliva PCR test results reported for workers in quarantine facilities, NSW, 12 December 2020 to 13 March 2021



* The number of saliva PCR tests on 13 March 2021 is incomplete due to delays in reporting negative results.

Interpretation: Since screening of quarantine workers began in December 2020, a total of 145,180 saliva PCR tests have been conducted. The number of saliva PCR tests increased significantly on 11 January 2021, which corresponds to the expansion of the NSW quarantine hotel worker surveillance and testing program. There has been one confirmed case of COVID-19 reported through saliva PCR testing (in the security guard reported in this week's report).

The daily number of saliva PCR tests is not included in the total PCR testing numbers reported.

Section 7: COVID-19 deaths

How many people have died as a result of COVID-19?

Since the start of the pandemic, 1.1% of cases (56 people) have died as a result of COVID-19, most of whom were 70 years of age or older, including 28 residents of aged care facilities with known COVID-19 outbreaks. Approximately 21% (12/56) of the deaths were in overseas acquired cases.

There were no deaths reported in the week ending 13 March.

Table 3. Deaths as a result of COVID-19, by age group, NSW, 2020 and 2021

Age group (years)	Number of deaths	Number of cases	Case fatality rate
0–4	0	115	0%
5–11	0	119	0%
12–17	0	163	0%
18–29	0	1,135	0%
30–49	0	1,639	0%
50–59	1	692	0.1%
60–69	4	637	0.6%
70–79	15	386	3.9%
80+	36	164	22.1%
Total	**56**	**5,050**	**1.1%**

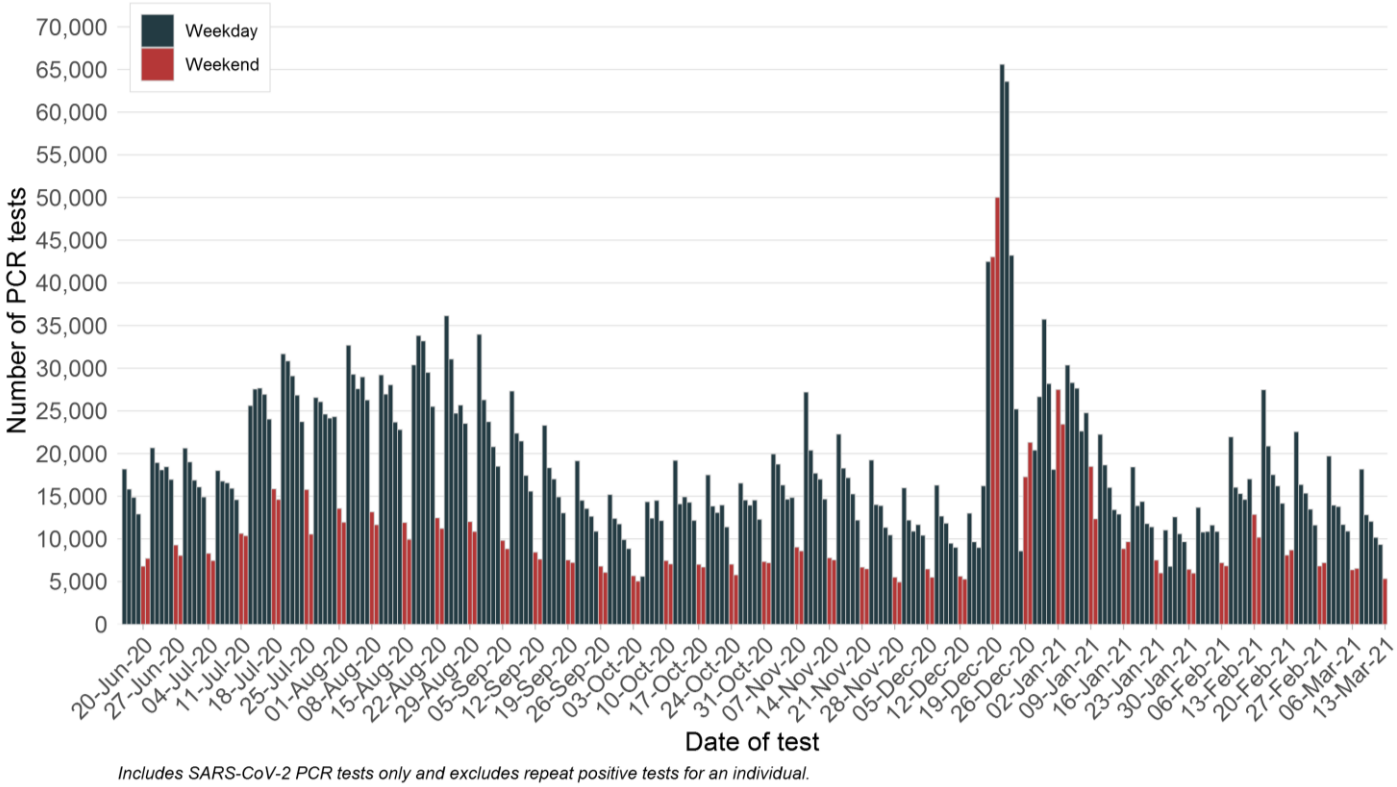
Interpretation: Cases older than 80 years of age had both the highest number of deaths and the highest case fatality rate. No cases under 50 years of age have died as a result of COVID-19 in NSW.

Section 8: COVID-19 testing in NSW

How much testing is happening?

The bars on the graph below show the number of tests by the date a person presented for the test.[1] While public health facilities are generally open seven days a week, less testing occurs through GPs and private collection centres on weekends and public holidays. This explains the lower number of tests on weekends.

Figure 8. Number of PCR tests per day, NSW, 20 June 2020 to 13 March 2021



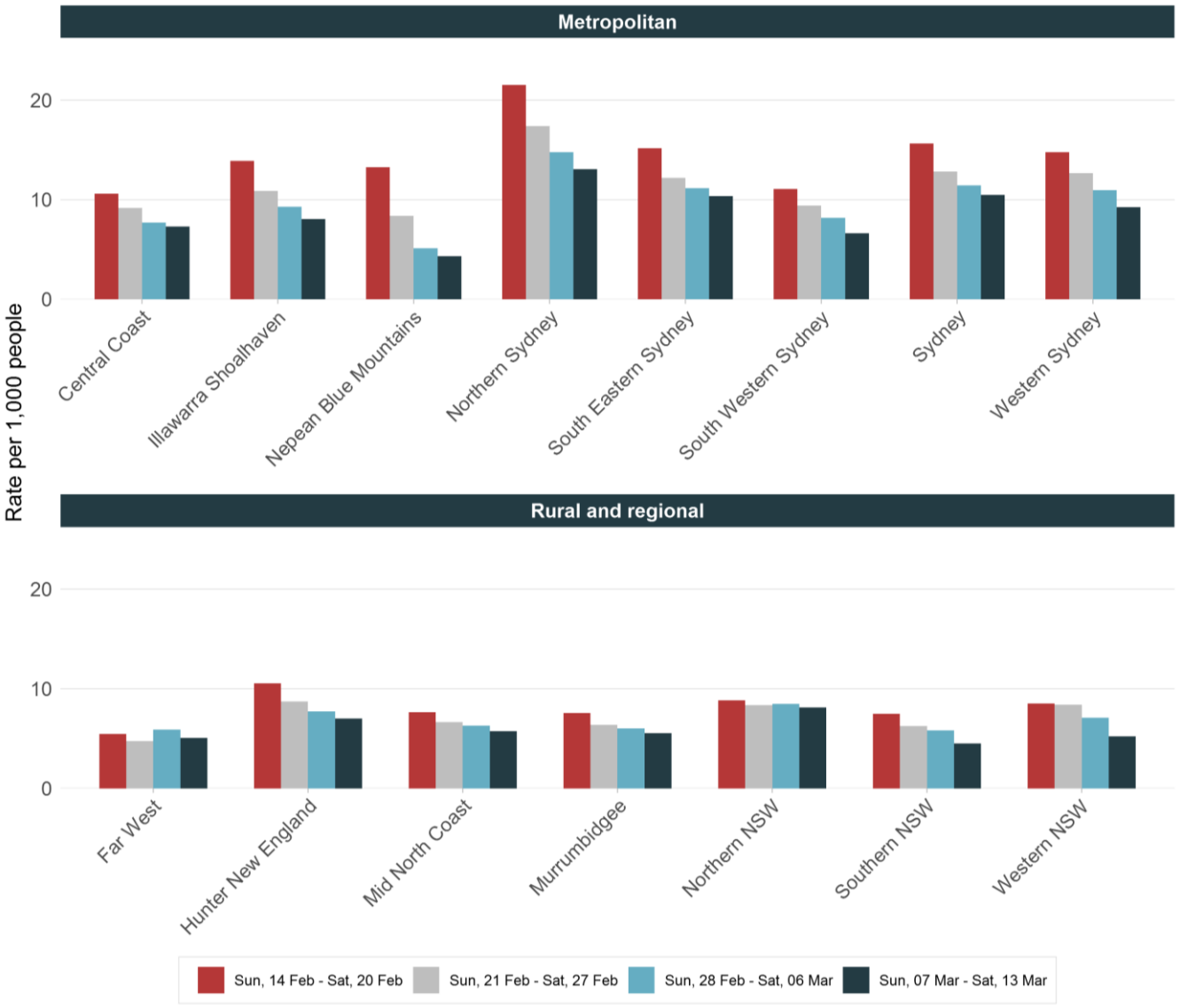
Includes SARS-CoV-2 PCR tests only and excludes repeat positive tests for an individual.

Interpretation: Testing numbers decreased in the week ending 13 March (down 11%) compared to the previous week. The average daily testing rate of 1.3 per 1,000 people in NSW each day has decreased compared to the previous week of 1.5 per 1,000 people.

[1] The number of tests per day displayed below is different to the 24 hour increase in tests reported each day as there are delays in some laboratories providing negative results to NSW Health.

Testing by Local Health District

Figure 9. Rates of COVID-19 testing by LHD of residence, NSW, 14 February to 13 March 2021

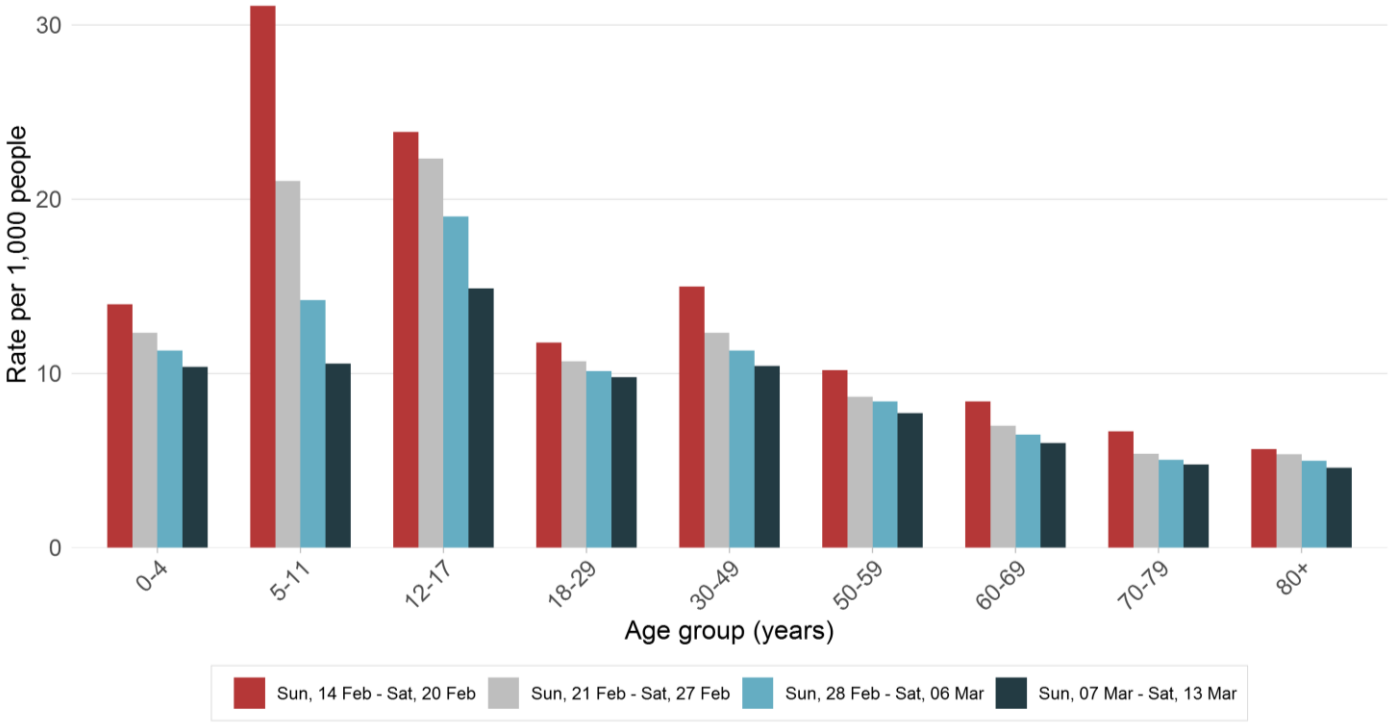


Includes SARS-CoV-2 PCR tests only and excludes notifications with missing postcode of residence.

Interpretation: State-wide testing rates in the week ending 13 March were lower compared to the previous week (9 per 1,000 people compared to 10 per 1,000 people). The decrease in testing rates was seen across all LHDs.

Testing by age group

Figure 10. Rates of COVID-19 testing by age group and week, NSW, 14 February to 13 March 2021



Includes SARS-CoV-2 PCR tests only and excludes notifications with age missing.

Interpretation: In the week ending 13 March, testing rates have decreased in all age groups. Testing rates decreased significantly in children aged 5–11 years, after increased testing in February.

Section 9: NSW Sewage Surveillance Program

The NSW Sewage Surveillance Program tests untreated sewage for fragments of the COVID-19 (SARS-CoV-2) virus at sewage treatment plant locations across NSW. Testing sewage can help track infections in the community and provide early warning of an increase in infections. These tests provide data to support NSW Health's response to COVID-19.

An infected person can shed virus in their faeces even if they do not have symptoms, and shedding can continue for several weeks after they are no longer infectious. The NSW sewage surveillance for SARS-CoV-2 is in the preliminary stages of analysis and work is progressing to assess the significance of the results. For example, it is not currently known the minimum number of cases that can be detected in a catchment. A small number of cases in a large sewage catchment may not be detected by sewage surveillance due to factors such as dilution, inhibition, reduction in shedding over the infection period or movement of cases.

The table below shows results for the last 10 weeks for sites that have had detections. Full result from all sites across NSW are available in Appendix D.

Table 4. Locations with SARS-CoV-2 detections in sewage samples in the last 10 weeks, NSW, 3 January 2021 to 13 March 2021

		9-Jan	16-Jan	23-Jan	30-Jan	6-Feb	13-Feb	20-Feb	27-Feb	6-Mar	13-Mar
Pop.	**Location**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Sydney Sites											
69,245	Warriewood										
57,933	West Hornsby										
318,810	Bondi								n	n	n
1,857,740	Malabar 1								n	n	n
	Malabar 2										
181,005	Liverpool					n					
161,200	Glenfield										
1,341,986	North Head							n	n		
163,374	Quakers Hill										
Sydney Network Sites											
Bondi	Paddington Sewage Network										
Malabar	Botany Sewage Network										
North Head	Camellia SPS - North										
North Head	Camellia SPS - South										
North Head	Auburn Sewage Network										
Glenfield	Minto Sewage Network										
Liverpool	Ireland Park Sewage Network										
Regional Sites											
32,000	Ulladulla										

Sampling commenced week ending 18 July 2020

not sampled or analysed

SARS-CoV-2 not detected

SARS-CoV-2 detected

n result from network sites

Interpretation: In the week ending 13 March, 138 sewage samples were tested for fragments of SARS-CoV-2. Of these, there were four detections –taken from the Bondi and Malabar treatment plants, and the sewage network at Paddington (within the Bondi catchment) and Botany (within the Malabar catchment). These areas all receive sewage from quarantine hotels with known cases. There were no regional detections.

Section 10: Other respiratory infections in NSW

Influenza and other respiratory virus cases and tests reported in NSW, up to 7 March 2021

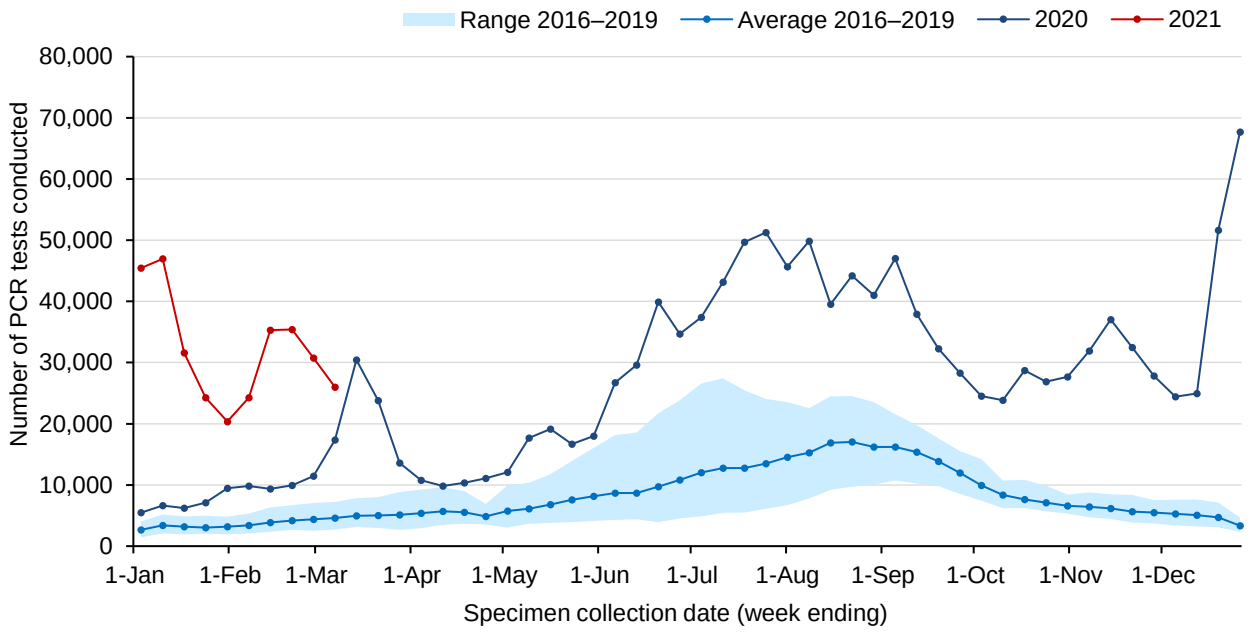
In NSW, routine surveillance for influenza and other respiratory viruses is conducted through sentinel laboratories. The number of all PCR tests (positive and negative) are provided to NSW Health by participating laboratories each week. Testing counts reflect the number of influenza PCR tests conducted; not all samples are tested for all respiratory viruses.

The most recent data available is for testing carried out to 7 March 2021. A total of 320,302 influenza tests have been performed at participating laboratories from 28 December 2020. Refer to Appendix B for PCR testing results for a range of respiratory viruses.

How much influenza testing is happening?

The red line in the figure below shows the number of PCR tests for influenza carried out each week in 2021 and the black line shows the testing numbers for 2020. The blue line shows the average number of tests carried out for the same week in the previous four years (2016–2019) and the shaded area shows the range of counts reported in the same time period.

Figure 11. Testing for influenza by week, NSW, 1 January 2016 to 7 March 2021

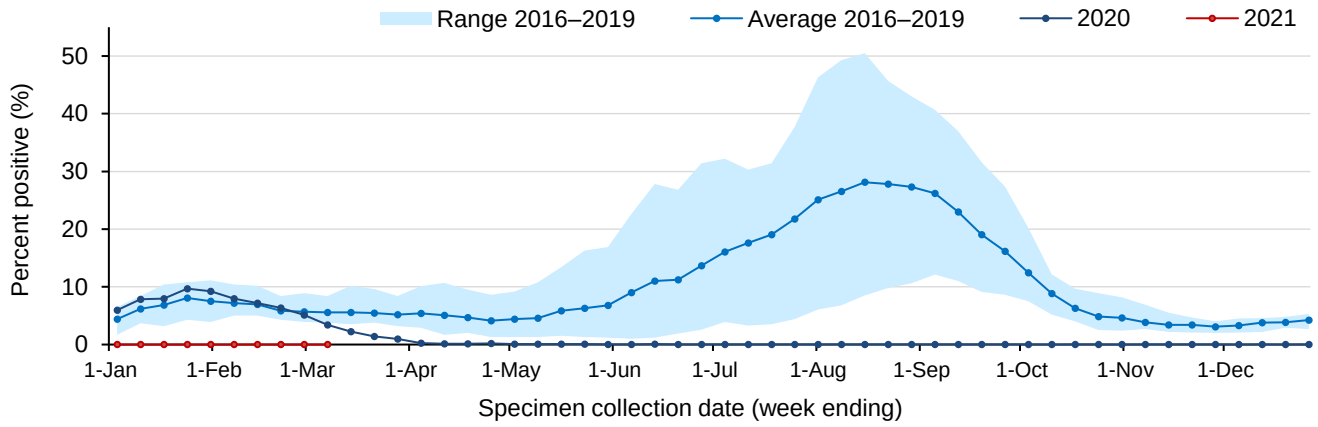


Interpretation: In the week ending 7 March, there were 25,988 influenza tests performed across the participating laboratories. Testing has decreased, following a similar pattern to COVID-19 testing. The testing numbers continue to exceed the four-year average for this time of year.

How much influenza is circulating?

The graph below shows the proportion of tests found to be positive for influenza with the red line showing weekly counts for 2021, the black line showing counts for 2020, the blue line showing the average for 2016 to 2019 and the shaded area showing the range recorded for 2016 to 2019.

Figure 12. Proportion of tests positive for influenza, NSW, 1 January 2016 to 7 March 2021

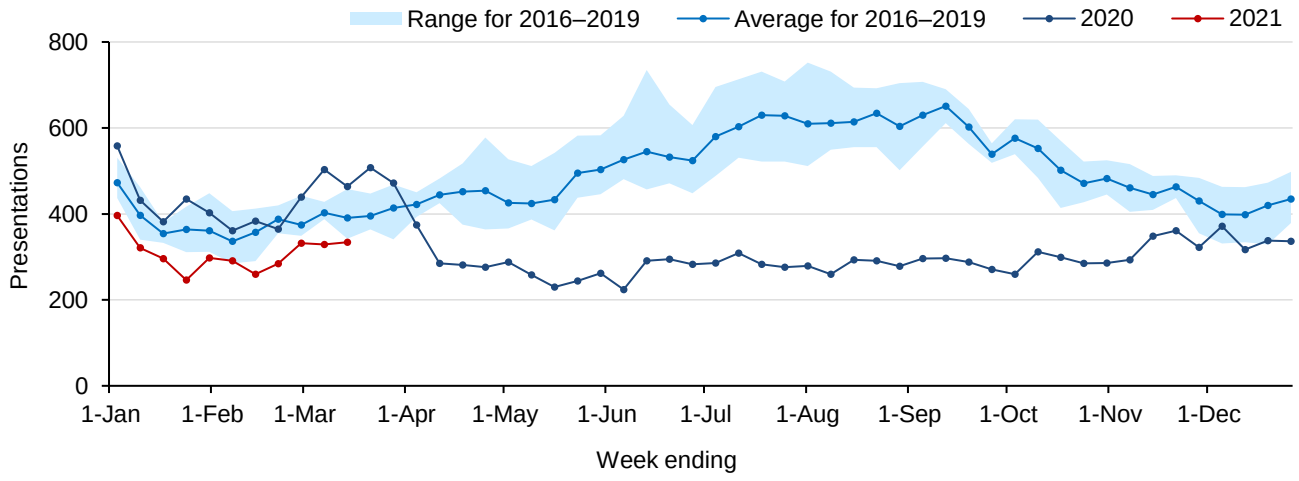


Interpretation: In the week ending 7 March, the percent of influenza tests that were positive continued to be very low (<0.01%), indicating limited influenza transmission in the community. Since early March 2020, this percentage has remained far lower than the usual range for the time of year.

How are emergency department presentations for respiratory infections tracking?

The figure below shows weekly pneumonia presentations to Emergency Departments in NSW, using PHREDSS[2]. The red line shows the weekly counts for 2021, the black line showing counts for 2020, the blue line showing the average for 2016 to 2019 and the shaded area showing the range recorded for 2016 to 2019.

Figure 13. Emergency Department pneumonia presentations, NSW, 1 January 2016 to 14 March 2021



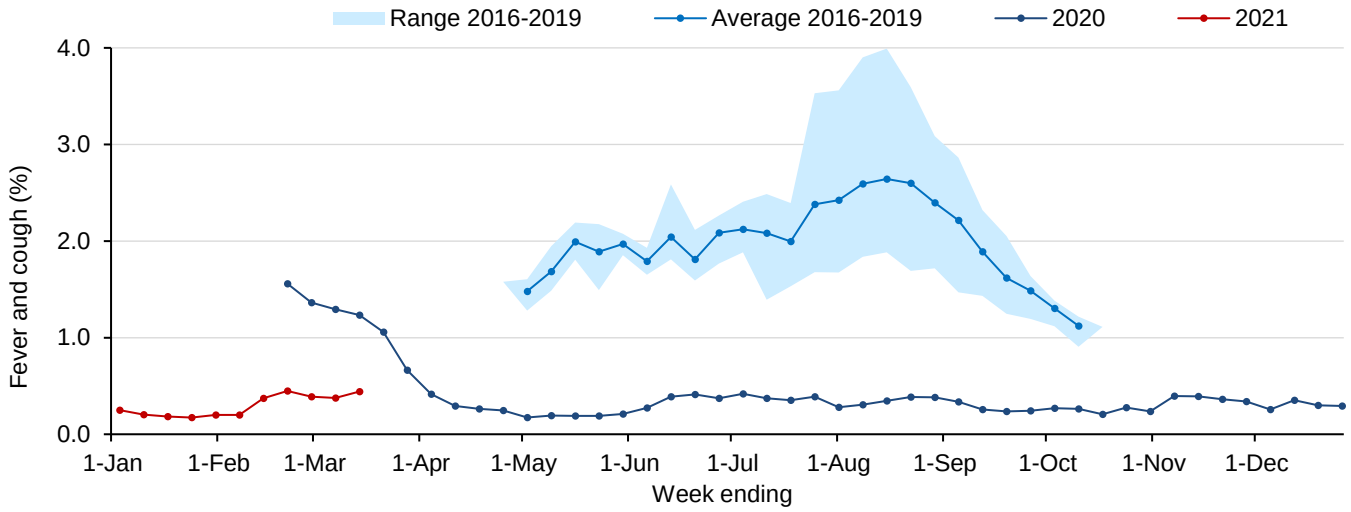
Interpretation: Pneumonia presentations include people with diagnoses of viral, bacterial, atypical or unspecified pneumonia, and Legionnaires' disease, but excludes 'pneumonia with influenza' and provides an indicator of more severe respiratory conditions. In the week ending 14 March, pneumonia presentations increased slightly but remain below the seasonal range for this time of year.

[2] NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance (PHREDSS) system, CEE, NSW Ministry of Health. Comparisons are made with data for the preceding 5 years. Includes unplanned presentations to 67 NSW emergency departments (accounts for 87% of total public ED activity).

How many people have flu-like symptoms in the community?

FluTracking is an online survey that asks participants to report flu-like symptoms, such as fever or cough, in the last week. Across NSW approximately 25,000–30,000 people participate each week. The survey usually commences at the beginning of May in line with the flu season but commenced at the end of February this year given the COVID-19 outbreak.

Figure 14. Proportion of FluTracker participants reporting influenza-like illness, NSW, 1 January 2016 to 14 March 2021



Interpretation: In NSW in the week ending 14 March of the 15,811 people surveyed, 70 people (0.44%) reported flu-like symptoms. In the last four weeks, two-thirds (193/297) of new cases of flu-like illness reported having a COVID-19 test.

Appendix A: COVID-19 PCR tests in NSW by Local Government Area[4]

Local Health District	Local Government Area	Week ending				Total since January 2021	
		6-March		27-February			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Central Coast	Central Coast / LHD Total2	2585	7.33	2725	7.72	190588	540.12
Far West	Balranald	6	2.57	7	2.99	649	277.59
	Broken Hill	113	6.46	144	8.24	8523	487.61
	Central Darling	7	3.81	2	1.09	518	281.67
	Wentworth	27	3.83	25	3.54	3149	446.48
	LHD Total2	153	5.08	178	5.9	12839	425.92
Hunter New England	Armidale Regional	198	6.43	221	7.18	13157	427.47
	Cessnock	221	3.68	220	3.67	19995	333.33
	Dungog	50	5.31	62	6.58	3234	343.2
	Glen Innes Severn	47	5.3	36	4.06	2364	266.49
	Gunnedah	64	5.05	61	4.81	4209	331.91
	Gwydir	2	0.37	6	1.12	875	163.46
	Inverell	66	3.91	65	3.85	5335	315.87
	Lake Macquarie	1800	8.74	1935	9.4	116834	567.43
	Liverpool Plains	35	4.43	60	7.59	2741	346.83
	Maitland	846	9.93	948	11.13	52670	618.44
	Mid-Coast	390	4.16	444	4.73	31978	340.79
	Moree Plains	52	3.92	80	6.03	3836	289.27
	Muswellbrook	61	3.72	104	6.35	5912	360.99
	Narrabri	36	2.74	43	3.27	3286	250.17
	Newcastle	1663	10.04	1814	10.96	113932	688.12
	Port Stephens	459	6.25	488	6.64	37091	504.77
	Singleton	165	7.03	194	8.27	12219	520.82
	Tamworth Regional	397	6.35	415	6.64	29026	464.11
	Tenterfield	22	3.34	25	3.79	1406	213.22
	Upper Hunter Shire	87	6.14	88	6.21	5388	379.97
	Uralla	26	4.32	18	2.99	1599	265.97
	Walcha	18	5.74	21	6.7	1168	372.69
	LHD Total2	6700	7.03	7341	7.71	467895	491.29
Illawarra Shoalhaven	Kiama	212	9.07	222	9.49	13625	582.61
	Shellharbour	573	7.82	680	9.29	41480	566.41
	Shoalhaven	579	5.48	742	7.02	45958	435.01
	Wollongong	2020	9.26	2258	10.35	131384	602.36
	LHD Total2	3384	8.06	3902	9.3	232447	553.95
Mid North Coast	Bellingen	95	7.31	97	7.46	5083	391.12
	Coffs Harbour	351	4.54	373	4.83	26839	347.31
	Kempsey	189	6.35	214	7.19	11904	400.2
	Nambucca	82	4.14	101	5.1	6458	326.08
	Port Macquarie-Hastings	581	6.87	639	7.56	34821	411.96
	LHD Total2	1298	5.75	1424	6.31	85105	377.13

Local Health District	Local Government Area	Week ending				Total since January 2021	
		6-March		27-February			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Murrumbidgee	Albury	433	7.97	419	7.71	23129	425.53
	Berrigan	33	3.77	29	3.31	2321	265.26
	Bland	25	4.19	16	2.68	1863	311.96
	Carrathool	4	1.43	7	2.5	426	152.2
	Coolamon	24	5.53	23	5.3	1663	383.09
	Cootamundra-Gundagai Regional	43	3.83	49	4.36	3782	336.63
	Edward River	48	5.28	25	2.75	3185	350.62
	Federation	43	3.46	95	7.64	3816	306.83
	Greater Hume Shire	56	5.2	59	5.48	3968	368.64
	Griffith	165	6.1	164	6.07	11554	427.47
	Hay	9	3.05	4	1.36	660	223.8
	Hilltops	99	5.29	106	5.67	6686	357.46
	Junee	13	1.95	18	2.69	1718	257.07
	Lachlan1	9	1.48	8	1.32	1180	194.24
	Leeton	38	3.32	49	4.28	3410	297.95
	Lockhart	17	5.18	16	4.87	995	302.89
	Murray River	14	1.16	5	0.41	1030	85
	Murrumbidgee	20	5.11	18	4.6	1019	260.15
	Narrandera	13	2.2	15	2.54	1372	232.58
	Snowy Valleys	74	5.11	74	5.11	5262	363.42
	Temora	17	2.7	17	2.7	1614	255.91
	Wagga Wagga	463	7.09	584	8.95	33481	513.06
	LHD Total2	1654	5.55	1794	6.02	113344	380.21
Nepean Blue Mountains	Blue Mountains	281	3.55	375	4.74	56542	714.65
	Hawkesbury	331	4.92	434	6.45	39597	588.4
	Lithgow	26	1.2	27	1.25	7994	370.01
	Penrith	1072	5.03	1204	5.65	138384	649.76
	LHD Total2	1691	4.32	2010	5.14	240572	615.29
Northern NSW	Ballina	685	15.35	621	13.92	19511	437.19
	Byron	414	11.8	437	12.46	18410	524.79
	Clarence Valley	191	3.7	201	3.89	14948	289.34
	Kyogle	51	5.8	40	4.55	2408	273.76
	Lismore	398	9.11	462	10.57	19587	448.3
	Richmond Valley	185	7.88	219	9.33	8998	383.46
	Tenterfield	22	3.34	25	3.79	1406	213.22
	Tweed	591	6.09	651	6.71	32981	340.01
	LHD Total2	2519	8.12	2636	8.49	117173	377.54
Northern Sydney	Hornsby	1569	10.32	1843	12.12	92404	607.69
	Hunters Hill	304	20.29	392	26.17	20737	1384.31
	Ku-ring-gai	2027	15.94	2364	18.59	121567	956.07
	Lane Cove	884	22.01	1001	24.93	58800	1464.33
	Mosman	370	11.94	364	11.75	24903	803.82
	North Sydney	768	10.24	752	10.02	45286	603.64

Local Health District	Local Government Area	Week ending				Total since January 2021	
		6-March		27-February			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	Northern Beaches	3532	12.91	4072	14.89	317601	1161.25
	Parramatta1	2348	9.13	2570	9.99	134799	524.11
	Ryde	1610	12.26	1841	14.02	84896	646.72
	Willoughby	902	11.11	923	11.37	46939	578.14
	LHD Total2	12498	13.07	14150	14.8	840236	878.98
South Eastern Sydney	Bayside	1391	7.8	1509	8.46	88915	498.41
	Georges River	1199	7.52	1365	8.56	75406	472.85
	Randwick	1763	11.33	1902	12.22	122067	784.25
	Sutherland Shire	2304	9.99	2674	11.6	159047	689.68
	Sydney1	3368	13.67	3355	13.62	197194	800.49
	Waverley	1052	14.16	1100	14.81	69918	941.09
	Woollahra	961	16.18	972	16.37	59053	994.38
	LHD Total2	9937	10.36	10721	11.18	645773	673.31
South Western Sydney	Camden	1053	10.38	1277	12.59	84070	828.79
	Campbelltown	1378	8.06	1746	10.21	113206	662.24
	Canterbury-Bankstown1	2545	6.73	3040	8.04	195898	518.36
	Fairfield	982	4.64	1142	5.39	87940	415.41
	Liverpool	1500	6.59	1875	8.24	138050	606.59
	Wingecarribee	505	9.88	663	12.97	35880	701.69
	Wollondilly	291	5.48	328	6.17	24109	453.61
	LHD Total2	6905	6.65	8488	8.17	579563	558.06
Southern NSW	Bega Valley	149	4.32	207	6	12792	371.04
	Eurobodalla	189	4.91	241	6.26	19389	503.96
	Goulburn Mulwaree	167	5.36	218	7	13450	432.03
	Queanbeyan-Palerang Regional	254	4.16	333	5.45	18530	303.27
	Snowy Monaro Regional	110	5.29	130	6.25	8109	389.95
	Upper Lachlan Shire	41	5.09	63	7.82	2962	367.54
	Yass Valley	67	3.92	73	4.27	4461	261.08
	LHD Total2	977	4.5	1265	5.83	79723	367.27
Sydney	Burwood	261	6.43	287	7.07	18171	447.43
	Canada Bay	948	9.87	1115	11.61	69826	726.79
	Canterbury-Bankstown1	2545	6.73	3040	8.04	195898	518.36
	Inner West	2256	11.23	2343	11.67	162231	807.88
	Strathfield	449	9.57	564	12.02	31929	680.41
	Sydney1	3368	13.67	3355	13.62	197194	800.49
	LHD Total2	7321	10.51	7986	11.46	503748	722.98
Western NSW	Bathurst Regional	285	6.53	338	7.75	22743	521.41
	Blayney	38	5.15	71	9.62	3742	507.11
	Bogan	12	4.65	10	3.88	992	384.5
	Bourke	7	2.7	7	2.7	599	231.27
	Brewarrina	0	0	6	3.72	357	221.6
	Cabonne	68	4.99	105	7.7	3828	280.77
	Cobar	19	4.08	18	3.86	1289	276.73

Local Health District	Local Government Area	Week ending				Total since January 2021	
		6-March		27-February			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	Coonamble	15	3.79	13	3.28	1081	273.12
	Cowra	67	5.26	74	5.81	4135	324.49
	Dubbo Regional	265	4.93	371	6.91	21903	407.73
	Forbes	24	2.42	37	3.74	2534	255.8
	Gilgandra	8	1.89	13	3.07	1087	256.43
	Lachlan1	9	1.48	8	1.32	1180	194.24
	Mid-Western Regional	122	4.83	170	6.73	10004	396.18
	Narromine	33	5.06	41	6.29	2095	321.47
	Oberon	18	3.33	29	5.36	1943	359.08
	Orange	333	7.84	491	11.57	25762	606.86
	Parkes	74	4.99	95	6.4	4825	325.2
	Walgett	14	2.35	16	2.69	1794	301.36
	Warren	9	3.34	23	8.53	1515	561.74
	Warrumbungle Shire	56	6.04	70	7.54	3219	346.95
	Weddin	18	4.98	20	5.54	980	271.24
	LHD Total2	1491	5.23	2024	7.1	117264	411.44
Western Sydney	Blacktown	3373	9.01	3983	10.64	229003	611.57
	Cumberland	1944	8.05	2381	9.86	146504	606.59
	Parramatta1	2348	9.13	2570	9.99	134799	524.11
	The Hills Shire	2579	14.49	3131	17.59	148492	834.37
	LHD Total2	9777	9.28	11562	10.98	637600	605.26
NSW Total[3]		74455	9.2	83632	10.34	1019264	125.99

[1]Local Government Area (LGA) spans multiple Local Health Districts.

[2]Local Health District total counts and rates includes tests for LHD residents only. Murrumbidgee includes Albury LGA residents.

[3]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.

[4] Source - Notifiable condition information management System, accessed as at 8pm 15 March 2021.

Appendix B: Number of positive PCR test results for influenza and other respiratory viruses at sentinel NSW laboratories, January 2020 to 7 March 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 2020–7 March 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	320,302	5	0.00%	6	0.00%	945	237	6,129	14,719	50	1,737
Month ending											
31 January*	168,596	2	0.00%	0	0.00%	416	88	3,275	3,541	23	560
28 February	125,718	3	0.00%	0	0.00%	419	106	2,386	8,667	22	910
Week ending											
7 March	25,988	0	0.00%	6	0.00%	110	43	468	2,511	5	267

Testing numbers in NSW from January–27 December 2020

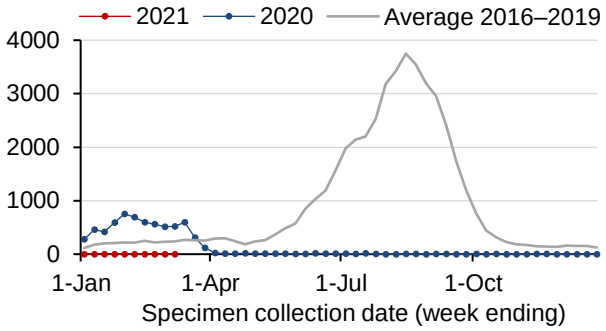
Specimen collection date	PCR tests conducted	Influenza A		Influenza B		Adeno-virus	Para-influenza	RSV	Rhino-virus	HMPV**	Entero-virus
		No.	%Pos.	No.	%Pos.						
Total	1,393,182	6,631	0.48%	955	0.07%	9,139	9,193	22,004	138,737	2,435	6,434
Month ending											
3 February *	34,953	2,508	7.18%	401	1.15%	846	1,900	752	5,036	599	335
1 March	40,575	2,363	5.82%	315	0.78%	798	2,435	1,118	8,245	437	1,007
29 March	85,238	1,549	1.82%	200	0.23%	898	4,117	1,977	18,088	664	1,502
3 May *	54,128	70	0.13%	13	0.02%	175	273	410	2,250	48	210
31 May	71,525	35	0.05%	6	0.01%	237	62	115	3,511	27	112
28 June	130,922	42	0.03%	11	0.01%	629	83	178	28,321	112	246
2 August *	227,152	34	0.01%	2	0.00%	1,251	89	209	31,589	79	427
30 August	174,594	9	0.01%	2	0.00%	1,137	37	299	13,926	14	235
27 September	145,489	6	0.00%	1	0.00%	938	35	866	8,416	61	259
1 November *	131,686	7	0.01%	1	0.00%	894	56	3,508	5,632	51	662
29 November	129,164	6	0.00%	3	0.00%	752	42	6,255	8,252	192	884
27 December	167,756	2	0	0	0	584	64	6,317	5,471	151	555

Notes: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change.
Serological diagnoses are not included.
HMPV – Human metapneumovirus
RSV - Respiratory syncytial virus
*Five-week period

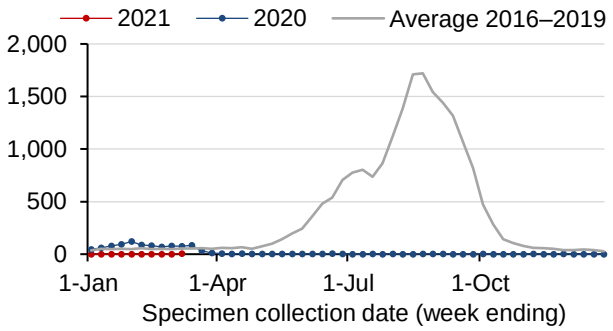
Appendix C: Number of positive PCR test results for influenza and other respiratory viruses at sentinel NSW laboratories, January 2020 to 7 March 2021

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.

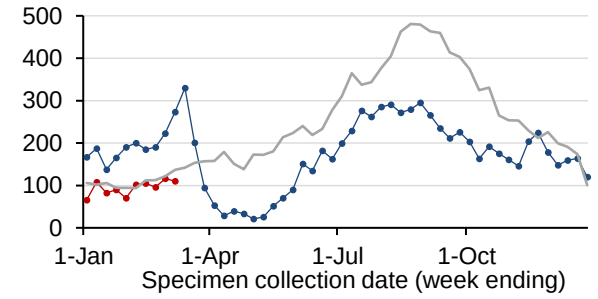
Influenza A



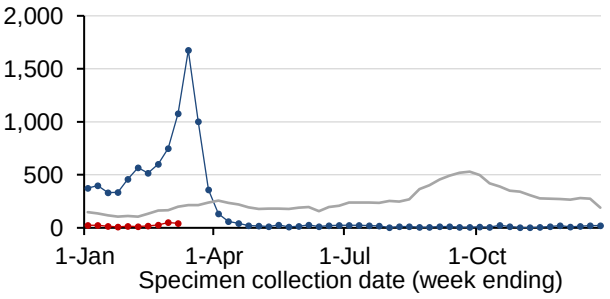
Influenza B



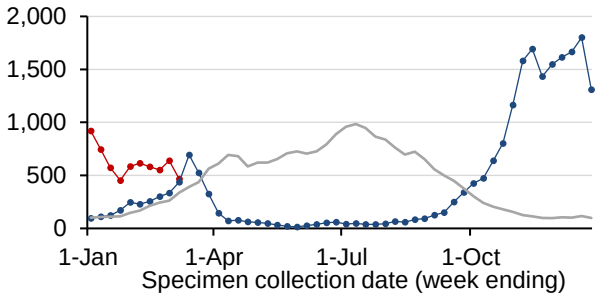
Adenovirus



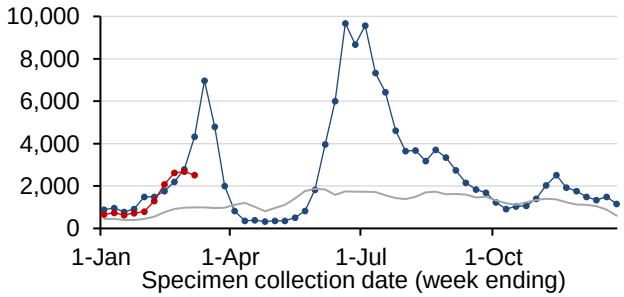
Parainfluenza



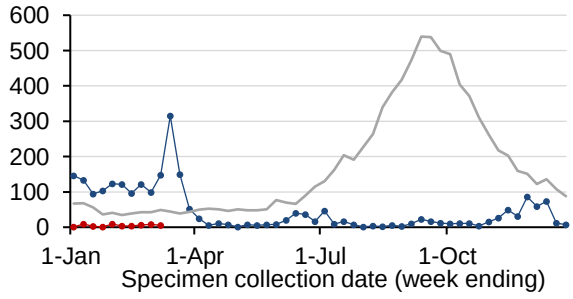
Respiratory syncytial virus (RSV)



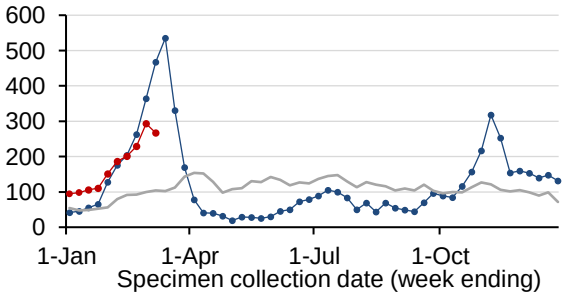
Rhinovirus



Human metapneumovirus (HMPV)



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: SARS-CoV-2 testing in sewage samples collected in the previous 10 weeks, week ending 13 March 2021

The NSW Sewage Surveillance Program tests untreated sewage for fragments of the COVID-19 (SARS-CoV-2) virus at sewage treatment plant locations across NSW. The table below shows results for the last 10 weeks of samples collected across all sites in NSW.

Sydney Sites		9-Jan	16-Jan	23-Jan	30-Jan	6-Feb	13-Feb	20-Feb	27-Feb	6-Mar	13-Mar
Pop.	Location	1	2	3	4	5	6	7	8	9	10
60,514	Blue Mountains (Winmalee)										
4,681	North Richmond										
13,052	Richmond										
110,114	Penrith										
12,000	Lithgow										
19,000	South Windsor										
8,000	McGraths Hill										
69,245	Warriewood										
1,241	Brooklyn										
31,924	Hornsby Heights										
57,933	West Hornsby										
318,810	Bondi								n	n	n
233,176	Cronulla										
1,857,740	Malabar 1								n	n	n
	Malabar 2										
181,005	Liverpool					n					
98,743	West Camden										
6,882	Wallacia										
14,600	Picton										
161,200	Glenfield										
1,341,986	North Head							n	n		
26,997	Castle Hill Cattai										
	Castle Hill Glenhaven										
163,374	Quakers Hill										
119,309	Rouse Hill										
37,061	Riverstone										
163,147	St Marys										
73,686	Shellharbour										
55,000	Wollongong										
68,000	Port Kembla										
93,000	Bellambi										

Sydney Network Sites		9-Jan	16-Jan	23-Jan	30-Jan	6-Feb	13-Feb	20-Feb	27-Feb	6-Mar	13-Mar
Network	Location	1	2	3	4	5	6	7	8	9	10
Bondi	Paddington Sewage Network										
Cronulla	Caringbah Sewage Network										
Cronulla	Miranda Sewage Network										
Malabar	Earlwood Sewage Network										
Malabar	Marrickville Sewage Network 1										
Malabar	Marrickville Sewage Network 2										
Malabar	Bardwell Creek Sewage Network										
Malabar	Arncliffe Sewage Network 1										
Malabar	Arncliffe Sewage Network 2										
Malabar	Blakehurst Sewage Network										
Malabar	Padstow Sewage Network 1										
Malabar	Padstow Sewage Network 2										
Malabar	Fairfield Sewage Pumping Station 1										
Malabar	Fairfield Sewage Pumping Station 2										
Malabar	Homebush Sewage Pumping Station										
Malabar	Croydon Sewage Network										
Malabar	Dulwich Hill Sewage Network										
Malabar	Canterbury Sewage Network										
Malabar	Botany Sewage Network										
Malabar	Maroubra Sewage Network										
North Head	Camellia Sewage Pumping Station - North										
North Head	Camellia Sewage Pumping Station - South										
North Head	Auburn Sewage Network										
North Head	Northmead Sewage Pumping Station										
North Head	Northmead Sewage Network										
North Head	Tunks Park Sewage Network										
North Head	Vineyard Creek Sewage Network										
North Head	Boronia Park Sewage Network										
North Head	West Lindfield Sewage Network										
North Head	Lane Cove West Sewage Network										
North Head	Allambie Heights Sewage Network										
North Head	Buffalo Creek Reserve Network										
Glenfield	Minto Sewage Network										
Liverpool	Ireland Park Sewage Network										
Quakers Hill	Eastern Creek Sewage Network										
St Mary's	Ropes Creek Sewage Network										

Regional Sites		9-Jan	16-Jan	23-Jan	30-Jan	6-Feb	13-Feb	20-Feb	27-Feb	6-Mar	13-Mar
Pop.	Location	1	2	3	4	5	6	7	8	9	10
14,700	Bowral										
14,000	Mittagong										
9,000	Moss Vale										
1,000	Berrima										
2,000	Bundanoon										
900	Robertson										
16,068	Bombo										
7,200	Gerringong/Gerroa										
32,000	Ulladulla										
18,000	Bomaderry										
37,500	Nowra										
16,000	St Georges Basin										
11,000	Cullburra Beach										
139,500	Gosford-Kincumber										
59,060	Charmhaven										
29,300	Wyong-Toukley										
38,900	Bateau Bay										
41,300	Woy Woy										
5,000	Perisher										
8,400	Thredbo										
3,000	Jindabyne										
8,000	Cooma										
500	Gunning										
500	Charlottes Pass										
51,750	Albury composite		C	C	C	C	C	C	C	C	
	Albury Kremer St										
	Albury Waterview										
22,419	Goulburn										
21,000	Batemans Bay										
18,000	Moruya										
17,000	Narooma										
8,000	Eden										
15,500	Merimbula										
5,000	Bermagui										
7,800	Deniliquin										
48,000	Queanbeyan										
50,000	Wagga Wagga composite	C			C	C	C	C	C	C	C
	Wagga Wagga- inlet 1										
	Wagga Wagga- inlet 2										
	Wagga Wagga -Kooringal STP										
2,050	Bourke										
	Nyngan										

Regional Sites (con't)		9-Jan	16-Jan	23-Jan	30-Jan	6-Feb	13-Feb	20-Feb	27-Feb	6-Mar	13-Mar
Pop.	Location	1	2	3	4	5	6	7	8	9	10
40,000	Orange										
12,000	Mudgee										
36,603	Bathurst										
19,000	Broken Hill										
500	Dareton										
11,600	Parkes										
37,000	Dubbo										
24,000	Armidale										
45,000	Tamworth										
	Narrabri										
	Tenterfield										
	Urbenville										
10,000	Moree										
26,394	Taree										
12,000	Forster										
7,582	Hallidays Point										
5,180	Harrington										
10,715	Hawks Nest										
225,834	Hunter - Burwood Beach										
60,000	Hunter - Shortland										
115,000	Hunter - Belmont										
60,000	Hunter - Morpeth										
58,300	Hunter - Boulder Bay										
35,000	Hunter - Raymond Terrace										
32,000	Hunter - Dora Creek										
42,000	Hunter - Toronto										
70,000	Hunter - Edgeworth										
2,500	Hunter - Karuah										
32500	Lismore composite						C		C	C	C
17,000	East Lismore										
15,500	South Lismore										
18,958	Byron Bay - Ocean Shores										
	Byron Bay										
31,104	Ballina										
16,000	Tweed - Murwillumbah										
75,000	Tweed - Banora Point										
25,000	Tweed - Kingscliff										
18,000	Tweed - Hastings Point										
18,550	Grafton composite						C	C	C	C	C
12,250	North Grafton										
6,300	South Grafton										

Regional Sites (con't)		9-Jan	16-Jan	23-Jan	30-Jan	6-Feb	13-Feb	20-Feb	27-Feb	6-Mar	13-Mar
Pop.	Location	1	2	3	4	5	6	7	8	9	10
6,500	Yamba										
8,730	Nambucca Heads										
54,370	Port Macquarie										
7,010	Bonny Hills										
8,540	Dunbogan										
12,105	South West Rocks										
4,052	Crescent Head										
12,000	Urunga										
50,000	Coffs Harbour										

Sampling commenced week ending 18 July 2020

- not sampled or analysed
- SARS-CoV-2 not detected
- SARS-CoV-2 detected
- site moved to composite or ceased

c composite of the separate influent samples

n result from network sites

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.
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.

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.