

# COVID-19 WEEKLY SURVEILLANCE IN NSW

## EPIDEMIOLOGICAL WEEK 15, ENDING 17 APRIL 2021

Published 22 April 2021

### Overview

#### Number and proportion of COVID-19 cases by likely source of infection to week ending 17 April 2021

	Jan–Jun 2020	Jul–Dec 2020	Jan–17 April 2021
Overseas acquired	1,893 (59%)	714 (46%)	397 (89%)
Interstate acquired	67 (2%)	23 (2%)	0 (0%)
Locally acquired	1,237 (39%)	808 (52%)	48 (11%)
<b>Total</b>	<b>3,197</b>	<b>1,545</b>	<b>445</b>
Deaths	52	4	0

### Summary for the week ending 17 April 2021

- There were three locally acquired cases reported in the week ending 17 April 2021. The cases are a family of returned travellers, who acquired their infection while in hotel quarantine.
- The number of cases reported in overseas returned travellers increased this week (up 15%) compared to the previous week.
- In the four-week period ending 17 April 2021, 41% (45/109) of overseas acquired cases have been identified as having COVID-19 variants of concern (B.1.1.7, B.1.351 and P1). Of the 584 returned travellers diagnosed with COVID-19 since 29 November 2020, 132 (23%) have been diagnosed with a VoC.
- In the four weeks ending 17 April 2021, one (3%) overseas acquired COVID-19 cases self-reported being fully vaccinated prior to arrival in Australia, although may not have been fully vaccinated prior to their transmission event.
- Testing rates remained stable across all local health districts compared to the previous week.
- The NSW Sewage Surveillance Program reported four detections – taken from the Bondi and Malabar treatment plants, and the sewage networks at Paddington (within the Bondi catchment) and Botany (within the Malabar catchment). All detections were associated with known cases in returned travellers.
- The percentage of ED pneumonia presentations that were tested for COVID-19 has slowly declined since January 2021, with just under 75% of all pneumonia presentations tested in the week ending 20 March 2021.

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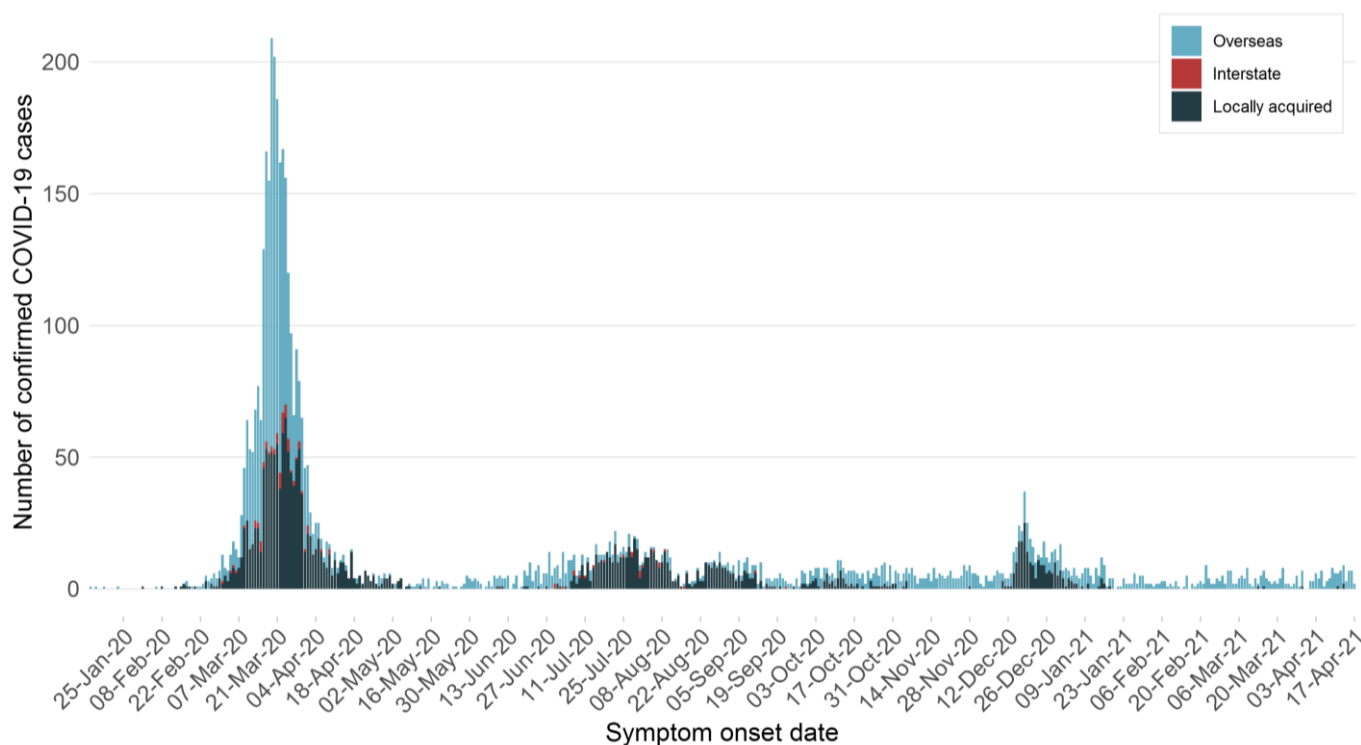
## Section 1: How is the outbreak tracking in NSW?

The epidemiology of COVID-19 in NSW continued to evolve since the first three cases were reported in NSW on 25 January 2020 in people who acquired their infection in China. The first locally acquired COVID-19 case in NSW was reported on 2 March 2020 and by mid-March case numbers had increased rapidly in overseas returned travellers and their contacts and within localised community outbreaks. In NSW, the number of reported daily cases peaked on 27 March 2020 at 213 cases. Public health action and the introduction of a range of stringent control measures, including the closure of international borders, 14-day mandatory quarantine for returned travellers and restrictions of movement within NSW lead to a decline in cases. Community transmission was interrupted by the end of May 2020.

In early July seeding of SARS-CoV-2 into South Western Sydney from an outbreak in Melbourne lead to a second wave of infection. Following intensive public health action community transmission was again interrupted by the end of November 2020. In December 2020 two new introductions of SARS-CoV-2 caused outbreaks in Sydney's Northern Beaches and Berala in Sydney's West. Community transmission was again interrupted by the end of January 2021.

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, from 25 January 2020 to 17 April 2021



**Interpretation:** Between 25 January 2020 and 17 April 2021, there were 5,187 confirmed COVID-19 cases. Of those, 3,004 (58%) were overseas acquired, 90 (2%) were interstate acquired, and 2,093 (40%) were locally acquired.

## COVID-19 cases reported in 2021

Figure 2. COVID-19 cases by likely infection source and reporting date, NSW, from 1 January 2021 to 17 April 2021

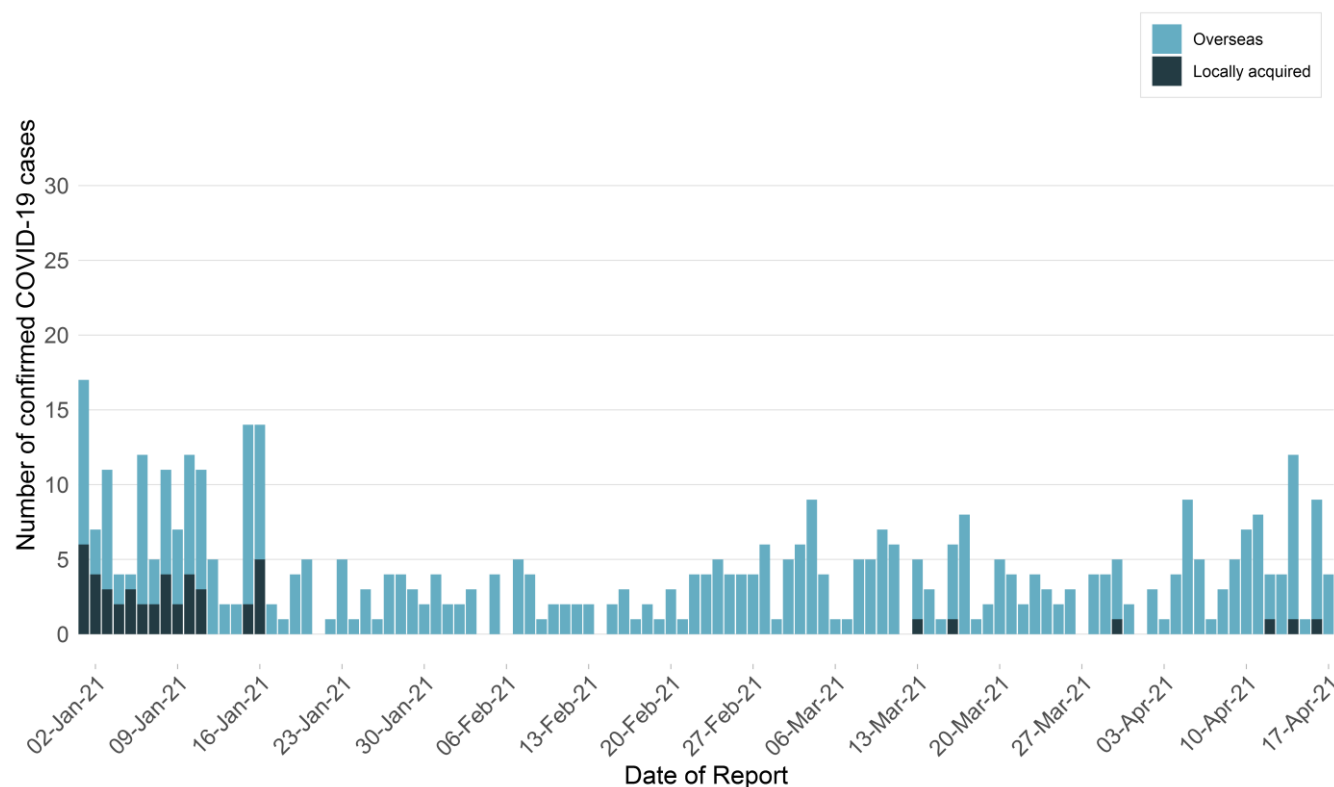


Table 1. COVID-19 cases and tests reported, NSW, from 1 January 2021 to 17 April 2021

	Week ending 17 Apr	Week ending 10 Apr	% change	Total 2021
Number of cases	42	34	↑ 24%	445
Overseas acquired	39	34	↑ 15%	397
Interstate acquired	0	0	-	0
Locally acquired	3	0	-	48
No epidemiological links to other cases or clusters	0	0	-	6
Number of deaths	0	0	-	0
Number of tests	62,809	58,866	↑ 7%	1,377,138

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

**Interpretation:** Of the 48 locally acquired COVID-19 cases reported between 1 January and 17 April 2021:

- 11 were associated with the Avalon cluster
- 31 were associated with the Berala cluster
- two were associated with the Sydney hotel quarantine cluster in mid-March
- one case acquired their infection from an infectious Queensland resident who was visiting Byron Bay, detected as part of extensive contact tracing in late March
- three cases, in one family, acquired their infection while in hotel quarantine in mid-April.

The majority of cases reported in the last four weeks in NSW were overseas acquired (109/113, 96%).

## 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 five internationally recognised VoCs, B.1.1.7, B.1.351, B.1.427, B.1.429 and P.1, that were first identified in the United Kingdom, South Africa, United States of America (B.1.427 and B.1.429) and Brazil, respectively. All five VoCs have since spread beyond their initial country of origin with B.1.1.7 the most widely distributed worldwide. NSW Health Pathology has identified three of the VoCs, B.1.1.7, B.1.351 and P.1, in NSW.

Since 29 November 2020 there have been:

- 132 returned travellers diagnosed with a VoC. More than a quarter of these cases likely acquired their infection in Lebanon (28). The remaining cases likely acquired their infection in India (19), the United Kingdom (15), USA (12), Bangladesh (11), Pakistan (8), South Africa (8), the United Arab Emirates (6), Germany (4), Canada (3), France (2), Iraq (2) and one case each in Finland, Jordan, Malaysia, Netherlands, Nigeria, Poland, Spain and Zambia. There are six cases where the likely country of acquisition was unable to be determined.
- Six locally acquired COVID-19 cases infected with the B.1.1.7 variant of concern.

**Table 2a. Overseas acquired COVID-19 cases by VoC and week reported, NSW, 29 November 2020 to 17 April 2021**

	Week ending				29 Nov to 20 Mar	Total since 29 November
	17 Apr	10 Apr	03 Apr	27 Mar		
<b>Total overseas acquired cases</b>	39	34	18	18	475	584
Overseas cases with VoC	15	15	10	5	87	132
B.1.1.7	9	12	5	5	76	107
B.1.351	6	2	4	0	9	21
P.1	0	1	1	0	2	4
% overseas acquired cases with VoC	38%	44%	56%	28%	18%	23%

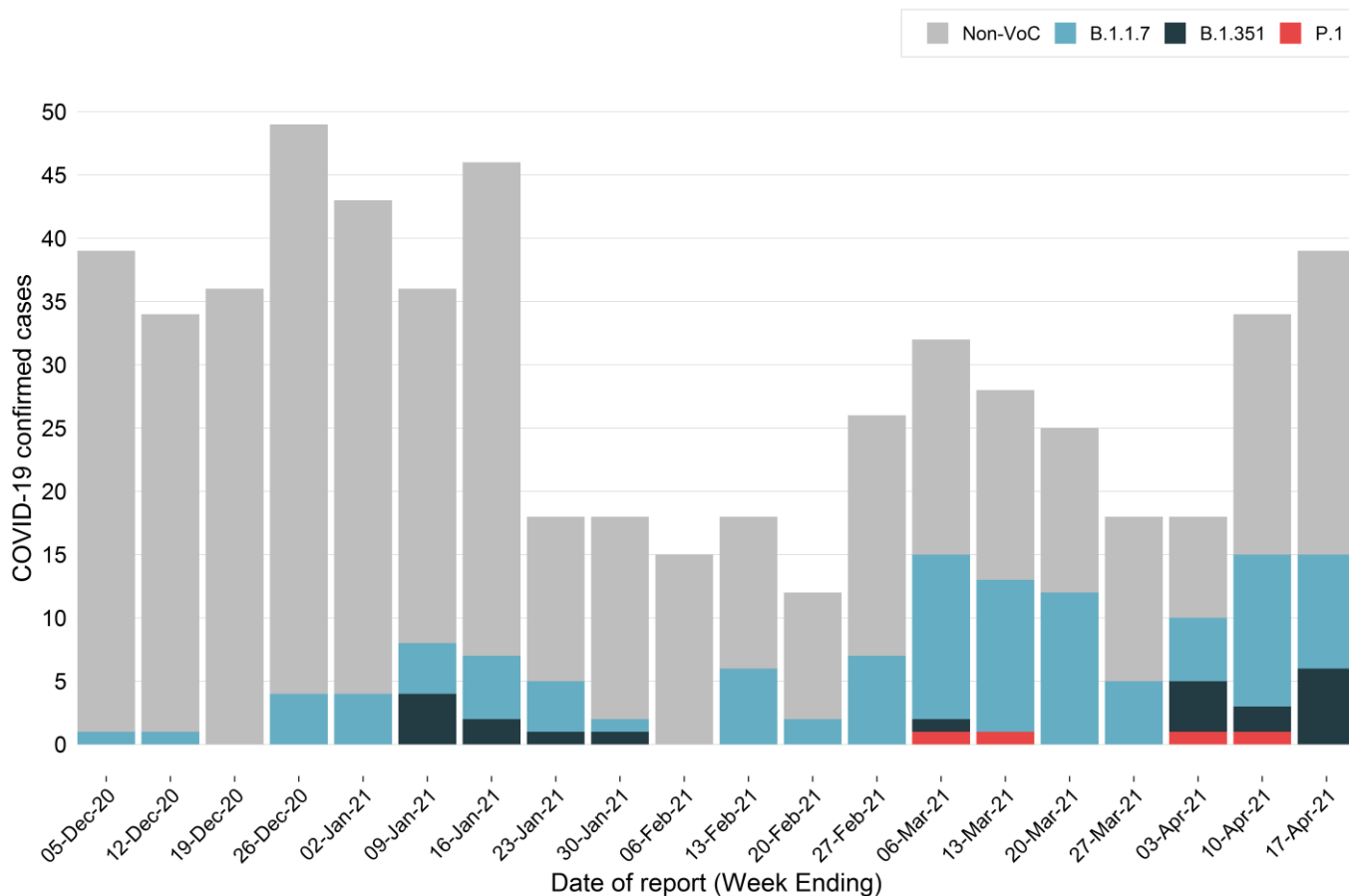
**Interpretation:** In the week ending 17 April, 15 returned travellers were reported as having a COVID-19 VoC, which is 38% (15/39) of all cases reported this week.

**Table 2b. Locally acquired COVID-19 cases by VoC and week reported, NSW, 29 November 2020 to 17 April 2021**

	Week ending				29 Nov to 20 Mar	Total since 29 November
	17 Apr	10 Apr	03 Apr	27 Mar		
<b>Total locally acquired cases</b>	3	0	1	0	220	224
Local cases with VoC	3	0	1	0	2	6
B.1.1.7	3	0	1	0	2	6
% local cases with VoC	100%	0	100%	0	1%	2%

**Interpretation:** All locally acquired cases diagnosed with COVID-19 in the last four weeks were reported as having a COVID-19 VoC.

Figure 3. Confirmed overseas acquired COVID-19 cases by VoC type, NSW, 29 November to 17 April 2021



**Interpretation:** Since 29 November 2020 there have been 132 returned travellers diagnosed with a COVID-19 VoC. In the last four weeks 41% (45/109) of overseas acquired cases have been identified as having COVID-19 variants of concern (B.1.1.7, B.1.351 and P1).

## 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 3. Locally acquired COVID-19 cases by LHD of residence and week reported, NSW, 21 March to 17 April 2021**

Local Health District	Week ending				Total	Days since last case reported
	17 Apr	10 Apr	3 Apr	27 Mar		
Central Coast	0	0	0	0	0	109
Illawarra Shoalhaven	0	0	0	0	0	105
Nepean Blue Mountains	0	0	0	0	0	214
Northern Sydney	0	0	0	0	0	96
South Eastern Sydney	0	0	0	0	0	35
South Western Sydney	0	0	0	0	0	99
Sydney	0	0	0	0	0	96
Western Sydney	0	0	0	0	0	91
Far West	0	0	0	0	0	380
Hunter New England	3	0	0	0	3	1
Mid North Coast	0	0	0	0	0	361
Murrumbidgee	0	0	0	0	0	222
Northern NSW	0	0	1	0	1	18
Southern NSW	0	0	0	0	0	180
Western NSW	0	0	0	0	0	261
<b>NSW*</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>

\*Includes people with a usual place of residence outside of NSW

**Interpretation:** In the week ending 17 April, there were three locally acquired cases in a family of returned travellers in hotel quarantine (with a usual residence in the Hunter New England local health district). It is believed that they acquired their infection while in hotel quarantine from a family of cases staying in an adjoining room on level 12 at the Adina Apartments Hotel, Town Hall. Epidemiological investigation is supported by whole genome sequencing results, which show the virus genome sequence found in both families is identical and is the VoC B.1.1.7.

## 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 clusters.

### Previously reported active clusters with no new cases identified this week

#### Hotel quarantine cluster

On 14 March 2021 a security guard who worked at a quarantine hotel in Sydney CBD was diagnosed with COVID-19 following detection of a non-negative saliva sample done as part of routine quarantine worker surveillance. The result was subsequently confirmed by a nose and throat swab. Whole genome sequencing of the guard's virus sample indicated a match to an infection in a previously reported returned traveller (the source case) who returned from Lebanon on 5 March, who was on the same floor of the hotel where the case worked. The returned traveller and security guard both had the B.1.1.7 lineage.

On 16 March 2021 an additional case in a returned traveller was notified. This case was quarantining on the same floor of the quarantine hotel as the source case, in a room that was 20 metres away. This case reported no symptoms and was identified as part of the investigation into the transmission to the security guard. It was subsequently determined that the case had an identical viral sequence to the security guard and the source case. Following an extensive investigation and public health action to contain further transmission, no further cases were identified.



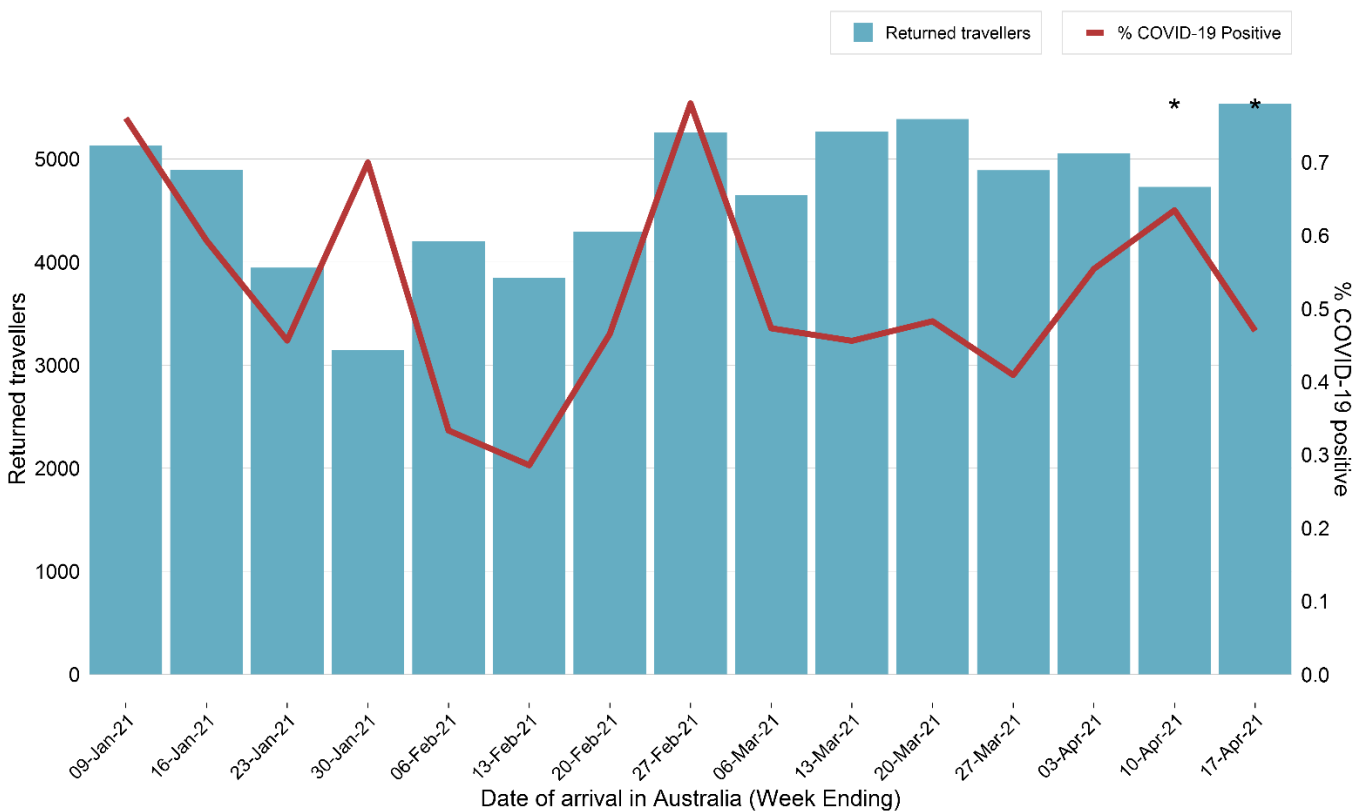
## Section 5: COVID-19 in returned travellers

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 2021. Returned travellers include international flight crew who are required to be tested before leaving the airport.

**Figure 4. Returned travellers screened at Sydney International Airport by week of arrival and percent COVID-19 positive, NSW, 3 January 2021 to 17 April 2021**



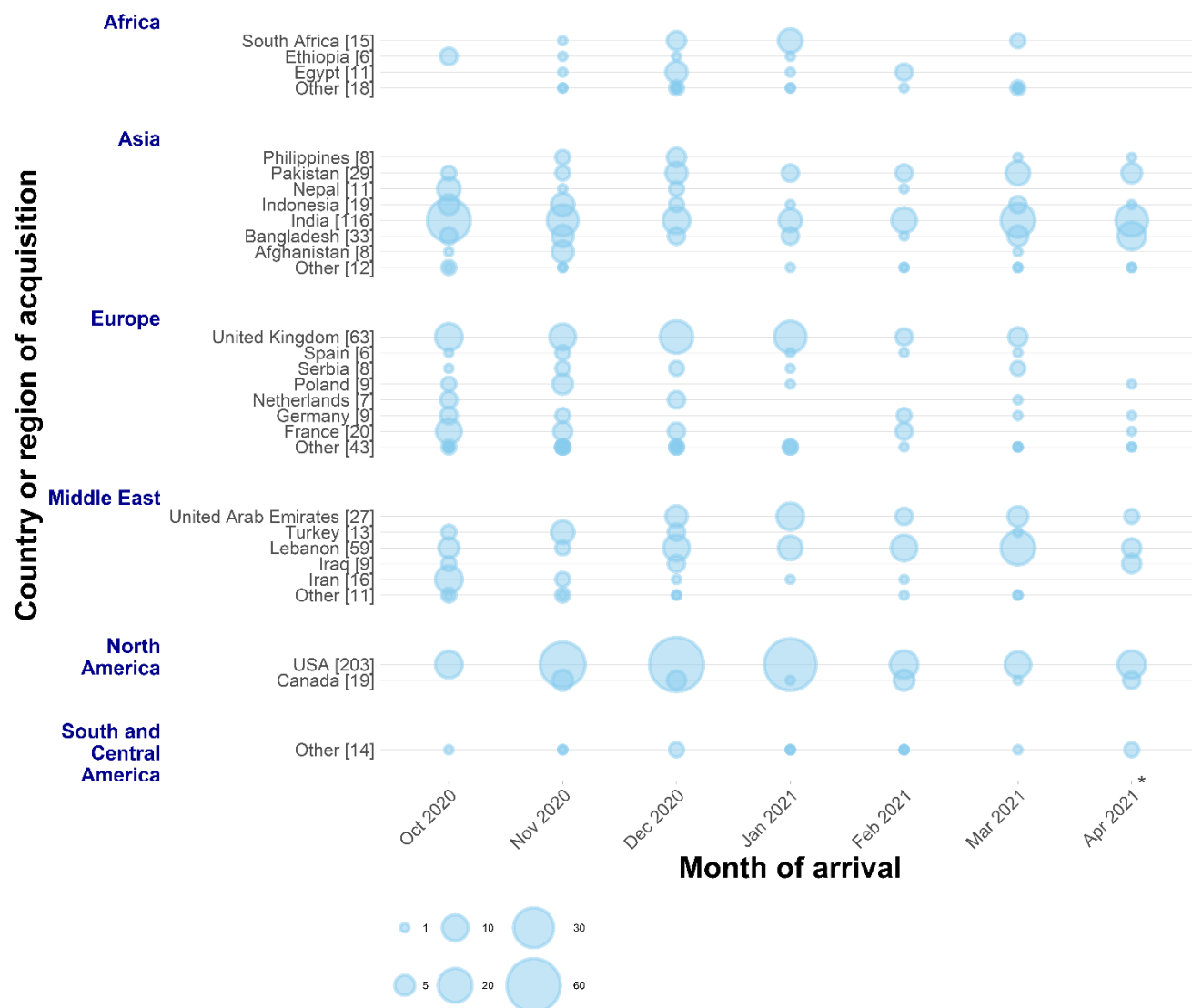
\*Returned travellers entering Australia in the past 14 days are still in quarantine and may return a positive result prior to the end of their hotel quarantine period.

**Interpretation:** Since 3 January 2021, there has been on average 670 people screened on arrival through Sydney International Airport daily. In the last four weeks, 109 returned travellers have subsequently tested positive for COVID-19 while completing quarantine. The proportion of returned travellers who test positive for COVID-19 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 5. Overseas acquired COVID-19 cases by country of acquisition and arrival month, NSW, 1 October 2020 to 17 April 2021



\*The number of overseas acquired COVID-19 cases is incomplete for the current month

**Interpretation:** In March and April 2021, there has been an increase in detections of COVID-19 in travellers from India, Bangladesh, Pakistan and Lebanon. 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, there have been 109 COVID-positive travellers in NSW. The table below lists of countries of acquisition for these travellers.

**Table 4. Top countries of acquisition for overseas acquired cases that have tested positive in the last four weeks, 21 March to 17 April 2021**

Country of acquisition of COVID-19	Number (%) of cases in the last four weeks
India	23 (21%)
Bangladesh	16 (15%)
United States of America	15 (14%)
Pakistan	10 (9%)
Lebanon	6 (6%)
United Arab Emirates	5 (5%)
Canada	4 (4%)
Iraq	4 (4%)
Peru	2 (2%)
Other	24 (22%)
<b>Total</b>	<b>109</b>

**Interpretation:** In the last four weeks, travellers returning from India accounted for the largest number of overseas acquired cases (23, 21%), followed by travellers returning from Bangladesh (16, 15%), and the United States of America (15, 14%).

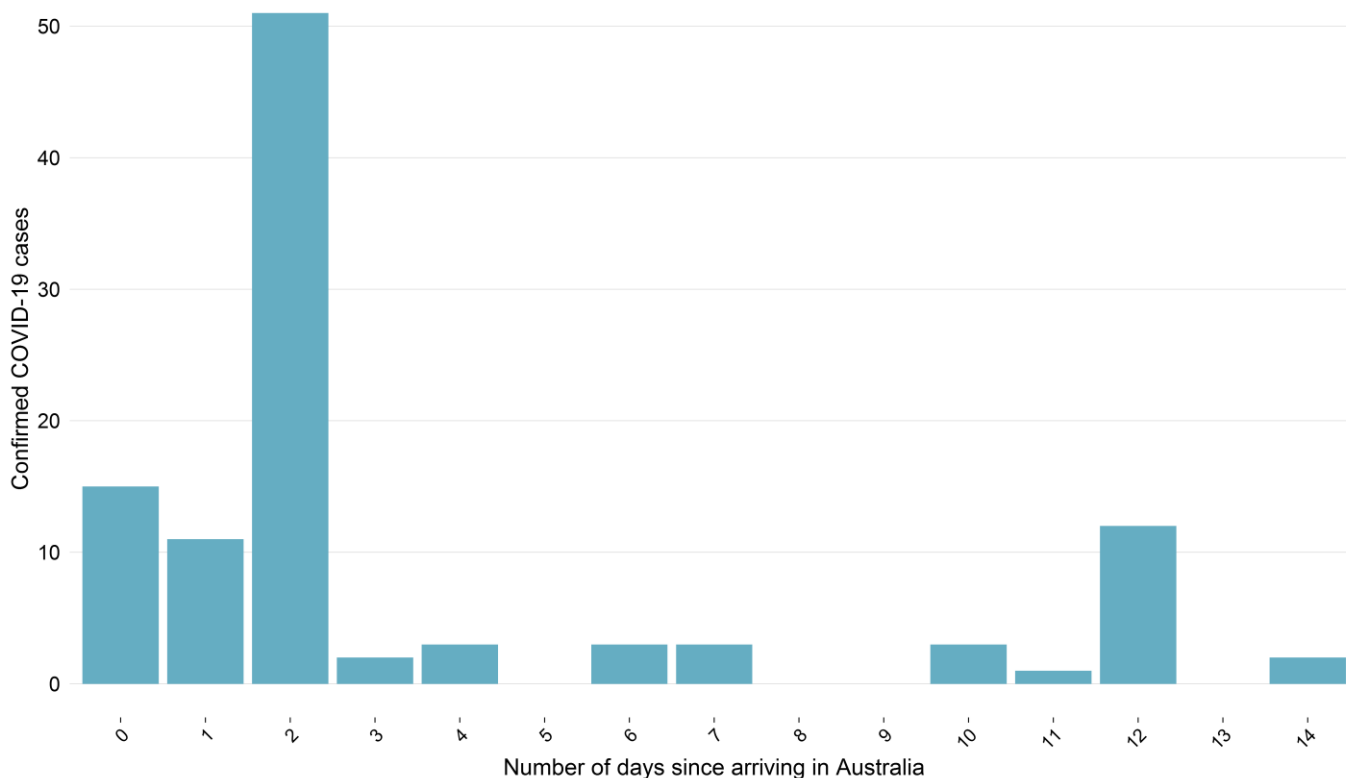
## Cases among returned travellers in quarantine

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 6. Number of returned travellers in the last four weeks who tested positive for SARS-CoV-2 during the 14-day quarantine period, by days since arrival in NSW, 21 March to 17 April 2021**



**Interpretation:** In the four weeks ending 17 April 2021, 71% 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 vaccination status

COVID-19 vaccinations began in Australia on 22 February 2021. The first people to receive the COVID-19 vaccines are priority groups who are at a higher risk of COVID-19 including quarantine and border workers, frontline healthcare workers, and aged and disability care residents and staff.

There are a range of vaccines, with variable efficacy, currently being administered worldwide. People receiving vaccines are considered fully vaccinated two weeks after they receive their second dose of a two-dose vaccine or two weeks after a single dose. Two-dose vaccines include both the vaccines being administered in Australia, Pfizer-BioNTech and AstraZeneca, and many from overseas such as Moderna and Sinovac. There is only one single dose vaccine currently being administered, the Johnson & Johnson vaccine in the USA.

The tables below show the number COVID-19 cases, by the number of self-reported COVID-19 vaccine doses received. The number of cases reported as fully vaccinated refers to vaccination being completed 14 days prior to known transmission or 14 days prior to arrival in Australia.

**Table 5a. Overseas acquired COVID-19 cases by number of self-reported COVID-19 vaccine doses received and week reported, NSW, 1 March to 17 April 2021**

Number of self-reported vaccination doses received	Week ending				1 Mar to 20 Mar	Total since 1 March 2021
	17 Apr	10 Apr	03 Apr	27 Mar		
<b>Total overseas acquired cases</b>	39	34	18	18	79	188
Two doses	1	2	0	0	0	3
One dose	3	0	0	2	2	7
None	32	30	18	16	73	169
Unknown	3	2	0	0	4	9
Number (%) cases fully vaccinated	1 (3%)	0	0	0	0	1 (0.5%)

**Interpretation:** In the four weeks ending 17 April 2021, 8 (7%) overseas acquired COVID-19 cases self-reported as having received at least one dose of a COVID-19 vaccine prior to diagnosis. One case was fully vaccinated prior to arrival in Australia, although may not have been fully vaccinated prior to their transmission event.

**Table 5b. Locally acquired COVID-19 cases by number of self-reported COVID-19 vaccine doses received and week reported, NSW, 1 March to 17 April 2021**

Number of self-reported vaccination doses received	Week ending				1 Mar to 20 Mar	Total since 1 March 2021
	17 Apr	10 Apr	03 Apr	27 Mar		
<b>Total locally acquired cases</b>	3	0	1	0	2	6
Two doses	0	0	0	0	0	0
One dose	1	0	0	0	1	2
None	2	0	1	0	1	4
Unknown	0	0	0	0	0	0
Number (%) cases fully vaccinated	0	0	0	0	0	0

**Interpretation:** In the four weeks ending 17 April 2021, one locally acquired COVID-19 case self-reported as having received at least one dose of a COVID-19 vaccine prior to diagnosis. No locally acquired cases since the 1 March 2021 reported being fully vaccinated.

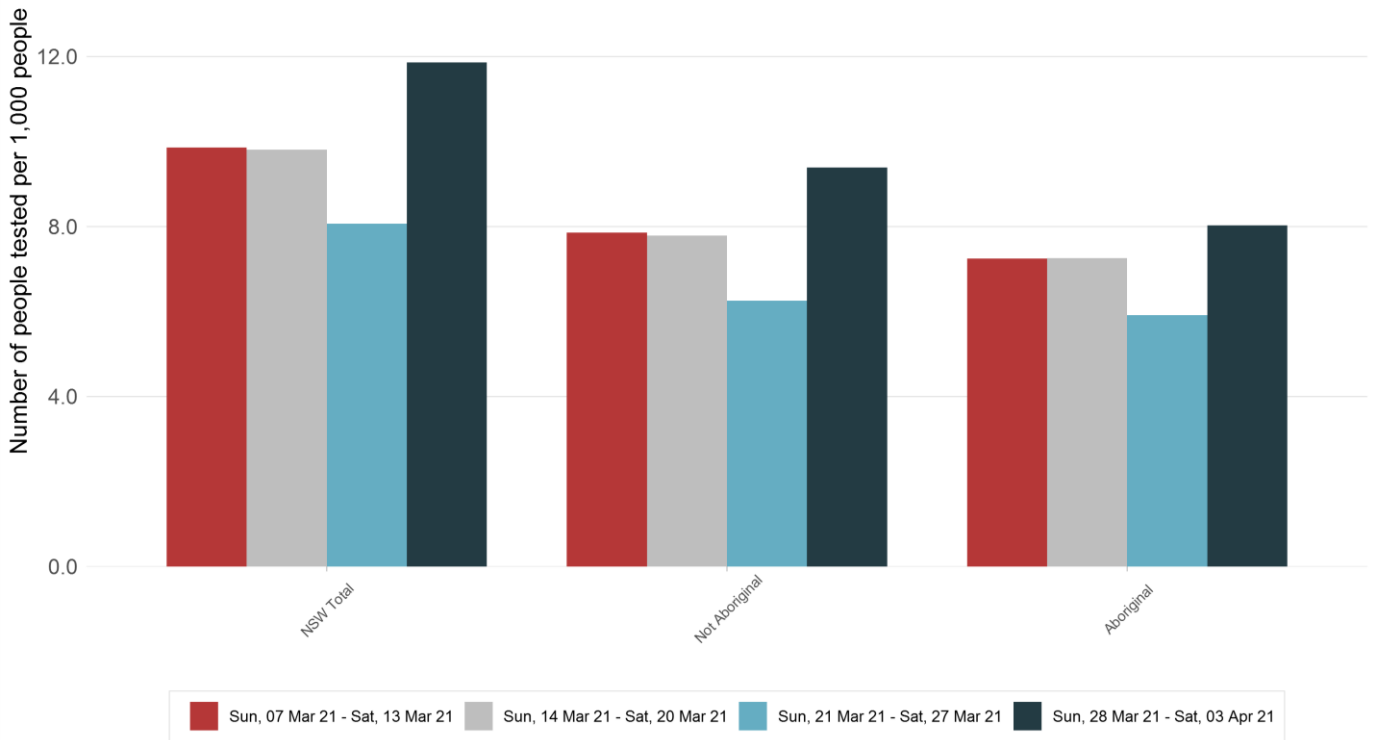
## Section 7: COVID-19 in specific populations

### Aboriginal people

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.

In total, 48 Aboriginal people have been diagnosed with COVID-19, representing 1% of all cases in NSW. Aboriginal status is collected by public health staff on interview with the case at the time of diagnosis, those who test negative are not interviewed. Aboriginal status for those tested can be ascertained through linkage with other health information systems but there is a delay in getting this information. Results of the most recent linkage are available for people tested up to 3 April 2021, with Aboriginal status ascertained for approximately 90% of all COVID-19 test records.

Figure 7. Testing rate per 1,000 by Aboriginality and week, NSW, 7 March to 3 April 2021



**Interpretation:** Testing rates increased in the week ending 3 April compared to the previous week for Aboriginal people but continued to remain slightly lower than the testing rates reported for non-Aboriginal people.

## 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.

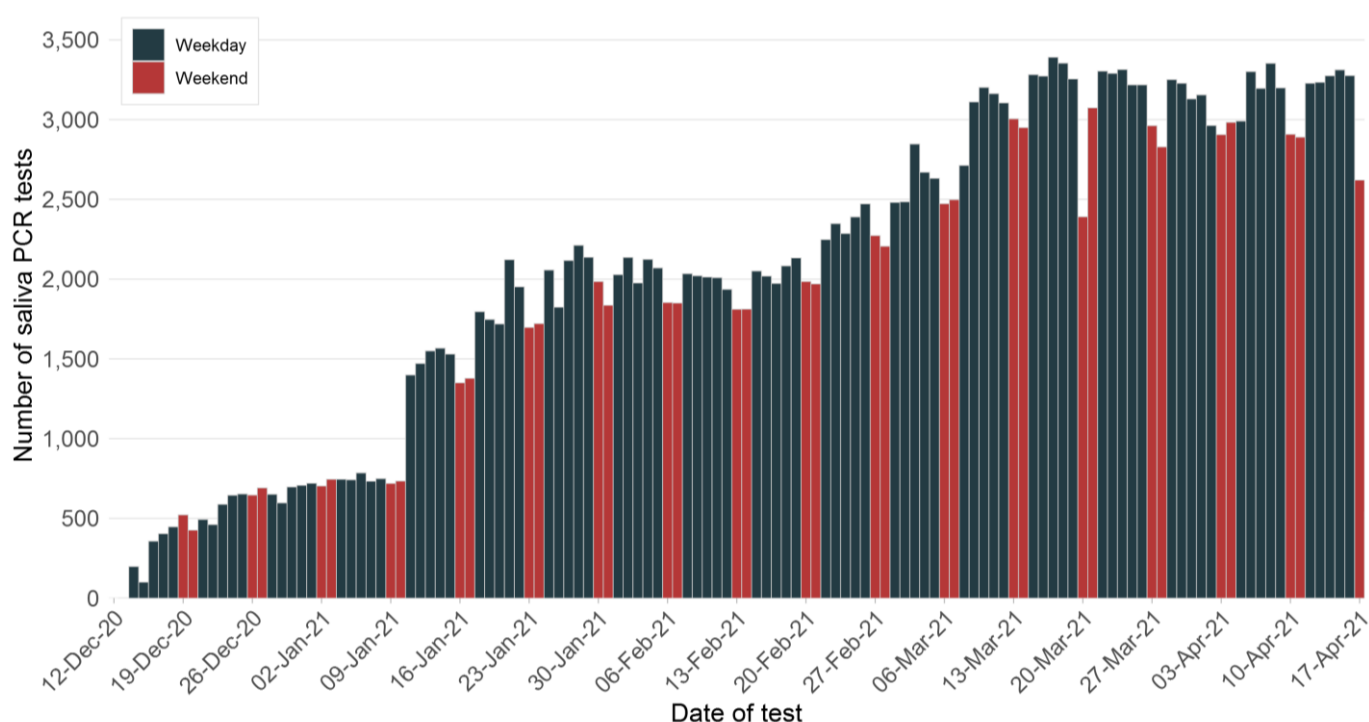
There were no locally acquired cases of COVID-19 reported in HCWs in the week ending 17 April.

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](#)).

## Border and quarantine workers – saliva testing 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 SARS-CoV-2 saliva PCR testing, which is painless and quick (see [NSW hotel quarantine worker surveillance and testing program](#)).

**Figure 8. Daily numbers of saliva PCR test results reported for border and quarantine workers, NSW, 12 December 2020 to 17 April 2021**



\* The number of saliva PCR tests on 17 April 2021 is incomplete due to delays in reporting negative results.

**Interpretation:** Since screening of quarantine workers began in December 2020, a total of 255,204 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. One confirmed case of COVID-19 has been reported through saliva PCR testing, reported on 13 March 2021.

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



## Section 8: 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 17 April.

**Table 6. Deaths as a result of COVID-19, by age group, NSW, from 25 January 2020 to 17 April 2021**

Age group (years)	Number of deaths	Number of cases	Case fatality rate
0–4	0	123	0%
5–11	0	126	0%
12–17	0	164	0%
18–29	0	1,176	0%
30–49	0	1,696	0%
50–59	1	697	0.1%
60–69	4	652	0.6%
70–79	15	389	3.9%
80+	36	164	22.0%
<b>Total</b>	<b>56</b>	<b>5,187</b>	<b>1.1%</b>

**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.

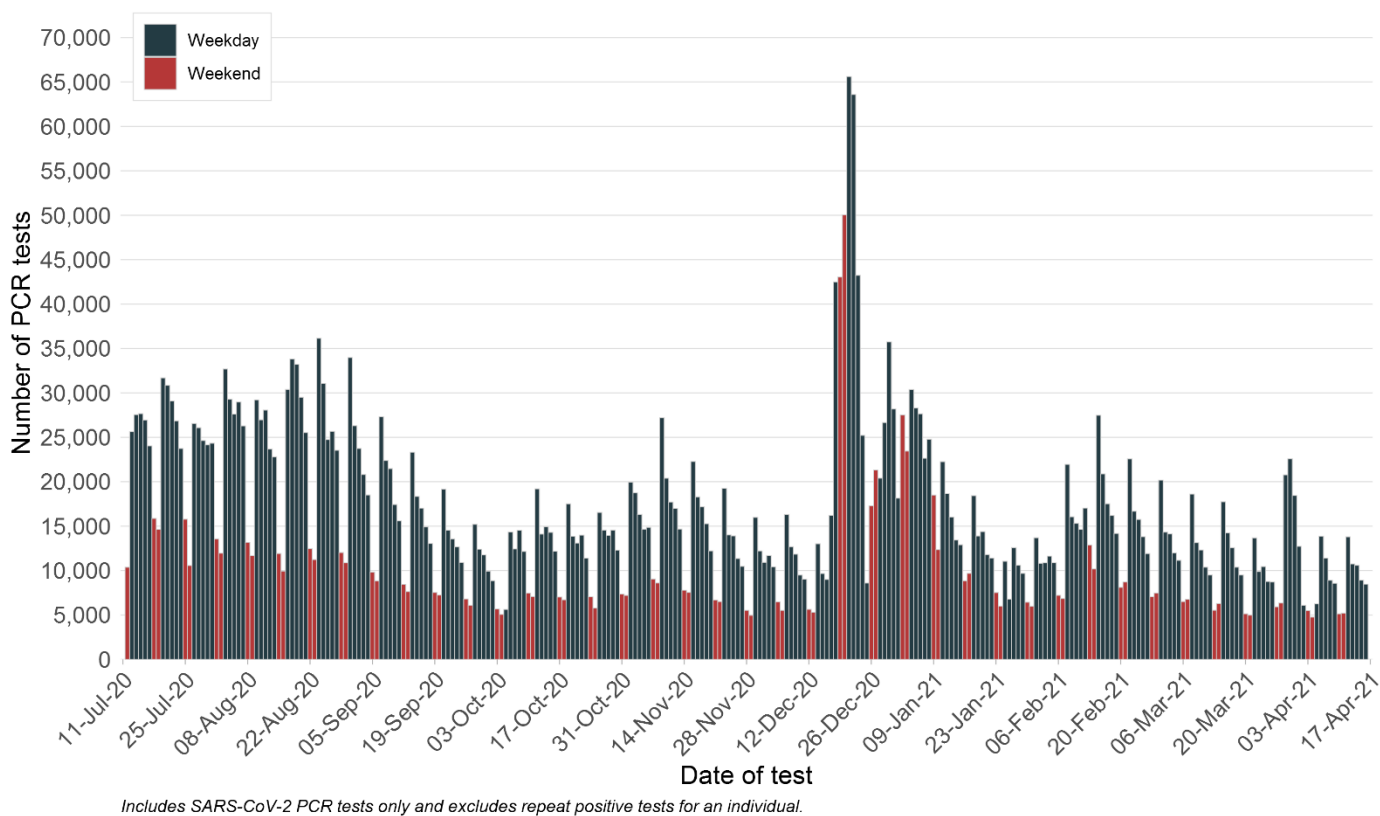
## Section 9: COVID-19 testing in NSW

### 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.<sup>1</sup> While public health facilities are generally open seven days a week, there may be less demand and availability for testing through GPs and private collection centres on weekends and public holidays. This likely explains lower testing numbers on weekends.

The PCR testing numbers reported are for tests performed on nose and throat swabs. Saliva PCR tests are not included, these are reported in the “Quarantine workers – Screening Program” section on page 11.

Figure 9. Number of PCR tests per day, NSW, 11 July 2020 to 17 April 2021

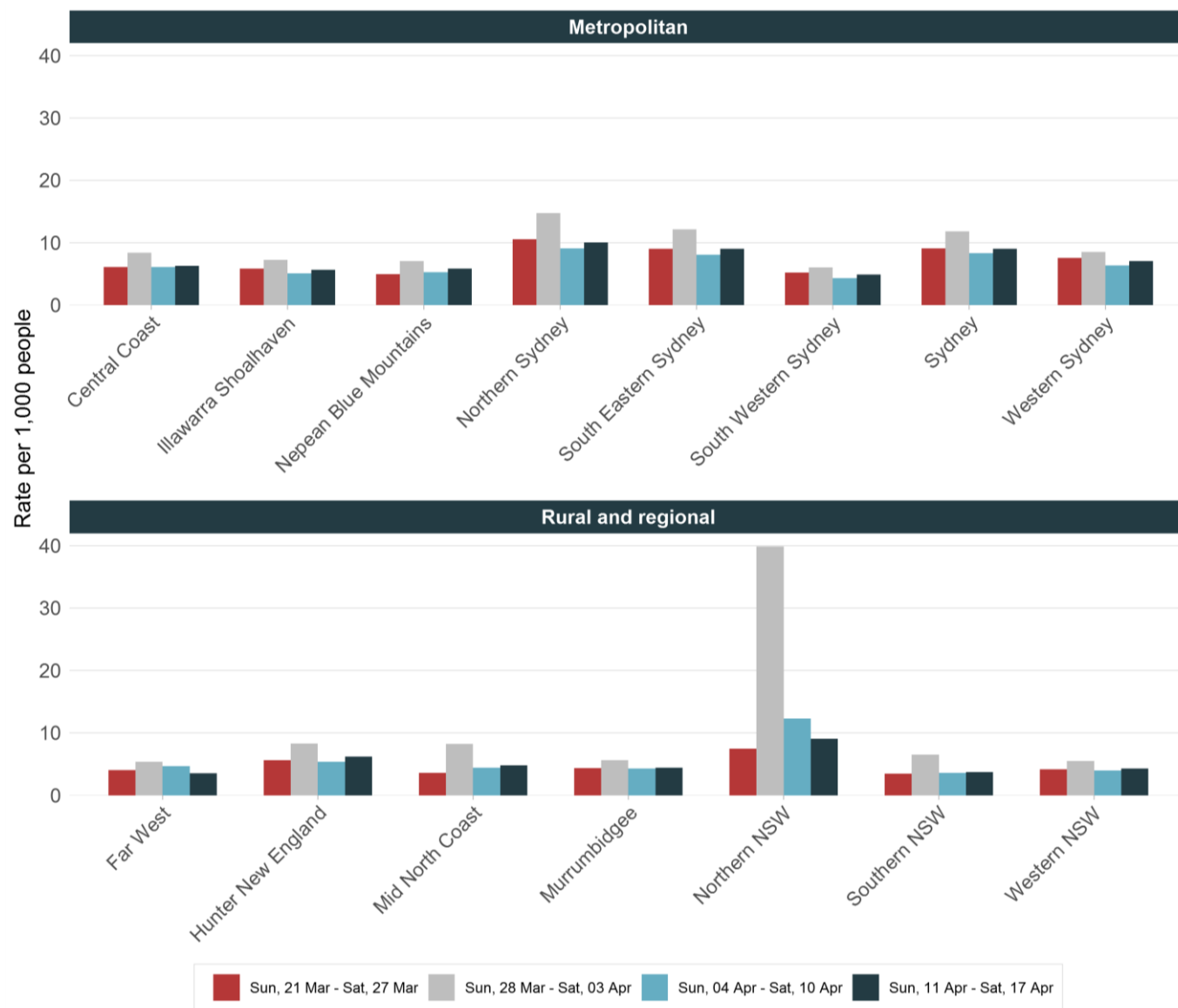


**Interpretation:** Testing numbers increased slightly in the week ending 17 April (up 7%) compared to the previous week. The average daily testing rate was 1.1 per 1,000 people in NSW compared to the previous week of 1.0 per 1,000 people.

<sup>1</sup> 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 10. Rates of COVID-19 testing by LHD of residence, NSW, 21 March to 17 April 2021

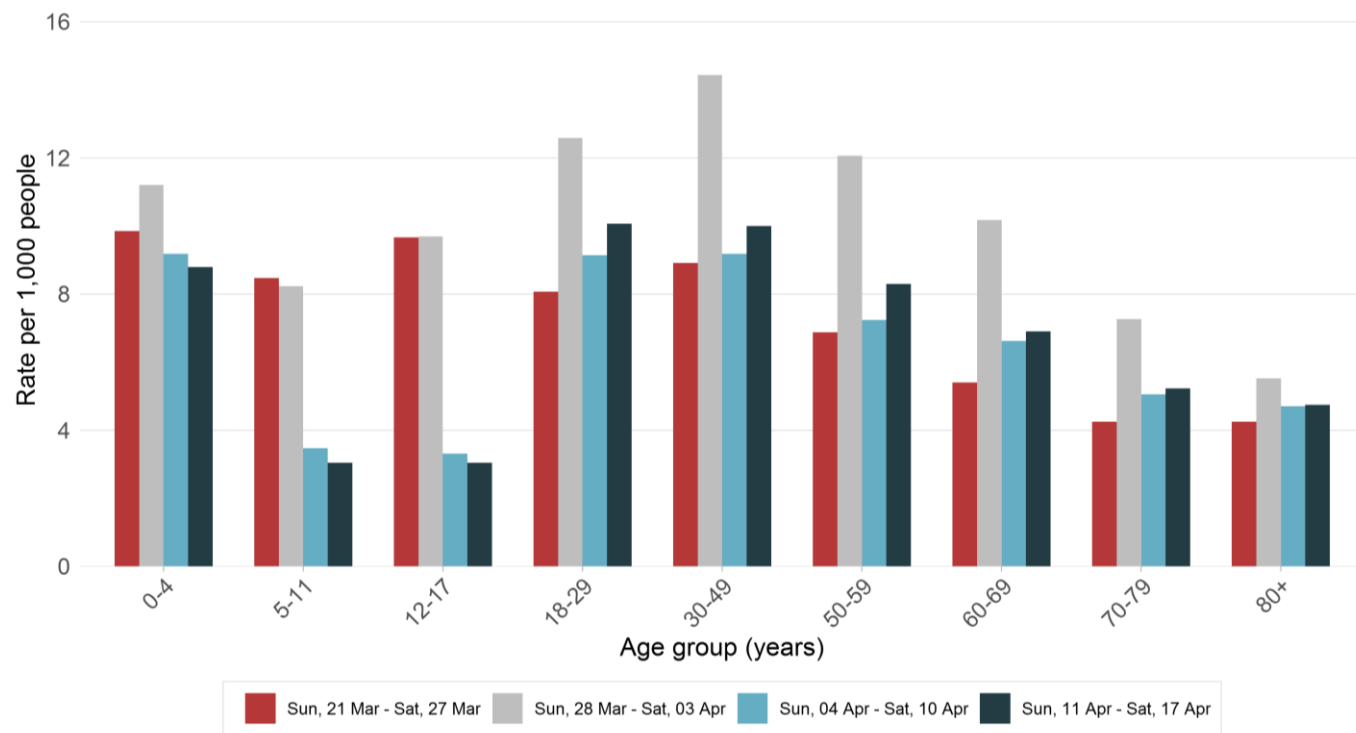


Includes SARS-CoV-2 PCR tests only and excludes notifications with missing postcode of residence.

**Interpretation:** State-wide testing rates in the week ending 17 April remained stable compared to the previous week (7.7 per 1,000 people compared to 7.3 per 1,000 people).

## Testing by age group

Figure 11. Rates of COVID-19 testing by age group and week, NSW, 21 March to 17 April 2021



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

**Interpretation:** In the week ending 17 April, testing rates remained stable for most age groups. Slight increase in testing rates was seen in people aged 18–59 years.

## Section 10: 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. In Sydney, testing is undertaken from both the sewage treatment plant (inlet sites) and sites within the network (network sites). 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. The results from all sites across NSW are available in Appendix D.

**Table 7. Locations with SARS-CoV-2 detections in sewage samples in the last 10 weeks, NSW, 24 January 2021 to 17 April 2021**

		13-Feb	20-Feb	27-Feb	6-Mar	13-Mar	20-Mar	27-Mar	3-Apr	10-Apr	17-Apr
Pop.	Location	6	7	8	9	10	11	12	13	14	15
<b>Sydney sewage treatment plant (inlet sites)</b>											
318,810	Bondi			n	n	n	n	n	n	n	n
1,857,740	Malabar 1			n	n	n	n	n	n	n	n
161,200	Glenfield										
1,341,986	North Head		n	n							
<b>Sydney network sites</b>											
Bondi	Paddington Sewage Network										
Malabar	Homebush SPS										
Malabar	Olympic Park										
Malabar	Botany Sewage Network										
North Head	Auburn Sewage Network										
<b>Regional sites</b>											
7,700	Lennox Head										

Sampling commenced week ending 18 July 2020

	not sampled or analysed
	SARS-CoV-2 not detected
	SARS-CoV-2 detected
SPS	Sewage Pumping Station
n	result from network sites

**Interpretation:** In the week ending 17 April, 155 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 networks 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 11: Other respiratory infections in NSW

### Influenza and other respiratory virus cases and tests reported in NSW, up to 11 April 2021

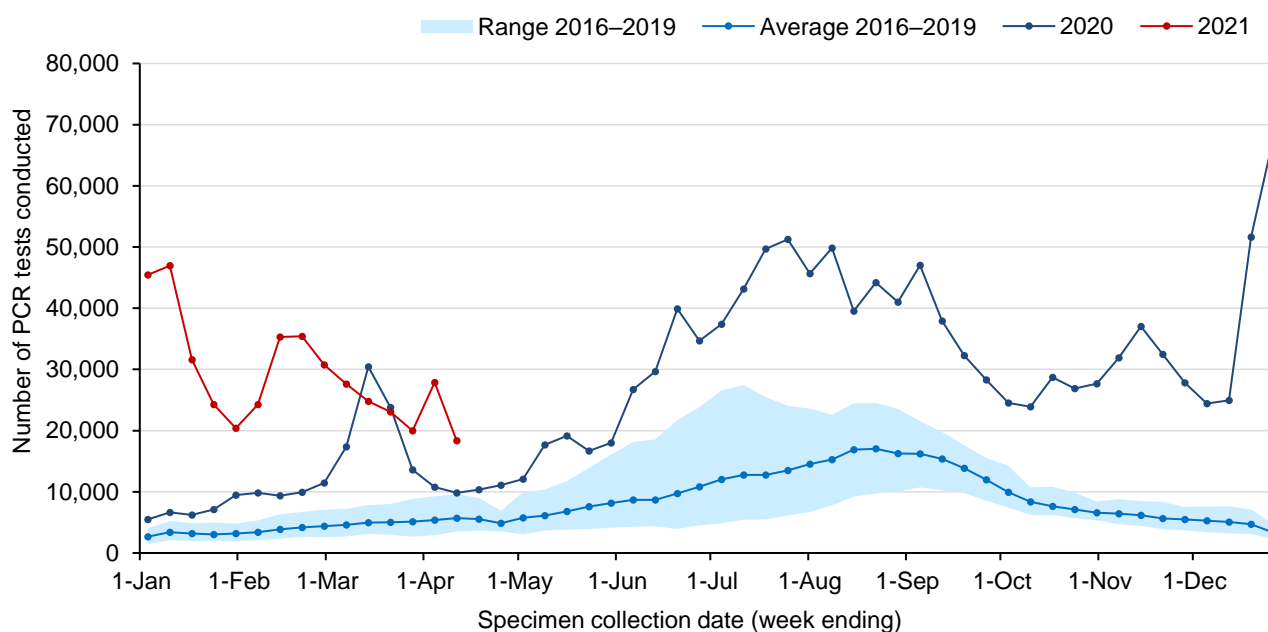
In NSW, routine surveillance for influenza and other respiratory viruses is conducted through sentinel laboratories. The number of all PCR tests (positive and negative) are provided to NSW Health by participating laboratories each week. Testing counts reflect the number of influenza PCR tests conducted;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

The most recent data available is for testing carried out to 11 April 2021. A total of 435,985 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, the dark blue line showing PCR tests for 2020. The light blue line shows the average number of PCR tests carried out for the same week in the previous four years (2016–2019) and the shaded area shows the range of tests reported in the same time period.

Figure 12. Testing for influenza by week, NSW, 1 January 2016 to 11 April 2021

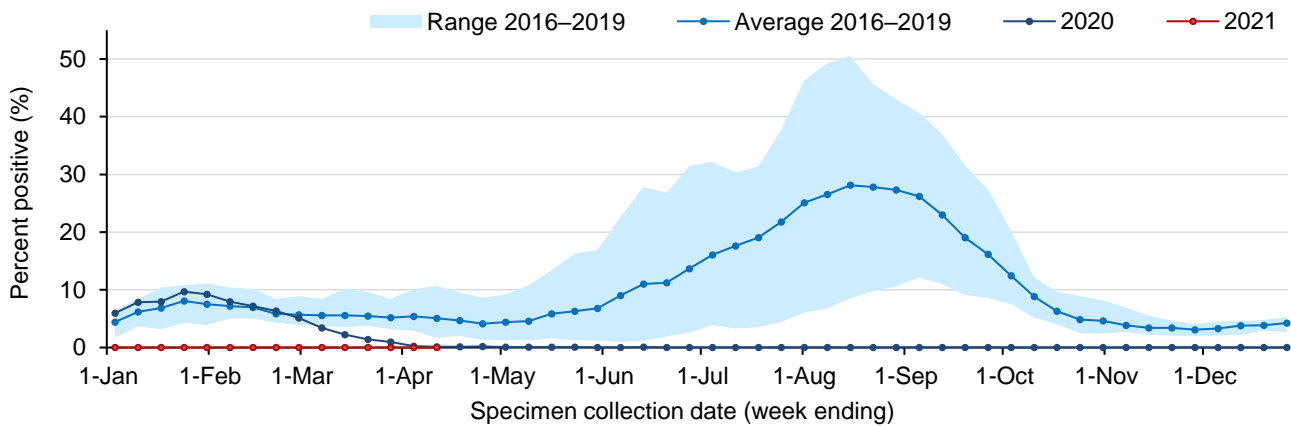


**Interpretation:** In the week ending 11 April, the number of influenza tests decreased with 18,342 influenza tests performed across participating laboratories compared with 27,871 the previous week. Testing for influenza continues to exceed the four-year average for this time of year.

### 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 dark blue line showing counts for 2020, the light blue line showing the average for 2016 to 2019 and the shaded area showing the range recorded for 2016 to 2019.

Figure 13. Proportion of tests positive for influenza, NSW, 1 January 2016 to 11 April 2021

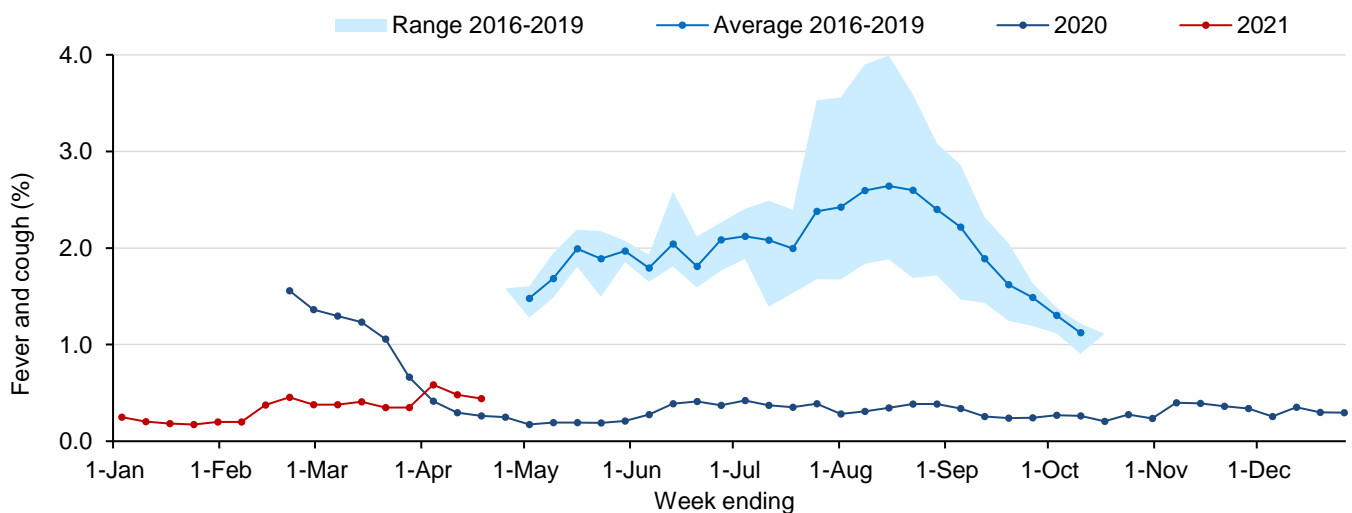


**Interpretation:** In the week ending 11 April, the percent of influenza tests that were positive continued to be very low (<0.01%), indicating limited influenza transmission in the community. Since early March 2020, this percentage has remained far lower than the usual range for the time of year.

### How 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 18 April 2021



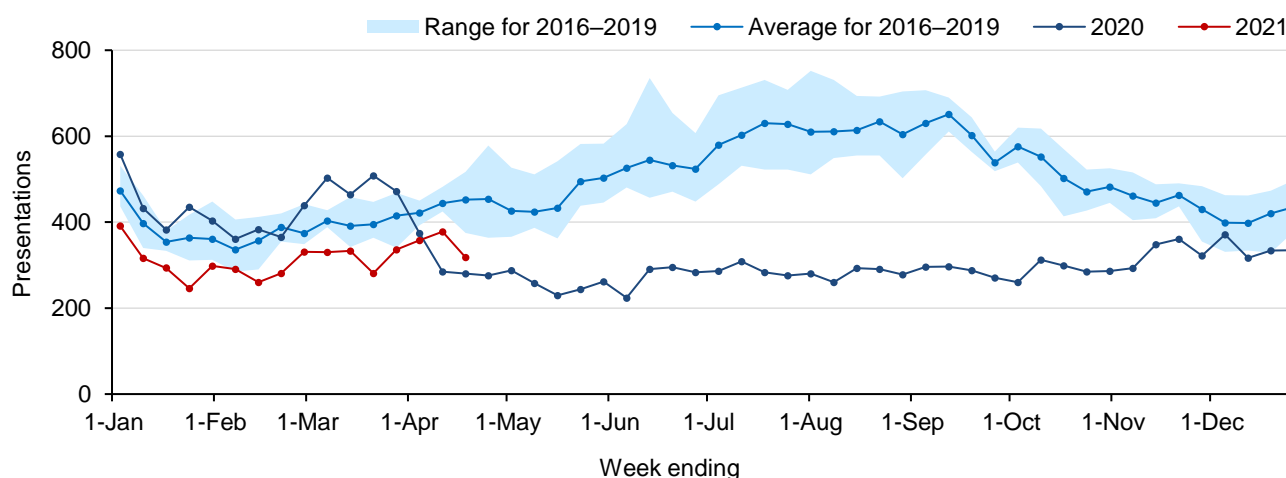
**Interpretation:** In NSW in the week ending 18 April of the 18,069 people surveyed, 80 people (0.44%) reported flu-like symptoms. In the last four weeks, 49% (181/373) of new cases of flu-like illness reported having a COVID-19 test. The proportion of people being tested for COVID-19 has been steadily decreasing since January when 80% of people surveyed with flu-like symptoms were being tested.

## How are emergency department presentations tracking?

Improved hygiene and social distancing measures implemented during the COVID-19 pandemic have impacts on a broad range of other viral and bacterial infections.

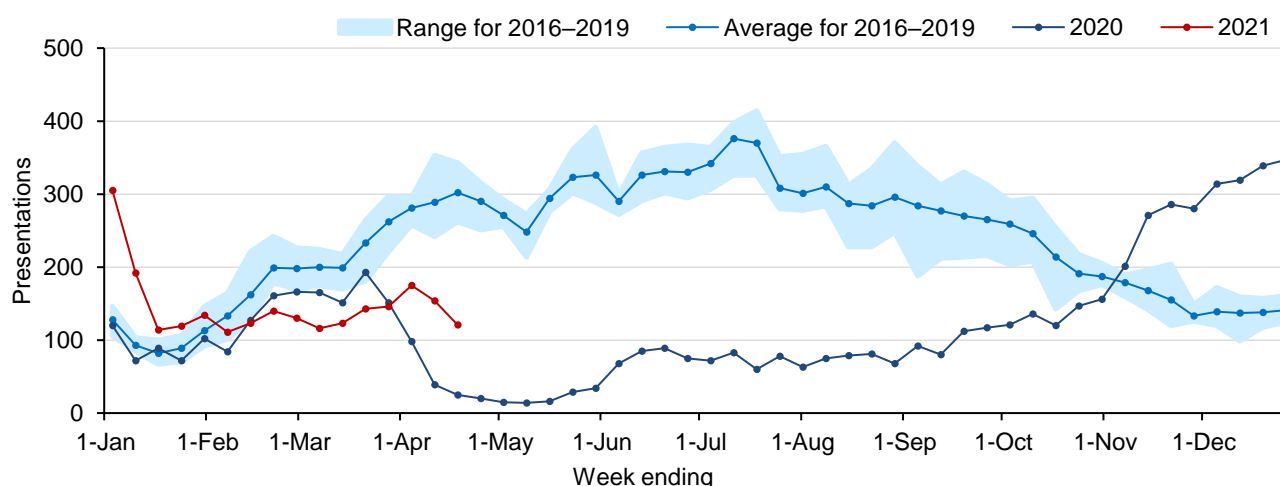
The figures below show weekly pneumonia, bronchiolitis and gastrointestinal presentations to Emergency Departments in NSW, using PHREDSS<sup>2</sup>. The red line shows the weekly counts for 2021, the dark blue line showing counts for 2020, the light blue line showing the average for 2016 to 2019 and the shaded area showing the range recorded for 2016 to 2019.

Figure 15. Emergency Department pneumonia presentations, NSW, 1 January 2016 to 18 April 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 18 April, pneumonia presentations decreased and remain below the seasonal range for this time of year.

Figure 16. Emergency Department bronchiolitis presentations, NSW, 1 January 2016 to 18 April 2021

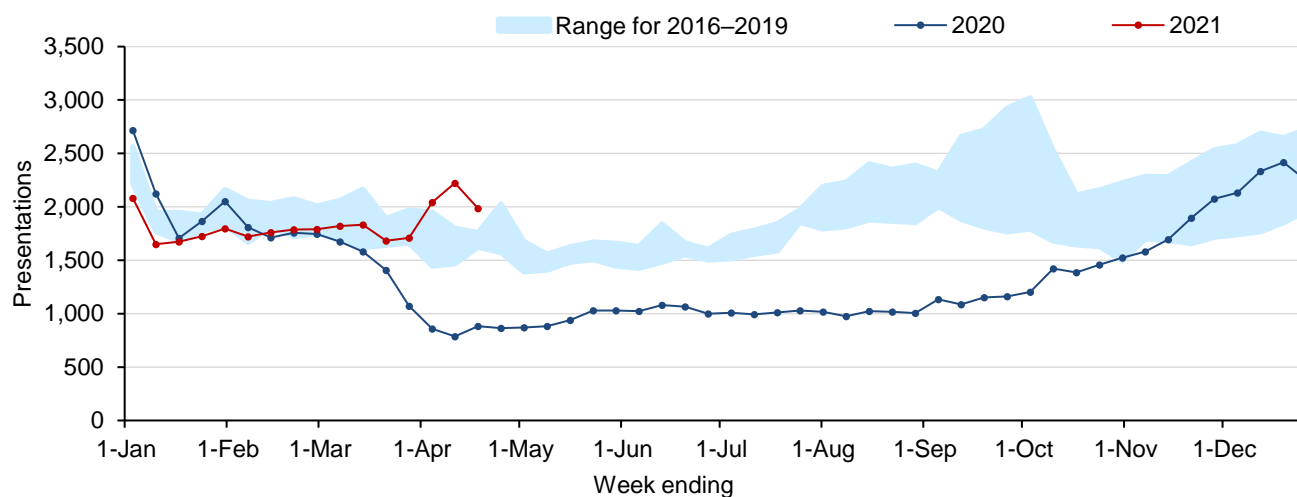


**Interpretation:** Bronchiolitis is a common disease of infants often caused by respiratory syncytial virus (RSV). Public health measures introduced last year around social distancing and improved hygiene practices coincided with a large decrease in bronchiolitis presentations for the majority of 2020. A rise in bronchiolitis presentations in the later part of 2020 corresponds to an increase in RSV detections. In the week ending 18 April, bronchiolitis presentations decreased and remain below the seasonal range for this time of year.

<sup>2</sup> 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).



Figure 17. Emergency Department gastrointestinal presentations, NSW, 1 January 2016 to 18 April 2021



**Interpretation:** Gastrointestinal presentations include people diagnosed with gastroenteritis, diarrhoea, vomiting, nausea, food poisoning and blood in vomit. Outbreaks in gastrointestinal virus can be caused by bacteria (e.g. salmonella), viruses (e.g. norovirus or rotavirus) or parasites (e.g. cryptosporidium). Viral gastroenteritis is more common in younger children.

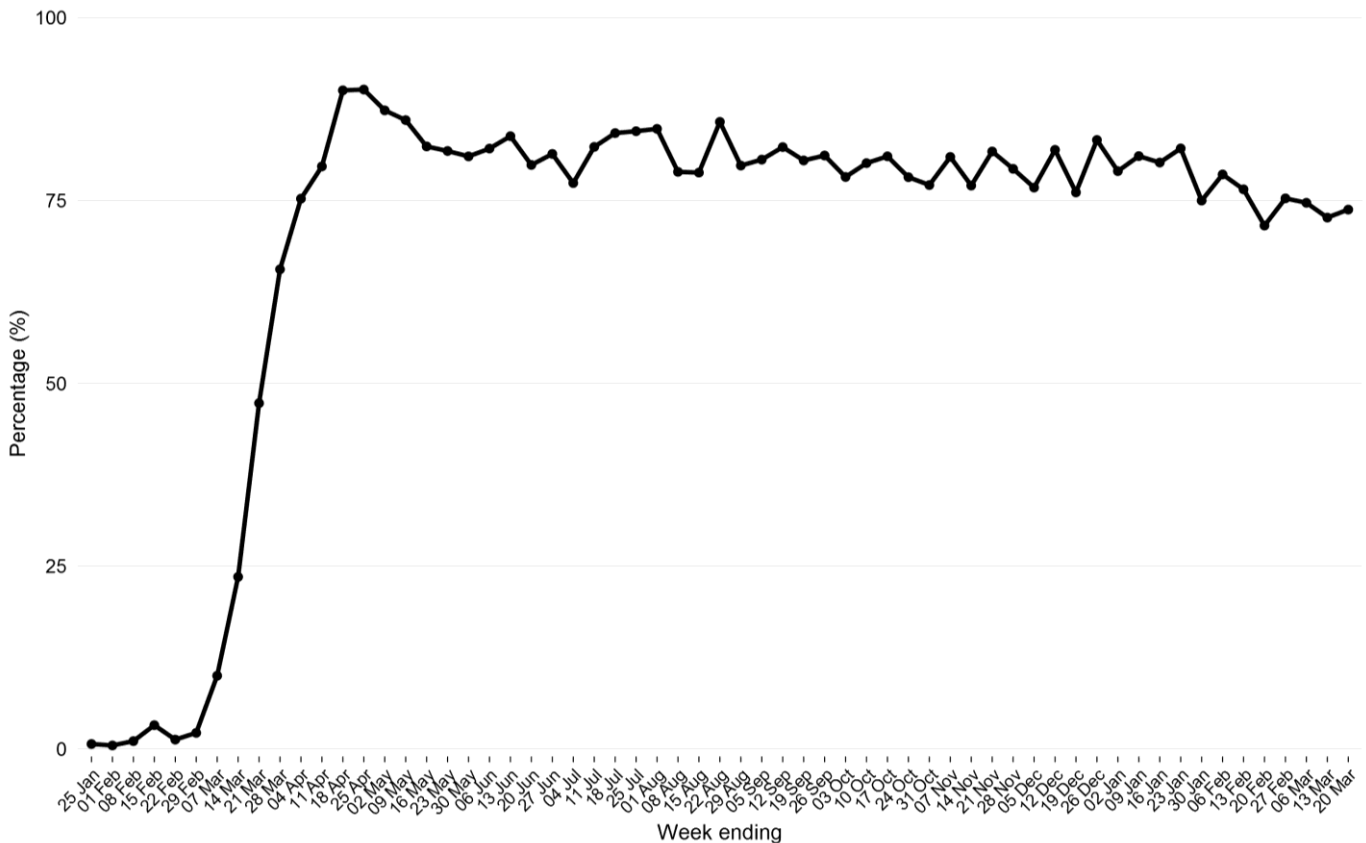
For the period between March and October 2020, gastrointestinal presentations were well below the seasonal range. This corresponds to the introduction of COVID-19 restrictions limiting public and private gatherings, improved hygiene practices and social distancing measures. In the week ending 18 April, gastroenteritis presentations decreased, but remain above the average range for 2016–2019.

## Are all people diagnosed with pneumonia in a NSW Emergency Department tested for COVID-19?

COVID-19 testing is recommended for everyone with respiratory symptoms. To understand the testing rates among patients presenting to an emergency department (ED) with pneumonia, COVID-19 testing data was linked to the Emergency Department Data Collection (EDDC) which contains data on all unplanned presentations to NSW EDs. Pneumonia presentations were recorded as having been tested for COVID-19 if testing occurred on the same date or one day either side of the ED presentation. As there is a delay in receipt of data to the EDDC, complete data on pneumonia presentations was limited to the week ending 20 March 2021.

The figure below shows the percentage of ED presentations for pneumonia that were tested for COVID-19. Pneumonia presentations are defined using the NSW Health Public Health Rapid, Emergency Disease and Syndromic Surveillance (PHREDSS) system definitions. This included diagnoses of viral, bacterial, atypical or unspecified pneumonia, and Legionnaires' disease, but excluded diagnoses of pneumonia with influenza.

**Figure 18: Percentage of emergency department presentation for pneumonia PHREDSS syndrome that were tested for COVID-19, from 25 January 2020 to 20 March 2021**



**Interpretation:** The percentage of ED pneumonia presentations that were tested for COVID-19 reached a peak in late April 2020, with almost 90% of all pneumonia presentations tested. This has slowly declined since January 2021, with just under 75% of all pneumonia presentations tested in the week ending 20 March 2021.

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

Local Health District	Local Government Area	Week ending				Total since January 2021	
		17-April		10-April		No.	Tests per 1,000 population
		No.	Tests per 1,000 population	No.	Tests per 1,000 population		
<b>Central Coast</b>	Central Coast / LHD Total <sup>2</sup>	2231	6.32	2167	6.14	202668	574.35
	Balranald	9	3.85	4	1.71	679	290.42
	Broken Hill	66	3.78	100	5.72	9032	516.73
<b>Far West</b>	Central Darling	6	3.26	4	2.18	541	294.18
	Wentworth	25	3.54	33	4.68	3296	467.32
	LHD Total <sup>2</sup>	106	3.52	141	4.68	13548	449.44
	Armidale Regional	186	6.04	169	5.49	14248	462.91
	Cessnock	216	3.6	217	3.62	21114	351.99
	Dungog	45	4.78	36	3.82	3451	366.23
	Glen Innes Severn	37	4.17	29	3.27	2605	293.65
	Gunnedah	43	3.39	59	4.65	4476	352.97
	Gwydir	12	2.24	14	2.62	973	181.77
	Inverell	78	4.62	87	5.15	5834	345.41
	Lake Macquarie	1559	7.57	1342	6.52	124659	605.43
	Liverpool Plains	26	3.29	33	4.18	2889	365.56
	Maitland	715	8.4	584	6.86	56433	662.62
<b>Hunter New England</b>	Mid-Coast	316	3.37	281	2.99	33576	357.82
	Moree Plains	35	2.64	51	3.85	4119	310.61
	Muswellbrook	62	3.79	47	2.87	6219	379.74
	Narrabri	33	2.51	42	3.2	3505	266.84
	Newcastle	1503	9.08	1229	7.42	121498	733.81
	Port Stephens	418	5.69	366	4.98	39125	532.45
	Singleton	181	7.71	108	4.6	12914	550.45
	Tamworth Regional	344	5.5	318	5.08	30917	494.35
	Tenterfield	20	3.03	23	3.49	1600	242.64
	Upper Hunter Shire	50	3.53	54	3.81	5709	402.61
	Uralla	18	2.99	23	3.83	1725	286.93
	Walcha	15	4.79	14	4.47	1268	404.59
	LHD Total <sup>2</sup>	5908	6.2	5125	5.38	498462	523.39
	Kiama	125	5.35	107	4.58	14359	614
<b>Illawarra Shoalhaven</b>	Shellharbour	411	5.61	371	5.07	43763	597.59
	Shoalhaven	438	4.15	349	3.3	48277	456.96
	Wollongong	1392	6.38	1308	6	139353	638.9
	LHD Total <sup>2</sup>	2366	5.64	2135	5.09	245752	585.66
	Bellingen	66	5.08	67	5.16	5492	422.59
<b>Mid North Coast</b>	Coffs Harbour	387	5.01	355	4.59	29081	376.32
	Kempsey	146	4.91	127	4.27	12635	424.78
	Nambucca	84	4.24	76	3.84	6901	348.45
	Port Macquarie-Hastings	395	4.67	366	4.33	36943	437.07

Local Health District	Local Government Area	Week ending				Total since January 2021	
		17-April		10-April			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	<i>LHD Total<sup>2</sup></i>	1078	4.78	991	4.39	91052	403.48
Murrumbidgee	Albury	300	5.52	309	5.69	24883	457.8
	Berrigan	9	1.03	18	2.06	2434	278.17
	Bland	12	2.01	20	3.35	1967	329.37
	Carrathool	2	0.71	3	1.07	436	155.77
	Coolamon	12	2.76	22	5.07	1749	402.9
	Cootamundra-Gundagai Regional	34	3.03	32	2.85	3967	353.09
	Edward River	34	3.74	23	2.53	3329	366.47
	Federation	67	5.39	53	4.26	4097	329.42
	Greater Hume Shire	44	4.09	48	4.46	4249	394.74
	Griffith	150	5.55	126	4.66	12228	452.4
	Hay	2	0.68	4	1.36	684	231.94
	Hilltops	73	3.9	78	4.17	7135	381.47
	Junee	11	1.65	24	3.59	1846	276.22
	Lachlan <sup>1</sup>	5	0.82	13	2.14	1234	203.13
	Leeton	25	2.18	34	2.97	3601	314.64
	Lockhart	7	2.13	10	3.04	1038	315.98
	Murray River	8	0.66	5	0.41	1084	89.45
	Murrumbidgee	15	3.83	4	1.02	1074	274.19
	Narrandera	11	1.86	12	2.03	1419	240.55
	Snowy Valleys	59	4.07	39	2.69	5556	383.73
Temora	10	1.59	16	2.54	1681	266.53	
Wagga Wagga	428	6.56	406	6.22	35591	545.39	
	<i>LHD Total<sup>2</sup></i>	1314	4.41	1289	4.32	120453	404.06
Nepean Blue Mountains	Blue Mountains	519	6.56	486	6.14	61243	774.07
	Hawkesbury	368	5.47	258	3.83	41739	620.23
	Lithgow	62	2.87	77	3.56	8610	398.52
	Penrith	1355	6.36	1255	5.89	147752	693.75
	<i>LHD Total<sup>2</sup></i>	2290	5.86	2059	5.27	257319	658.13
Northern NSW	Ballina	1255	28.12	1406	31.5	27417	614.35
	Byron	310	8.84	841	23.97	23798	678.37
	Clarence Valley	230	4.45	232	4.49	16346	316.4
	Kyogle	29	3.3	36	4.09	2653	301.61
	Lismore	306	7	438	10.02	22956	525.41
	Richmond Valley	120	5.11	170	7.24	10097	430.3
	Tenterfield	20	3.03	23	3.49	1600	242.64
	Tweed	564	5.81	695	7.16	37615	387.78
	<i>LHD Total<sup>2</sup></i>	2817	9.08	3819	12.3	141242	455.09
Northern Sydney	Hornsby	1148	7.55	1018	6.69	98847	650.06
	Hunters Hill	210	14.02	194	12.95	22108	1475.83
	Ku-ring-gai	1419	11.16	1388	10.92	130255	1024.4
	Lane Cove	727	18.1	609	15.17	62808	1564.14
	Mosman	319	10.3	298	9.62	26635	859.72

Local Health District	Local Government Area	Week ending				Total since January 2021	
		17-April		10-April			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	North Sydney	705	9.4	644	8.58	48982	652.91
	Northern Beaches	2793	10.21	2479	9.06	333268	1218.53
	Parramatta <sup>1</sup>	1851	7.2	1727	6.71	144936	563.52
	Ryde	1257	9.58	1051	8.01	91918	700.22
	Willoughby	678	8.35	632	7.78	50608	623.34
	<i>LHD Total<sup>2</sup></i>	9628	10.07	8706	9.11	894815	936.08
South Eastern Sydney	Bayside	1292	7.24	1144	6.41	95837	537.21
	Georges River	902	5.66	903	5.66	81712	512.39
	Randwick	1593	10.23	1429	9.18	130634	839.29
	Sutherland Shire	1862	8.07	1580	6.85	169524	735.11
	Sydney <sup>1</sup>	3084	12.52	2845	11.55	213423	866.37
	Waverley	934	12.57	798	10.74	74839	1007.32
	Woollahra	943	15.88	872	14.68	64280	1082.39
	<i>LHD Total<sup>2</sup></i>	8659	9.03	7740	8.07	694089	723.69
South Western Sydney	Camden	729	7.19	609	6	88194	869.45
	Campbelltown	1083	6.34	919	5.38	118859	695.31
	Canterbury-Bankstown <sup>1</sup>	2048	5.42	1878	4.97	207537	549.16
	Fairfield	722	3.41	640	3.02	91981	434.5
	Liverpool	1104	4.85	958	4.21	144331	634.19
	Wingecarribee	364	7.12	298	5.83	37767	738.59
	Wollondilly	192	3.61	192	3.61	25284	475.72
	<i>LHD Total<sup>2</sup></i>	5122	4.93	4501	4.33	608032	585.47
Southern NSW	Bega Valley	120	3.48	121	3.51	13388	388.33
	Eurobodalla	170	4.42	159	4.13	20387	529.9
	Goulburn Mulwaree	134	4.3	135	4.34	14209	456.41
	Queanbeyan-Palerang Regional	198	3.24	209	3.42	19884	325.43
	Snowy Monaro Regional	87	4.18	64	3.08	8577	412.45
	Upper Lachlan Shire	34	4.22	38	4.72	3166	392.85
	Yass Valley	59	3.45	55	3.22	4820	282.09
	<i>LHD Total<sup>2</sup></i>	803	3.7	781	3.6	84462	389.1
Sydney	Burwood	217	5.34	198	4.88	19413	478.01
	Canada Bay	820	8.54	768	7.99	74306	773.42
	Canterbury-Bankstown <sup>1</sup>	2048	5.42	1878	4.97	207537	549.16
	Inner West	1800	8.96	1721	8.57	172305	858.05
	Strathfield	442	9.42	347	7.39	34066	725.95
	Sydney <sup>1</sup>	3084	12.52	2845	11.55	213423	866.37
	<i>LHD Total<sup>2</sup></i>	6313	9.06	5827	8.36	538155	772.36
Western NSW	Bathurst Regional	203	4.65	171	3.92	23836	546.47
	Blayney	33	4.47	41	5.56	3929	532.46
	Bogan	6	2.33	11	4.26	1049	406.59
	Bourke	9	3.47	5	1.93	642	247.88
	Brewarrina	3	1.86	2	1.24	364	225.95
	Cabonne	33	2.42	25	1.83	4000	293.38

Local Health District	Local Government Area	Week ending				Total since January 2021	
		17-April		10-April			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
	Cobar	13	2.79	11	2.36	1341	287.89
	Coonamble	8	2.02	8	2.02	1126	284.49
	Cowra	43	3.37	39	3.06	4390	344.5
	Dubbo Regional	234	4.36	216	4.02	23173	431.37
	Forbes	22	2.22	32	3.23	2685	271.05
	Gilgandra	10	2.36	9	2.12	1134	267.52
	Lachlan <sup>1</sup>	5	0.82	13	2.14	1234	203.13
	Mid-Western Regional	149	5.9	100	3.96	10687	423.23
	Narromine	37	5.68	18	2.76	2206	338.5
	Oberon	18	3.33	18	3.33	2042	377.38
	Orange	281	6.62	300	7.07	27364	644.6
	Parkes	59	3.98	41	2.76	5076	342.12
	Walgett	14	2.35	22	3.7	1893	317.99
	Warren	11	4.08	18	6.67	1592	590.29
	Warrumbungle Shire	20	2.16	26	2.8	3394	365.81
	Weddin	8	2.21	17	4.71	1048	290.06
	<i>LHD Total<sup>2</sup></i>	1218	4.27	1140	4	123848	434.54
<b>Western Sydney</b>	Blacktown	2585	6.9	2249	6.01	242922	648.74
	Cumberland	1491	6.17	1468	6.08	154596	640.09
	Parramatta <sup>1</sup>	1851	7.2	1727	6.71	144936	563.52
	The Hills Shire	1803	10.13	1625	9.13	158896	892.83
	<i>LHD Total<sup>2</sup></i>	7413	7.04	6726	6.38	678151	643.75
<b>NSW Total<sup>3</sup></b>		62809	7.76	58866	7.28	1377138	170.23

Source - Notifiable condition information management System, accessed as at 8pm 29 March 2021.

<sup>1</sup>Local Government Area (LGA) spans multiple Local Health Districts.

<sup>2</sup>Local Health District total counts and rates includes tests for LHD residents only. Murrumbidgee includes Albury LGA residents.

<sup>3</sup>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 2020 to 11 April 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 2020–11 April 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	435,985	3	0.00%	0	0.00%	1,661	548	7,570	21,099	63	2,657
<b>Month ending</b>											
31 January*	168,596	1	0.00%	0	0.00%	416	88	3,275	3,541	23	560
28 February	125,718	2	0.00%	0	0.00%	419	106	2,386	8,667	22	910
28 March	95,458	0	0.00%	0	0.00%	507	354	1,909	8,891	18	1,187
<b>Week ending</b>											
4 April	27,871	0	0.00%	0	0.00%	173	221	365	1,773	13	270
11 April	18,342	0	0.00%	0	0.00%	146	243	369	1,444	10	231

### 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
<b>Month ending</b>											
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

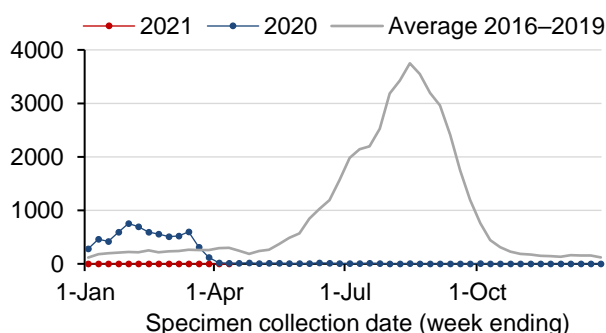
RSV - Respiratory syncytial virus

\*Five-week period

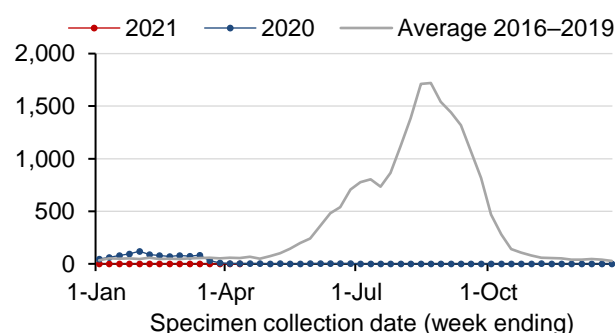
## Appendix C: Number of positive PCR test results for influenza and other respiratory viruses at sentinel NSW laboratories, January 2020 to 11 April 2021

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.

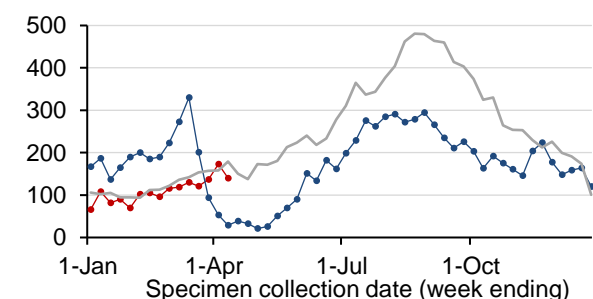
Influenza A



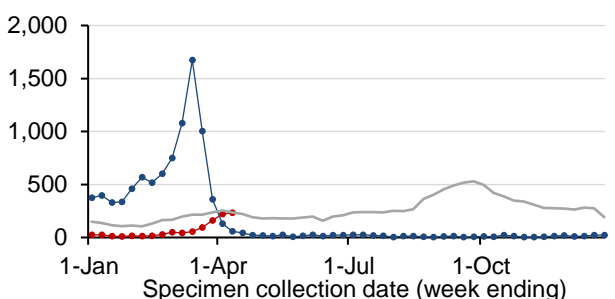
Influenza B



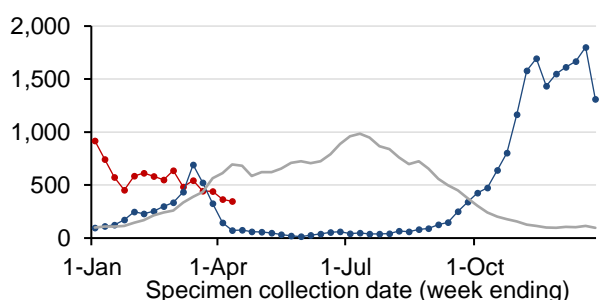
Adenovirus



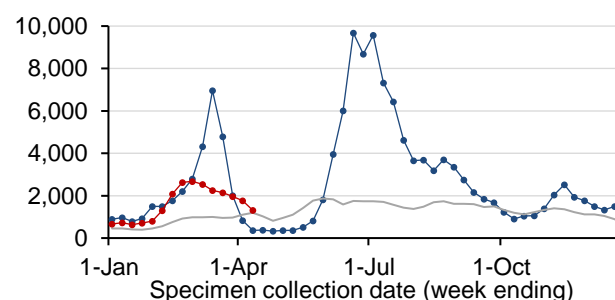
Parainfluenza



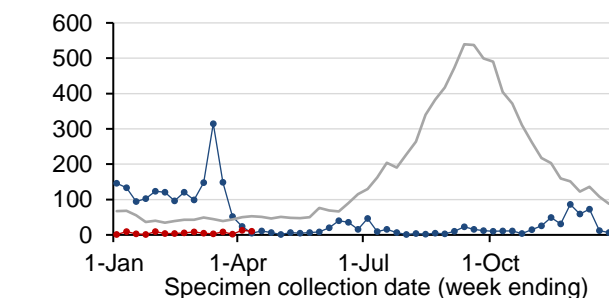
Respiratory syncytial virus (RSV)



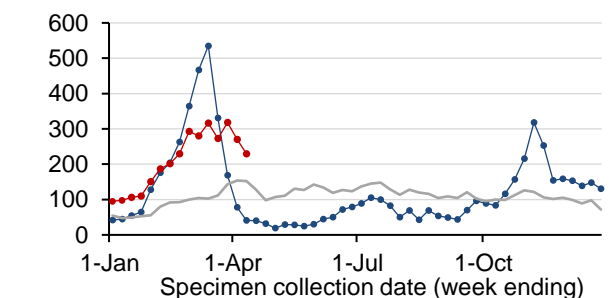
Rhinovirus



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 17 April 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		13-Feb	20-Feb	27-Feb	6-Mar	13-Mar	20-Mar	27-Mar	3-Apr	10-Apr	17-Apr
Pop.	Location	6	7	8	9	10	11	12	13	14	15
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	n	n	n	n	n
233,176	Cronulla										
1,857,740	Malabar 1			n	n	n	n	n	n	n	n
	Malabar 2										
181,005	Liverpool										
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		13-Feb	20-Feb	27-Feb	6-Mar	13-Mar	20-Mar	27-Mar	3-Apr	10-Apr	17-Apr
Network	Location	6	7	8	9	10	11	12	13	14	15
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	Olympic Park										
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		13-Feb	20-Feb	27-Feb	6-Mar	13-Mar	20-Mar	27-Mar	3-Apr	10-Apr	17-Apr
Pop.	Location	6	7	8	9	10	11	12	13	14	15
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	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	C	C
	Wagga Wagga- inlet 1										
	Wagga Wagga- inlet 2										
	Wagga Wagga -Koorringal STP										
2,050	Bourke										
	Nyngan										

Regional Sites (con't)		13-Feb	20-Feb	27-Feb	6-Mar	13-Mar	20-Mar	27-Mar	3-Apr	10-Apr	17-Apr
Pop.	Location	6	7	8	9	10	11	12	13	14	15
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										
3,000	Hunter – Dungog										
21,500	Hunter – Kurri Kurri										
32,000	Hunter – Cessnock										
40,000	Hunter – Farley										
32500	Lismore composite	c		c	c	c			c		c
17,000	East Lismore										
15,500	South Lismore										
18,958	Byron Bay – Ocean Shores										
	Byron Bay										
2,000	Bangalow										
3,500	Mullumbimby										
31,104	Ballina										
7,700	Lennox Head										
16,000	Tweed – Murwillumbah										

Regional Sites (con't)		13-Feb	20-Feb	27-Feb	6-Mar	13-Mar	20-Mar	27-Mar	3-Apr	10-Apr	17-Apr
Pop.	Location	6	7	8	9	10	11	12	13	14	15
75,000	Tweed – Banora Point										
25,000	Tweed – Kingscliff										
18,000	Tweed – Hastings Point										
18,550	Grafton composite	c	c	c	c	c	c	c		c	c
12,250	North Grafton										
6,300	South Grafton										
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	<p>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).</p> <p>Case counts include:</p> <ul style="list-style-type: none"> <li>- NSW residents diagnosed in NSW who were infected overseas or in Australia (in NSW or interstate), and</li> <li>- interstate or international visitors diagnosed in NSW who were under the care of NSW Health at the time of diagnosis</li> </ul>
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	<p>This date is provided to NSW Health by the laboratory. Laboratories prioritise notification of positive results to allow prompt public health action.</p> <p>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.</p> <p>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.</p>