COVID-19 WEEKLY SURVEILLANCE IN NSW

EPIDEMIOLOGICAL WEEK 21, ENDING 23 MAY 2020

Published 27 May 2020

SUMMARY FOR THE WEEK ENDING 23 MAY

- While the number of new COVID-19 cases remain low there has been a decrease in testing across most Local Health Districts and almost all age groups in recent weeks.
- The small proportion of COVID-19 tests in the week that were positive (0.03%, 15 out of 54, 494 COVID-19 tests) indicates that the spread of infection within the community continues to be limited.
- One of the newly notified cases was a student who attended school during their infectious period. The case was promptly isolated and all close contacts at the school have been quarantined. Despite thorough investigation, it is unclear how the child was infected. The public health investigation is underway to identify any spread of infection within the school.
- No new cases were identified in pregnant women or Aboriginal people this week.
- High rates of testing are necessary to detect and reduce the spread of COVID-19 in the community. This is particularly important as the potential for transmission increases with the relaxation of social distancing measures and the re-opening of schools.
- NSW Health urges people of all ages, including children, to undergo COVID-19 testing and isolate themselves as soon as mild symptoms of respiratory infection or fever appear.

Change in reporting: From 26 May, NSW Health now reports on the number of tests notified instead of the number of people tested to take into account that people are encouraged to get tested every time symptoms appear. This revised way of reporting provides a better picture of the testing conducted to detect the spread of COVID-19 in NSW. Refer to how NSW counts tests for more information.

In Focus – COVID-19 in children: 1 January to 23 May 2020

A review of COVID-19 cases in children up to 23 May found:

- Eighty-one children were diagnosed with COVID-19 including 59 (73%) locally acquired infections and 22 (23%) overseas acquired infections.
- The rate of diagnosed COVID-19 infection in adults was approximately 10 times the rate reported in children (0.05 per 1,000 in those aged 0-17 years compared with 0.48 per 1,000 people in those aged 18 and over).
- While testing rates were lower in children compared with adults, so was the proportion positive of tests that were positive, indicating limited spread of COVID-19 among children. The proportion of tests that were positive ranged from 0.1% in children aged 0-4 years up to 0.3% in children aged 12 to 17 years compared with 0.6% to 1% in adult age groups.
- Of the 59 locally acquired cases, 44 (75%) had a likely source of infection identified. Where known, the majority of children (34 cases) were infected by a household member, typically a parent who had a known exposure to COVID-19 outside the home. No child (diagnosed by PCR) was found to have been infected by another child.
- While children are known to spread other respiratory diseases within households, this was not observed for COVID-19. There were nine households (total of 21 people) in which a child was the first in the family known to have COVID-19 and the family members had no known previous exposure to COVID-19. Child-to-adult transmission was likely in only one household involving a 17 year-old and his father. No additional cases were identified among the remaining 20 household members.

SECTION 1: HOW IS THE OUTBREAK TRACKING IN NSW?

Table 1. COVID-19 cases and tests reported in NSW, up to 23 May 2020

	Week ending 23 May	Week ending 16 May	% change	Total to 23 May
Number of cases	15	21	-28.6%	3,085
Overseas acquired	*11*	*8*	*+37.5%*	*1,781*
Interstate acquired	*0*	*1*	*-100%*	*72*
Locally acquired	*4*	*12*	*-66.7%*	*1,232*
Number of deaths	3	1	+200%	50
Number of tests	54,494	63,334	-13.9%	454,675

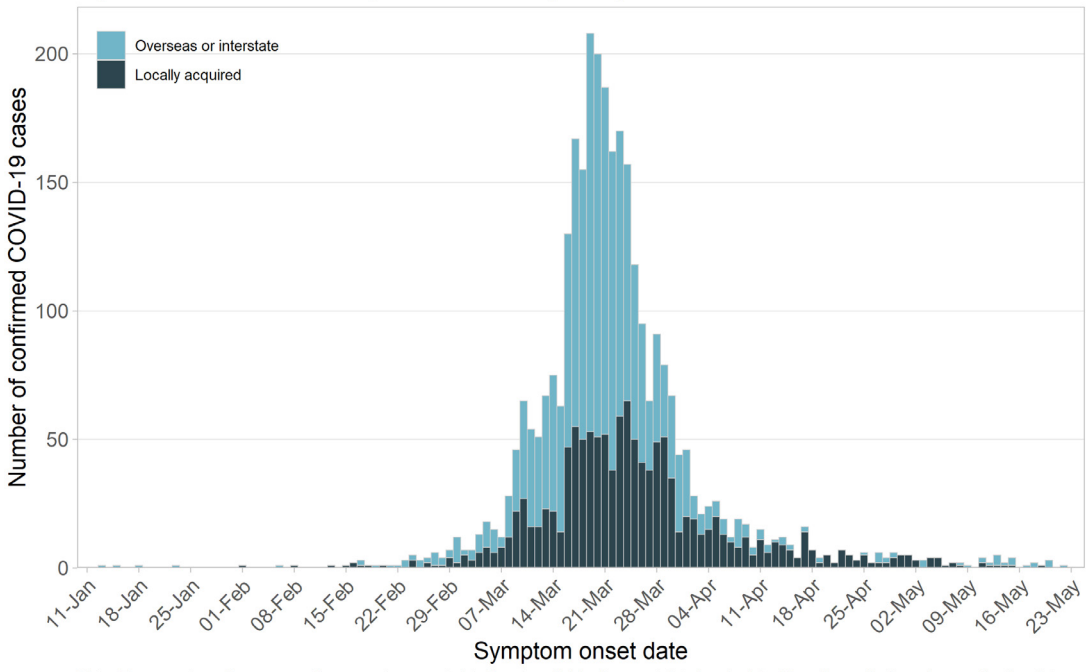
Note: The case numbers reported for previous weeks is based on the most up to date information from public health investigations.

The increase in cases with an overseas source in the past week is in part due to a program of testing all overseas travellers in hotel quarantine 10 days after arrival in NSW regardless of symptoms. Of the 11 cases reported with an overseas source in the past week, eight were identified through this program.

Confirmed COVID-19 cases (people infected with the SARS-CoV-2 virus) includes NSW residents diagnosed in NSW who were infected overseas and in Australia (in NSW and interstate) and interstate or international visitors diagnosed in NSW who are under the care of NSW Health.

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 the case started to feel unwell (known as the date of symptom onset). This information is collected by public health staff on interview with the case at the time of diagnosis.

Figure 1. COVID-19 cases by onset of illness per day, NSW, 2020



Note: For asymptomatic cases or where symptom onset date is not available, the onset date is calculated from the earliest specimen collection date.

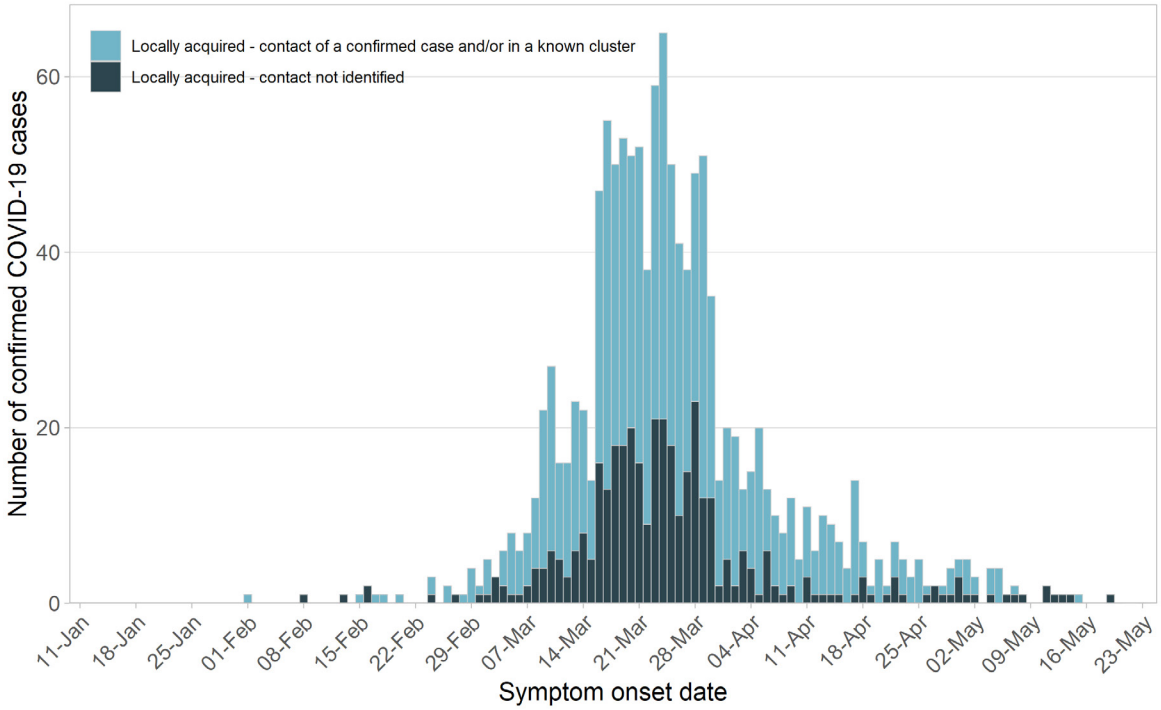
Interpretation: Approximately 60% of COVID-19 infections diagnosed in NSW to 23 May were acquired outside of NSW (almost all overseas) and the remaining 40% have been acquired locally (in NSW). The number of new cases reported in NSW has decreased significantly since the peak in mid-March.

How much transmission is occurring in NSW?

All new cases who have not travelled outside of NSW are investigated by public health staff to determine the likely source of infection and identify clusters (group of cases sharing a common source or links). To understand the extent of community transmission, locally acquired cases who have had contact with a confirmed case or who are part of a known cluster are considered separately to those with an unidentified source of infection. Cases with no source identified indicate that there are people infected with COVID-19 in the community who have not been diagnosed.

In March, when the number of new cases diagnosed each day was high, public health efforts were focussed on contact tracing to limit further spread in the community. With a decline in cases, increased attention is given to identifying the source of infection for every case. High rates of testing are needed to ensure cases are identified as quickly as possible. Careful attention is given to understanding where transmission is occurring as social distancing measures are relaxed.

Figure 2. Locally acquired COVID-19 cases by onset of illness per day, NSW, 2020



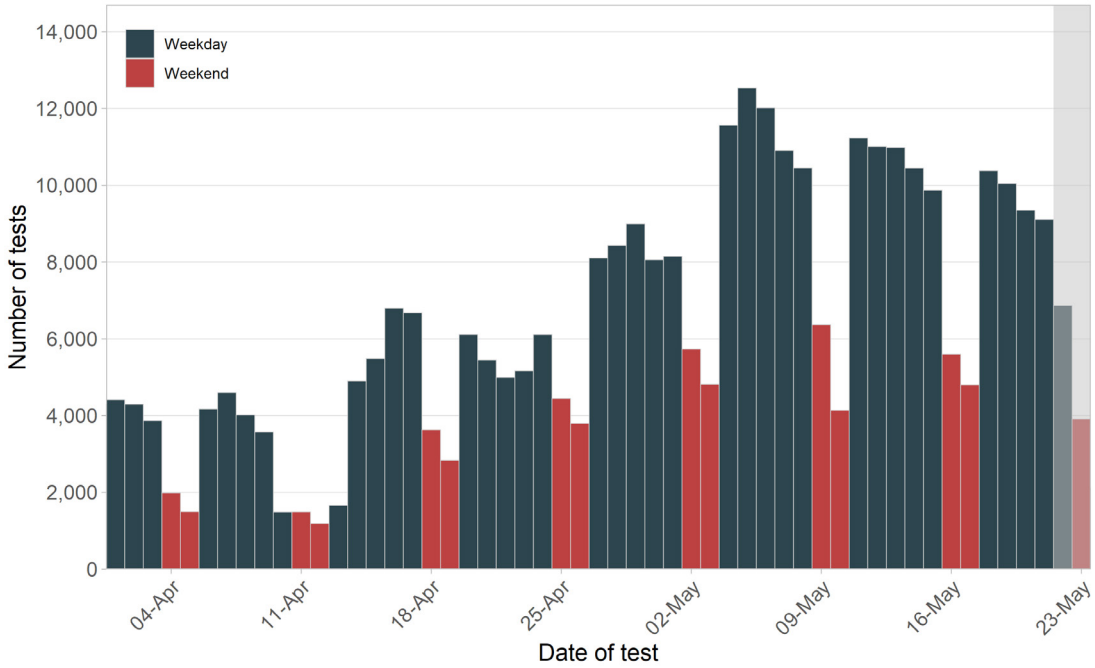
Note: For asymptomatic cases or where symptom onset date is not available, the onset date is calculated from the earliest specimen collection date.

Interpretation: Larger clusters occurred in NSW before many of the strict social distancing rules were introduced. Since this time, there has been a decline in both the COVID-19 cases known to have had contact with a confirmed case or who are part of a cluster and those with an unknown source. The number and size of clusters will be closely monitored as changes to social distancing rules are implemented.

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. In previous reports, the number of people tested was used to understand the impact of testing in NSW. As it is expected that people will be tested more than once throughout the pandemic, we now report the number of diagnostic tests in NSW. This means that people who get tested multiple times are counted as separate tests. This number is different to the number of tests reported to NSW Health each day as the laboratory needs time to conduct the test. To enable prompt public health action, laboratories prioritise notification of all positive results to Public Health over negative test results. The shaded area in the graph below indicates dates where counts may be incomplete due to a delay in the reporting of negative tests. While public health facilities are 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 3. Number of tests per day, NSW, 2020



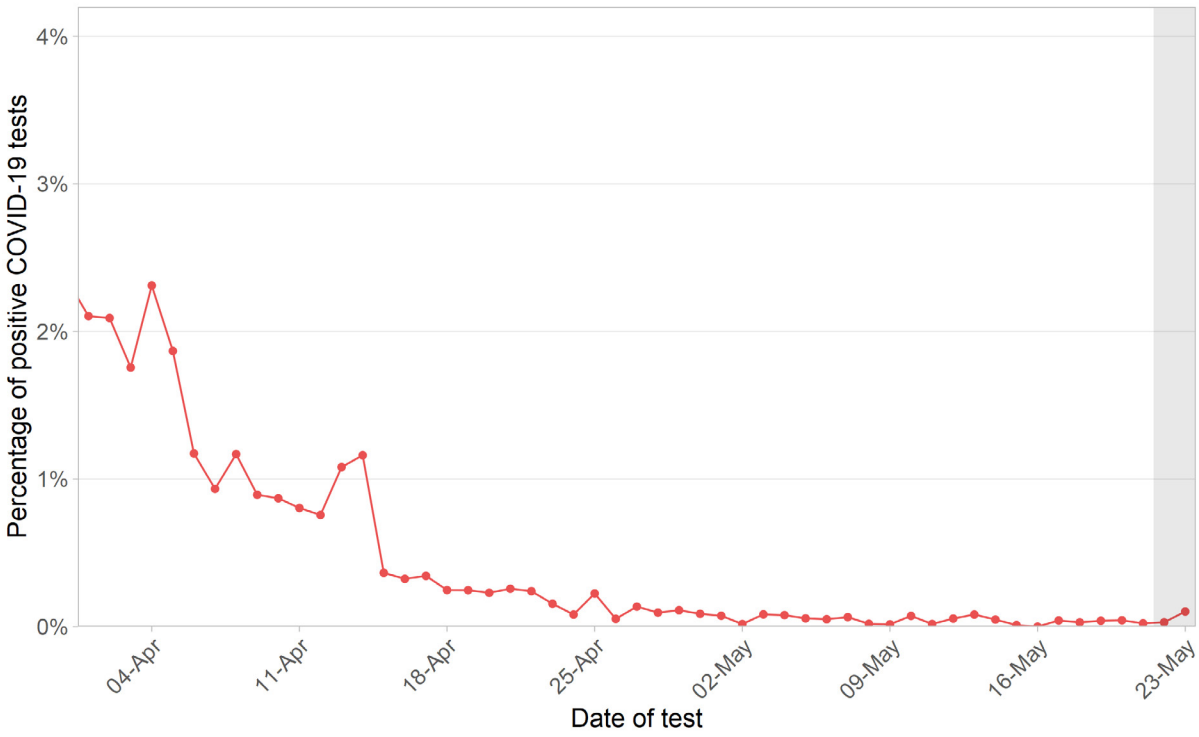
Note: PCR tests performed after becoming a confirmed case are excluded.

Interpretation: COVID-19 testing increased significantly in April and early May in line with the changes in the criteria for testing and increased availability of testing. Early in the outbreak the focus was on returning travellers whereas now testing is now recommended for anyone with even mild respiratory symptoms or unexplained fever.

The cumulative testing rate in NSW continues to remain high at 56 tests per 1,000 population (NSW cases = 3,085). While there is variation with countries reporting significantly more cases over longer periods of time, the rates of testing in NSW are similar to rates reported in New Zealand (52 per 1,000; 1,154 cases), the UK (49 per 1,000; 257,154 cases) and Singapore (50 per 1,000; 31,068 cases).

Some of the highest testing rates in the world are currently being reported in countries such as Iceland (171 per 1,000; 1,804 cases), the United Arab Emirates (162 per 1,000; 28,704 cases), Lithuania (97 per 1,000; 1,616 cases), and Denmark (78 per 1,000; 11,360 cases). There is continued investment both at the state and federal level to ensure all symptomatic people in NSW have access to timely testing.

Figure 4. Proportion of tests positive for COVID-19, NSW, 2020



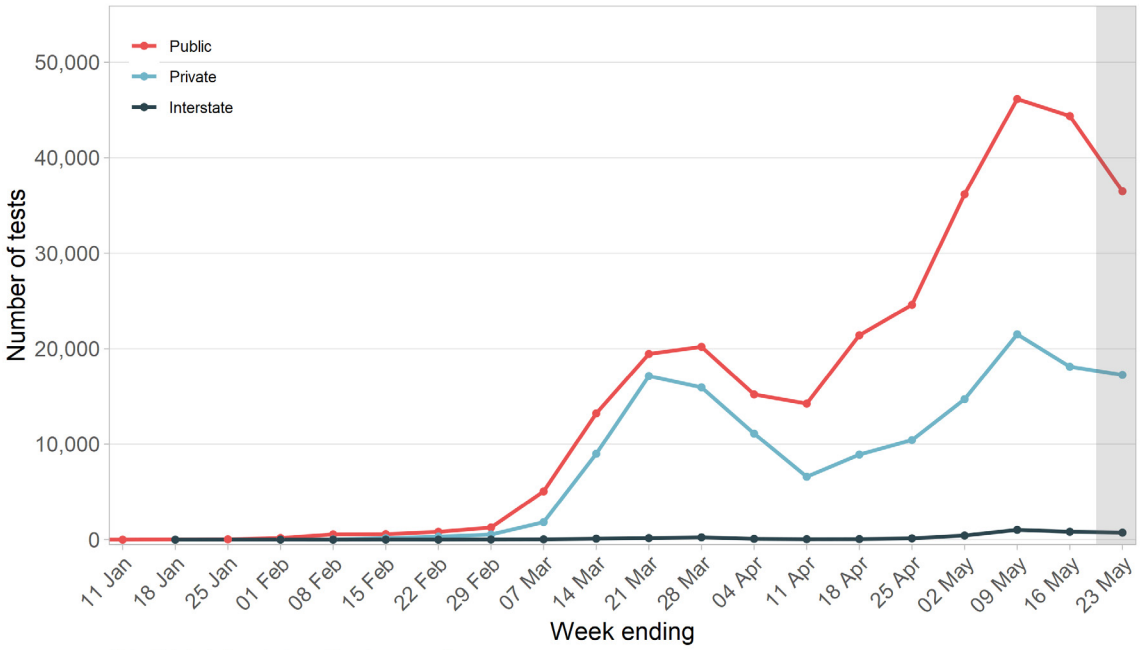
Note: PCR tests performed after becoming a confirmed case are excluded.

Interpretation: The number of people diagnosed and proportion of tests positive for COVID-19 in NSW declined since mid-March to early May, and has stabilised at very low levels since, despite the high rates of testing. This suggests there is currently limited transmission in the community.

High rates of testing are critically important to identify and isolate people who are infectious and to allow contact tracing (quarantining of all people potentially infected by a case) to limit the spread of infection. Testing is not recommended for those without symptoms except in special settings when a case have been identified such as aged care, health care, disability homes and schools.

Which laboratories are doing the testing?

Figure 5. Number of tests by week and facility type, NSW, 2020



Note: This includes retests and is not person unique.
Once confirmed as a case, a person's further tests are not counted
Shading indicates current week, which underestimates testing due to a delay in importation or receipt of negative results
Weeks with less than three cases by facility type have been excluded

Interpretation: About twice as many tests are done in public laboratories compared with private laboratories. Recent declines in test numbers has been reported across both public and private laboratories.

SECTION 2: RECENT COVID-19 TRANSMISSION IN NSW

To understand the extent of COVID-19 transmission in the community, public health staff carefully consider information collected from each new case at the time of diagnosis.

COVID-19 has an incubation period of up to 14 days which means that cases were exposed to COVID-19 in the 14 days prior to the day their symptoms started. Information from cases who became unwell in the last month is used to understand where COVID-19 is spreading in the community. This takes into account the time it takes for people to be tested and the laboratory to perform the test. Some people who have tested positive to COVID-19 do not report having any symptoms despite thorough investigation. As it is not possible to determine when these cases were infected they are excluded in a review of recent transmission.

Cases with no source identified indicate that there are people infected with COVID-19 in the community who have not been diagnosed. Where clusters are identified, public health staff actively look for cases for two incubation periods (four weeks for COVID-19) before the outbreak is considered closed.

Table 2. Symptomatic locally acquired COVID-19 cases in NSW, by week of onset and source of infection, 26 April to 23 May 2020

Locally acquired cases*	Week of onset			
	23 May	16 May	9 May	2 May
Contact of a confirmed case and/or part of a known cluster	0	1	5	13
Source not identified	1	4	2	11
Total	1	5	7	21

*Excludes nine asymptomatic cases reported in the period 26 April to 23 May.

Interpretation: The number of locally acquired cases with onset in recent weeks remain low. No known outbreaks were reported in the week ending 23 May. One of the newly notified cases was a student who attended school during their infectious period. The case was promptly isolated and all close contacts at the school have been quarantined. Despite thorough investigation, it is unclear how the child was infected. The public health investigation is underway to identify any spread of infection within the school.

While it is encouraging that the number of people without a known source of infection remain low, high rates of testing are required to rapidly identify cases to prevent the spread of infection. This is especially important as social distancing rules relax as people are mixing more with others. Maintaining 1.5 m distance between others limits the opportunity for transmission between people.

Cases and testing by Local Health District of residence

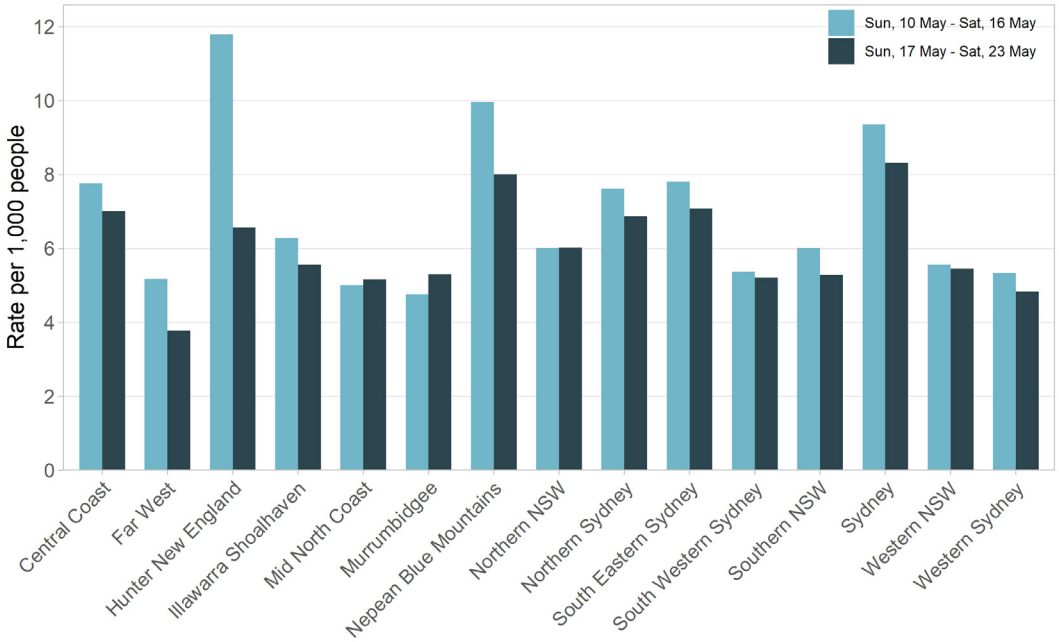
Table 3. Symptomatic locally acquired COVID-19 cases by Local Health District of residence and week of onset, 26 April to 23 May 2020

Local Health District	Week of onset			
	23 May	16 May	9 May	2 May
Central Coast	0	0	0	0
Far West	0	0	0	0
Hunter New England	0	0	0	0
Illawarra Shoalhaven	0	0	0	1
Mid North Coast	0	0	0	0
Murrumbidgee	0	0	0	0
Nepean Blue Mountains	0	0	2	5
Northern NSW	0	0	0	0
Northern Sydney	1	0	0	0
South Eastern Sydney	0	3	1	2
South Western Sydney	0	0	1	3
Southern NSW	0	0	0	2
Sydney	0	2	3	3
Western NSW	0	0	0	0
Western Sydney	0	0	0	4
Grand Total	**1**	**5**	**7**	**21**[1]

[1]One case was not assigned to an LHD due to an interstate address.

Interpretation: The case notified in the week ending 23 May was from northern metropolitan Sydney. This does not mean that the infection was acquired in that district, as many people travel outside their place of residence for work or other reasons. No links were identified between the cases with an unknown source notified in the four-week period.

Figure 6. Rates of COVID-19 testing by LHD of residence and week



Interpretation: Nepean Blue Mountains and Sydney LHDs reported the highest rates of testing in the week ending 23 May. Except for Murrumbidgee LHD, testing rates were lower this week in all LHDs when compared with the previous week. Rates of testing in HNE are lower this week (in line with other LHDs) following a significant rise in testing rates in the previous week as a result of a mega 6-lane drive through testing initiative at the Newcastle stadium and drive through clinic blitzes in Tamworth and Armidale. Lower rates of testing are concerning, as there may be cases in the community that are being missed.

Areas identified for increased COVID-19 testing

NSW Health is encouraging testing for all people with respiratory symptoms or unexplained fever but especially those who live in locations identified as an area of concern for potentially undetected community transmission. Public health staff identify these areas based on an understanding of the recently reported cases and the local testing rates. For the week ending 23 May, this included Penrith and The Hills Local Government Areas (LGAs).

Table 4. Locally acquired COVID-19 cases and testing in areas identified for increased testing by report date, 10 May to 23 May 2020

LGA	Week ending 23 May			Week ending 16 May			
	No. cases	No. tests	No. tests per 1,000 population	No. cases	No. tests	No. tests per 1,000 population	% change in tests
Penrith	0	1,793	8	1	2,262	11	-21%
The Hills	0	1,150	6	1	1,207	7	-5%

Interpretation: Despite being identified as areas for increased testing in the week ending 23 May, the number of tests was lower when compared to the week ending 16 May. It is encouraging, however, that no new cases were reported amongst those tested this week and both areas were similar to or higher than the statewide rate for this week.

Areas with COVID-19 cases where no source was identified

Having high rates of testing helps ensure that ongoing transmission within the community is promptly detected, allowing public health intervention to prevent further spread. In the week ending 23 May, the rate of tests in NSW was 7 per 1,000, similar to the rate of 8 per 1,000 tests in the previous week.

Table 5. Testing in areas for locally acquired cases where no source was identified, 10 May to 23 May 2020

LGA	Week ending 23 May			Week ending 16 May			
	No. cases	No. tests	No. tests per 1,000 population	No. cases	No. tests	No. tests per 1,000 population	% change in tests
Ku-ring-gai	1	894	7	0	919	7	-3%
Strathfield	1	288	6	0	337	7	-15%
Canterbury-Bankstown	2	2,096	6	0	2,453	6	-15%

Interpretation: The rates of testing in these areas for the week ending 23 May was similar to the statewide rate for the week, and the rate for the previous week. It is encouraging that only a small proportion of those tested were positive, which indicates low rates of illness in the community.

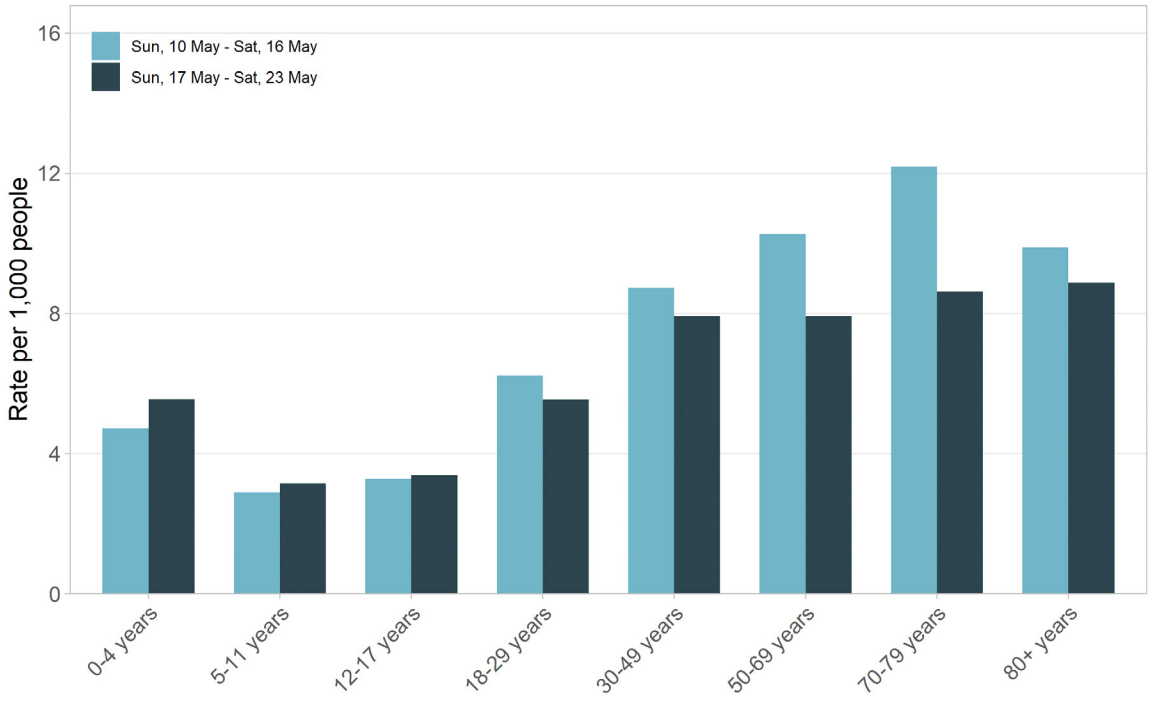
Cases and testing by age group

Table 6. Symptomatic locally acquired COVID-19 cases by age group and week of onset, 10 May to 23 May 2020

Age group	Week ending			
	23 May	16 May	9 May	2 May
0-4 years	0	0	0	0
5-11 years	0	0	1	1
12-17 years	1	0	0	0
18-29 years	0	0	0	7
30-49 years	0	5	5	4
50-69 years	0	0	0	8
70-79 years	0	0	0	1
80+ years	0	0	1	0
All ages	**1**	**5**	**7**	**21**

Interpretation: There was one child with onset in the week ending 23 May. The most common age group for cases with symptom onset in the last month was 30-49 years.

Figure 7. Rates of COVID-19 testing by age group and week

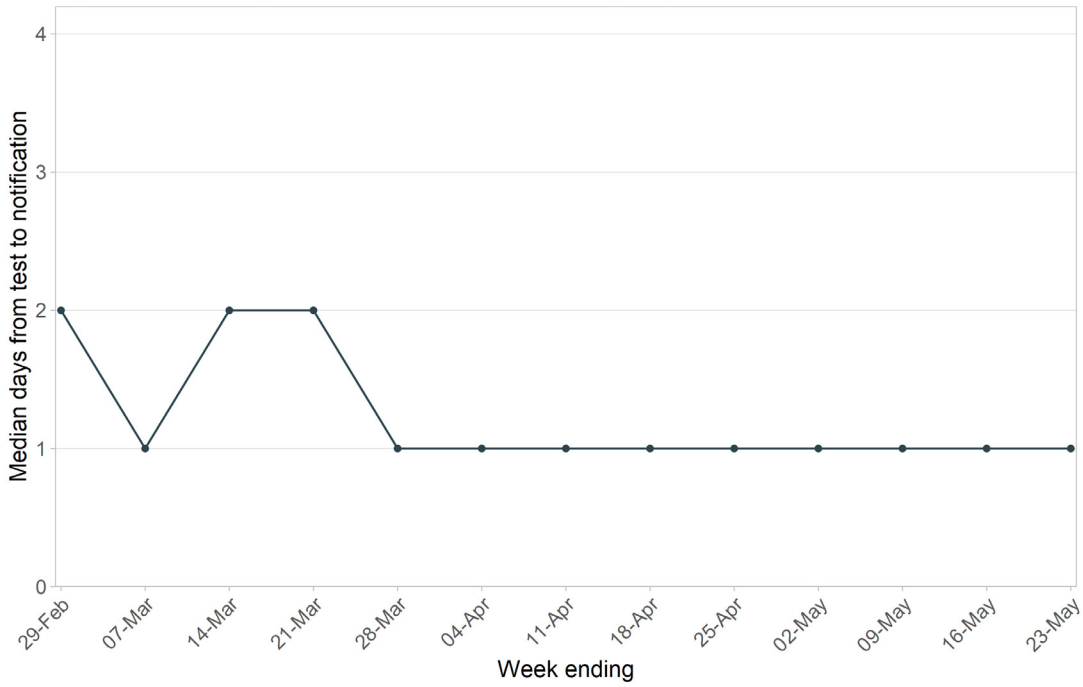


Interpretation: Lower testing rates continue to be observed in school aged children compared to rates in older age groups. Amongst all adult age groups, testing rates were lower in the week ending 23 May when compared to the previous week.

How long does it take to get a positive COVID-19 test result?

To enable prompt public health action, laboratories prioritise the notification of positive COVID-19 test results to NSW Health. This graph shows median time (measured in whole days) from test date to COVID-19 diagnosis (test result) by week. The time taken to receive a negative result is typically longer.

Figure 8. Median days from test to notification for locally acquired cases, NSW, 2020



Interpretation: Despite marked increases in testing overall, the median time to notification has remained at one day since the end of March.

How quickly are locally acquired cases getting tested after symptoms begin?

All people who undergo testing are advised to isolate themselves while they are waiting for test results to avoid spreading infection to others should they be confirmed to have COVID-19. Diagnosis as close as possible to the time symptoms develop is important as it enables close contacts to be in self-quarantine early, which reduces the risk of further transmission. The only newly reported symptomatic case with onset in the week ending 23 May was tested on the same day as onset of illness and was reported as positive within one day of the test.

Cases in pregnant women

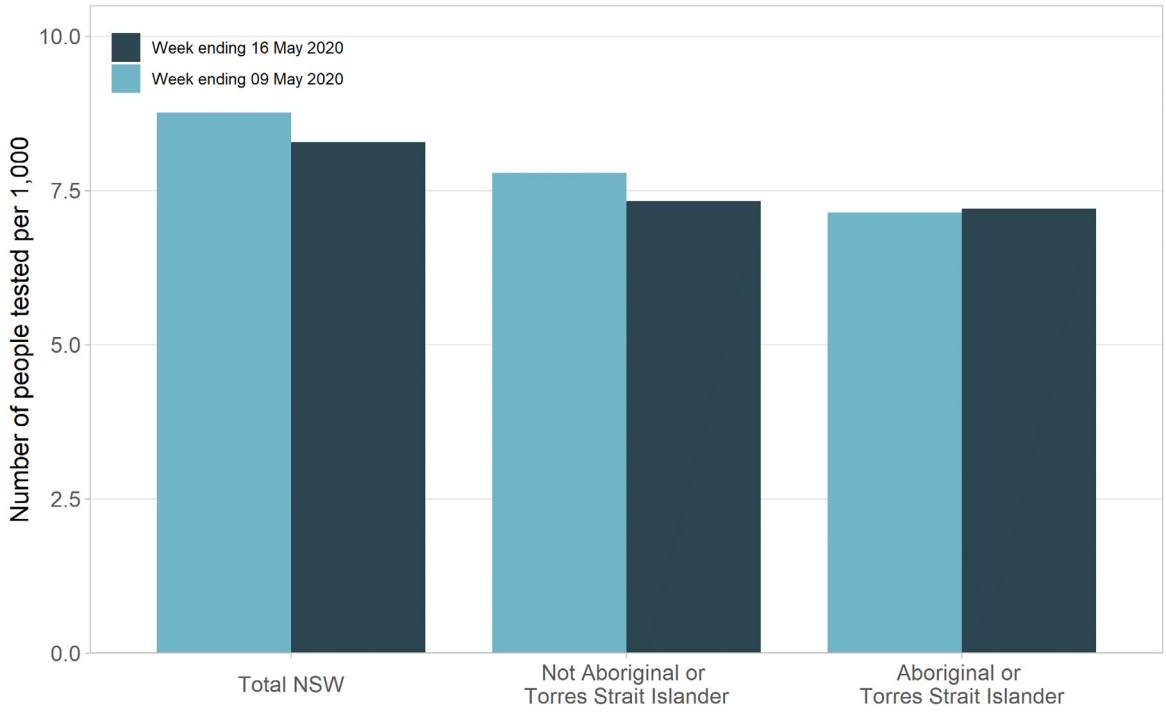
There have been no new cases in pregnant women in week ending 23 May.

Cases and testing in Aboriginal people

There have been no new cases among Aboriginal people in the week ending 23 May. The most recent COVID-19 case in an Aboriginal person was reported in the week ending 2 May 2020.

While 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 16 May 2020. Aboriginal status was ascertained for approximately 90% of all COVID-19 records.

Figure 9. Number of people tested per 1,000 by Aboriginality, by week



*Total rates include people with unknown Aboriginality status.

Interpretation: Similar rates of testing occurred in Aboriginal people in the week ending 16 May compared with the previous week. Testing rates in Aboriginal people are comparable with non-Aboriginal people.

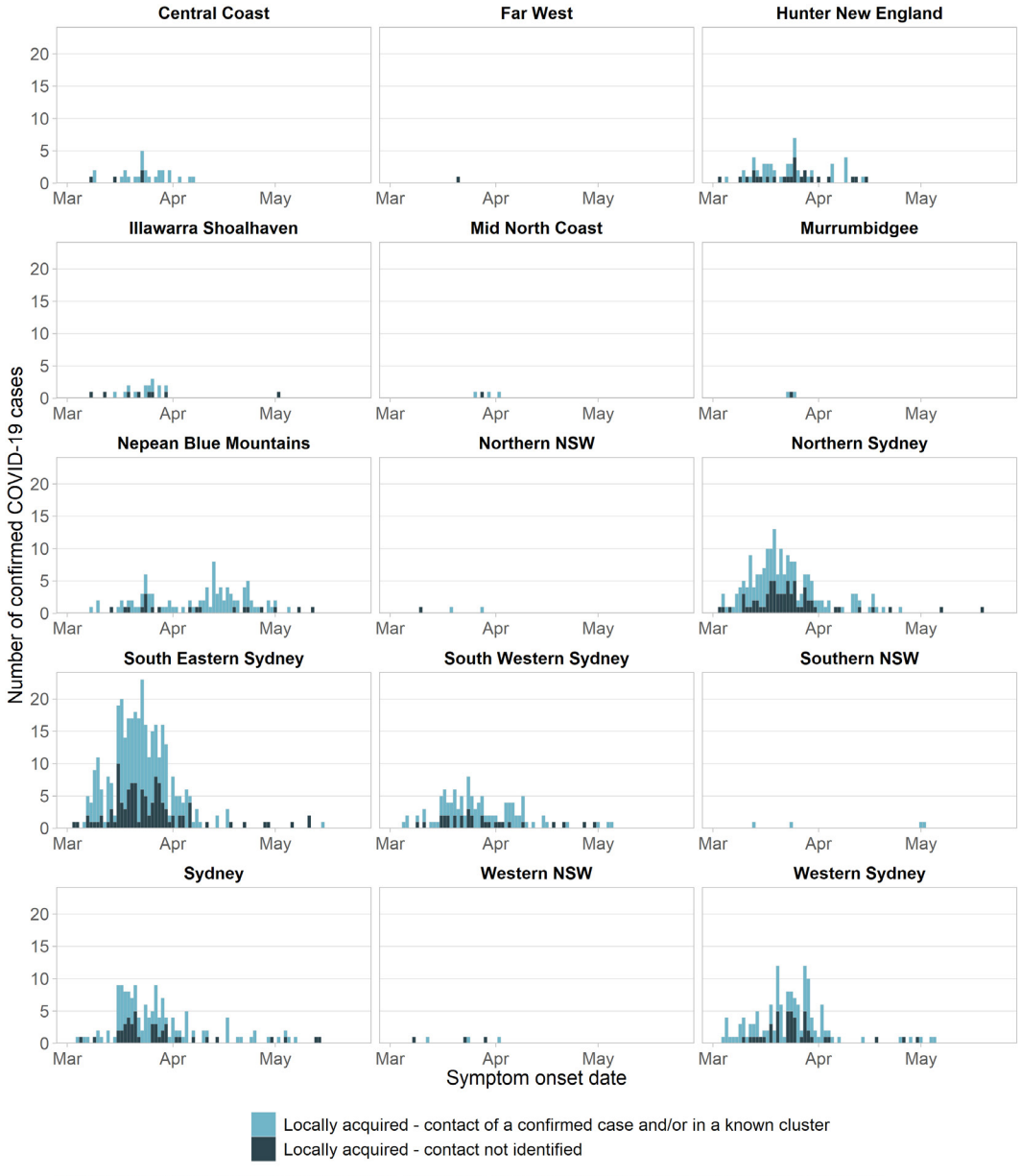
The high rates of testing and low case counts suggest limited COVID-19 transmission is occurring amongst Aboriginal people currently. Continued testing of symptomatic people is critical to prevent transmission in the community in general and is especially important in the Aboriginal population. Higher rates of chronic disease factors such as high numbers of people per household and barriers to accessing health care make Aboriginal people a vulnerable group.

SECTION 3: OVERVIEW OF COVID-19 TRANSMISSION IN NSW

While the previous section focussed on most recent weeks, this section considers COVID-19 transmission in NSW more broadly.

Where has transmission occurred in NSW?

Figure 10. Locally acquired COVID-19 cases by onset of illness per day, NSW, 2020



Note: For asymptomatic cases or where symptom onset date is not available, the onset date is calculated from the earliest specimen collection date.

Interpretation: Early in the outbreak cases more commonly occurred in people living in metropolitan Sydney (particularly in South Eastern Sydney and Northern Sydney LHDs) and this likely reflected the residence of travellers who returned from high-risk countries. During March there was an increase in cases in Nepean Blue Mountains LHD, largely due to an outbreak in the Anglicare Newmarch House aged care facility. The last case associated with this outbreak had an onset on 4 May. There has been very limited transmission detected in regional and rural areas and limited transmission identified throughout all of NSW in recent weeks.

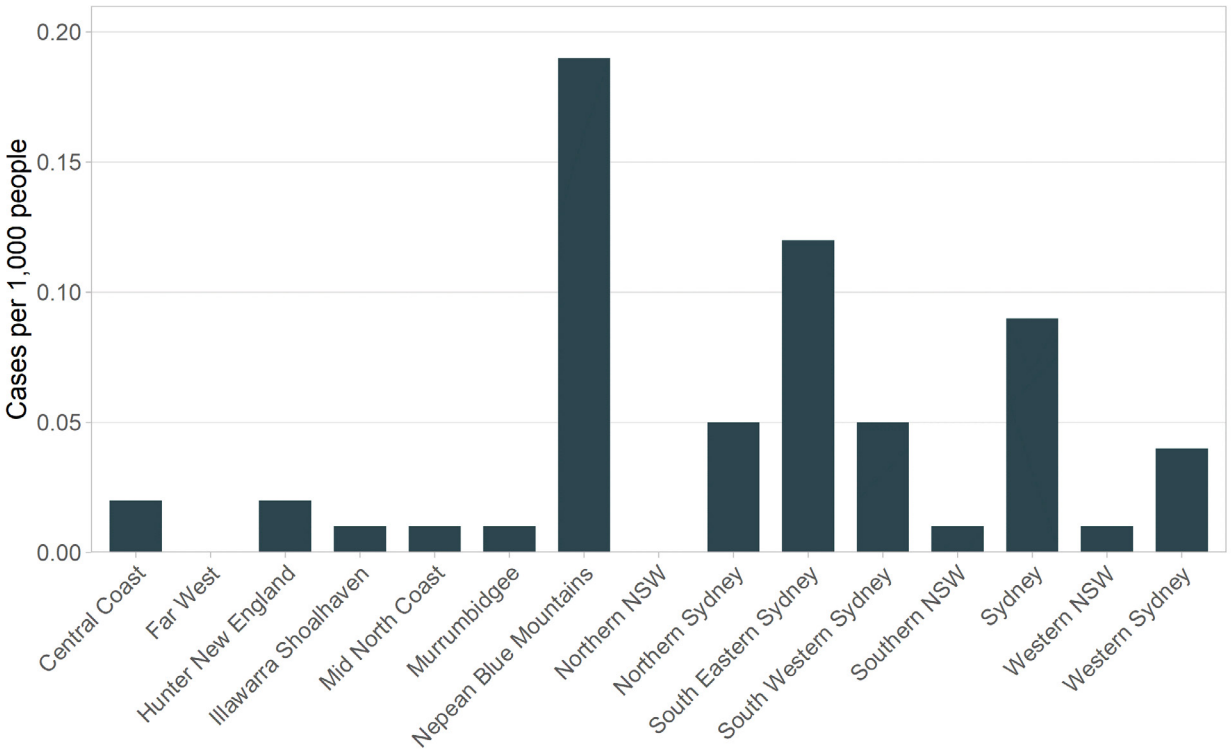
COVID-19 transmission in NSW, 1 April to 23 May

Analysis of local case and testing data was conducted from the period 1 April to 23 May as almost all testing in this period was for people who had not travelled outside of NSW (due to the travel restrictions that were introduced in March). It is not possible to separate testing that was done to detect COVID-19 infection in returned travellers from testing done to detect community transmission.

From 26 May, NSW Health now reports on the number of tests notified instead of the number of people tested to take into account that people are encouraged to get tested every time symptoms appear. This revised way of reporting provides a better picture of the testing conducted to detect the spread of COVID-19 in NSW. Refer to how NSW counts tests for more information.

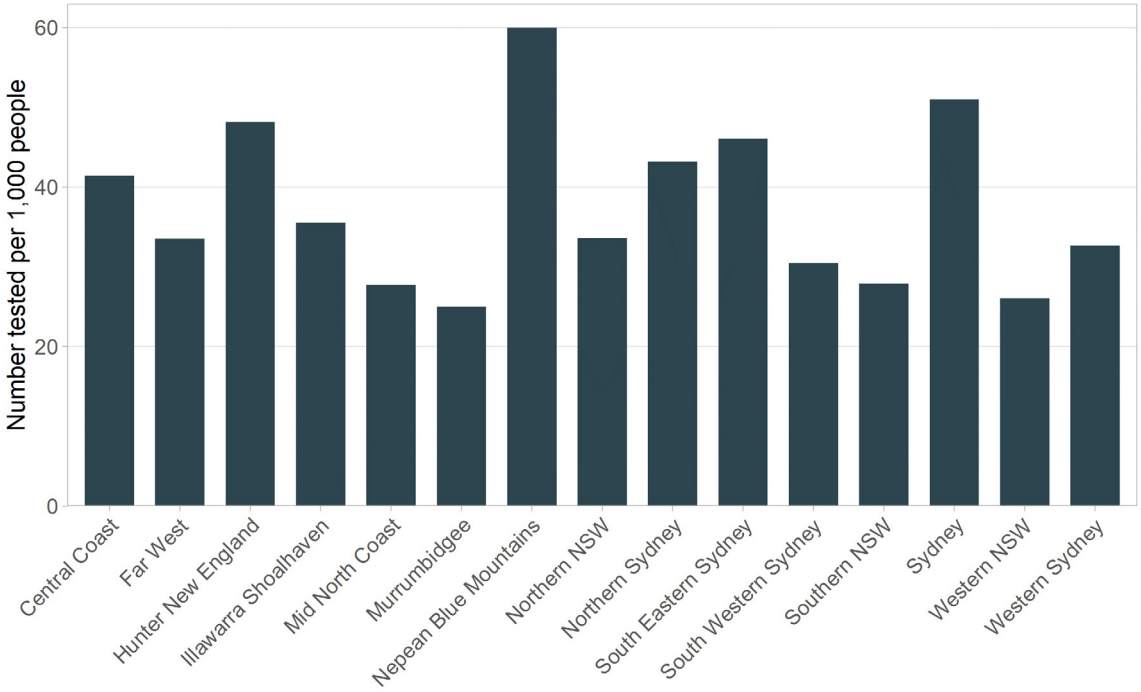
Cases and testing by Local Health District of residence

Figure 11. Rates of locally acquired COVID-19 cases by LHD of residence - 01 April 2020 to 23 May 2020, NSW



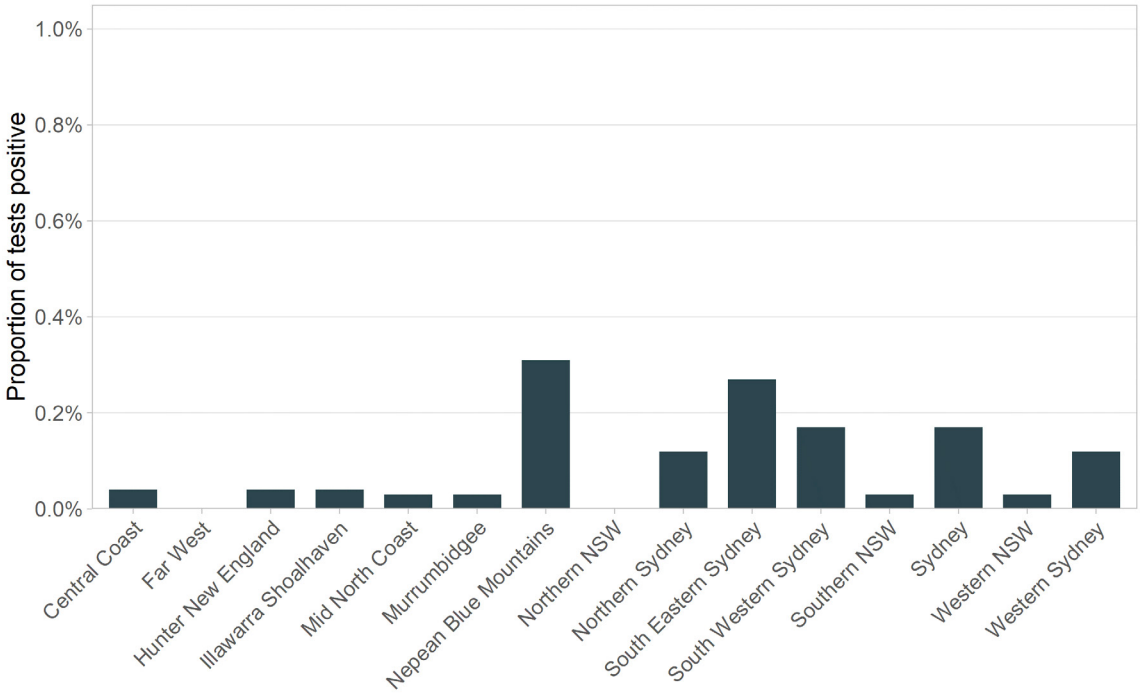
Interpretation: Taking into account the differences in population size between LHDs, Nepean Blue Mountains had a significantly higher rate of COVID-19 diagnosis compared with other LHDs in the period 1 April to 23 May. This is largely a result of the Anglicare Newmarch House aged care facility outbreak in April and early May. The next highest rates were in South Eastern Sydney LHD, however most of the locally acquired cases were notified in the first week of April, with similar rates to the rest of NSW for the remainder of the period.

Figure 12. Rates of COVID-19 testing by LHD of residence - 01 April 2020 to 23 May 2020, NSW



Interpretation: The highest rate of testing since 1 April was in residents of the Nepean Blue Mountains LHD. This is due to the regular, repeated testing of residents and staff as part of the investigation in the Anglicare Newmarch House outbreak, as well as other initiatives to increase local testing. High rates of testing have also been reported in Hunter New England and Sydney LHDs.

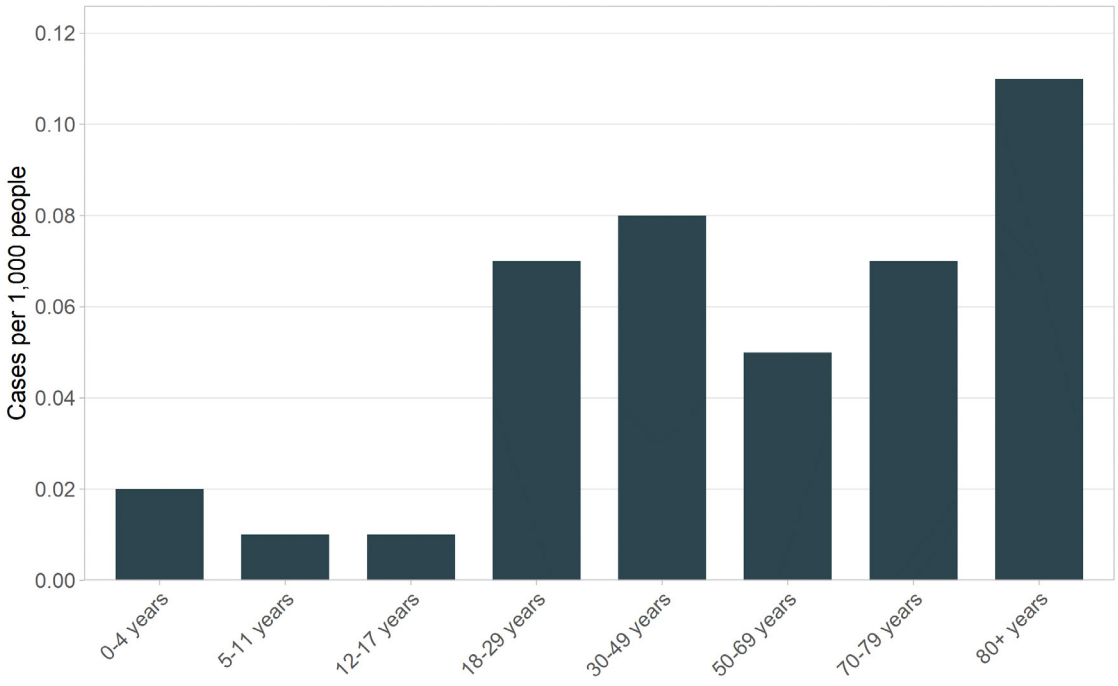
Figure 13. Proportion of tests positive for COVID-19 by LHD of residence - Wed, 01 Apr - Sat, 23 May



Interpretation: The proportion of people tested that are diagnosed with COVID-19 is low throughout the state indicating low levels of transmission.

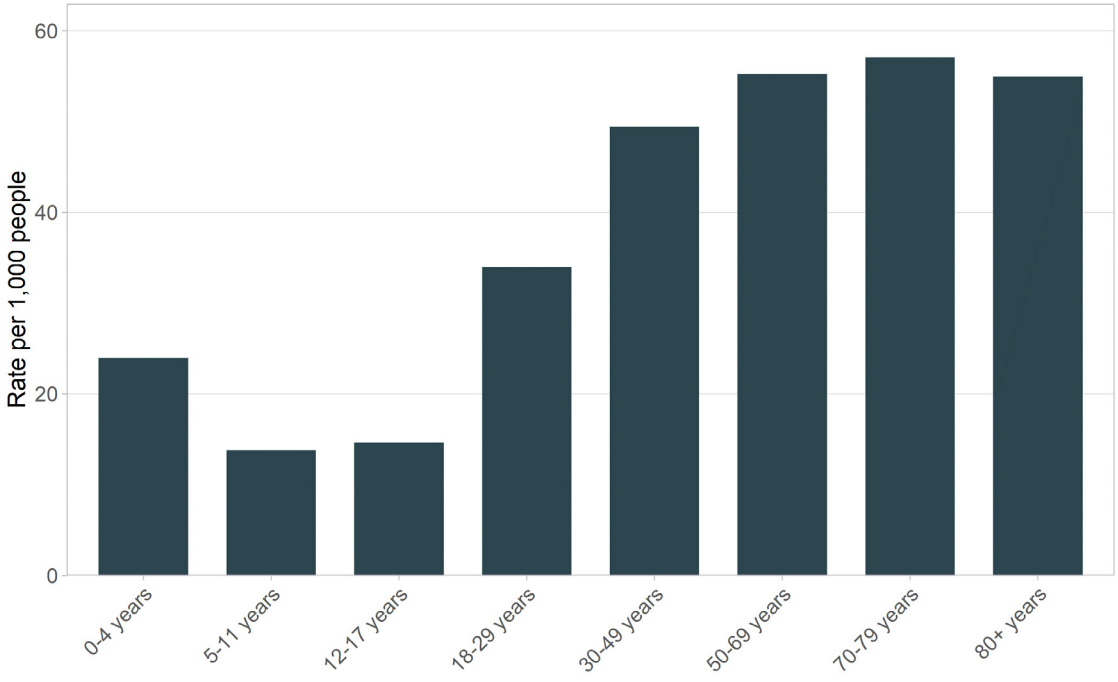
Cases and testing by age group

Figure 14. Rates of locally acquired COVID-19 cases by age group - 01 April 2020 to 23 May 2020, NSW



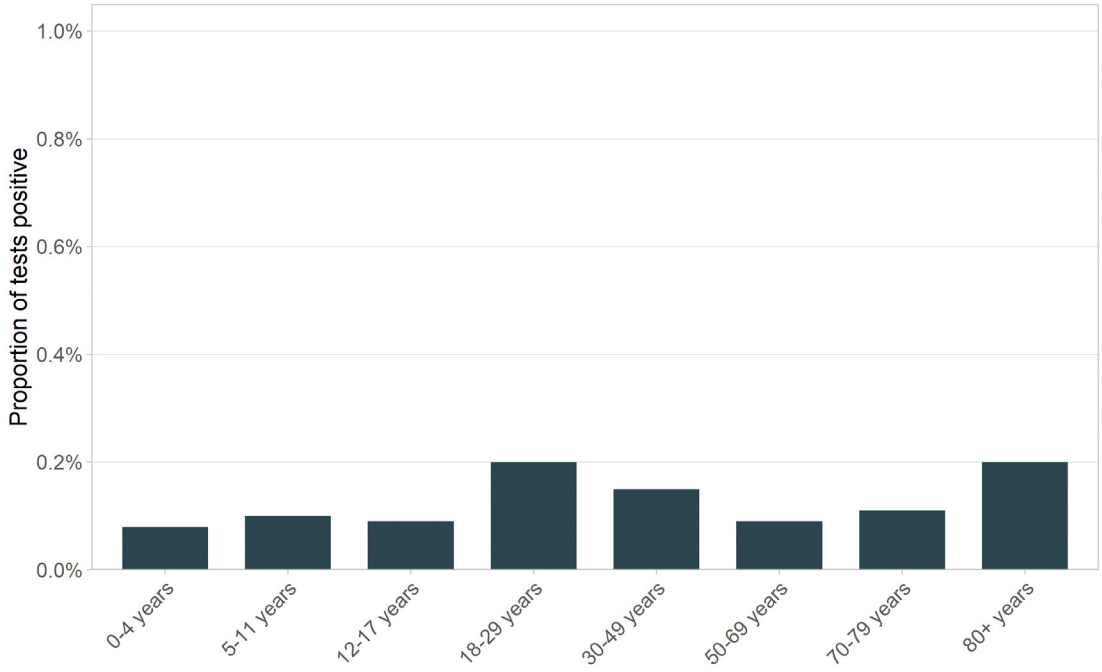
Interpretation: Taking into account the number of people in each age group, rates of infection have been highest in people over 80 years of age (largely driven by outbreaks in aged care facilities) and young adults. Infection rates have been significantly lower in children compared with older age groups.

Figure 15. Rates of COVID-19 testing by age group - 01 April 2020 to 23 May 2020, NSW



Interpretation: Since the beginning of April, testing rates were highest in people over 30 years of age with the lowest rates of testing in school aged children.

Figure 16. Proportion of tests positive for COVID-19 by age group - 01 April 2020 to 23 May 2020, NSW



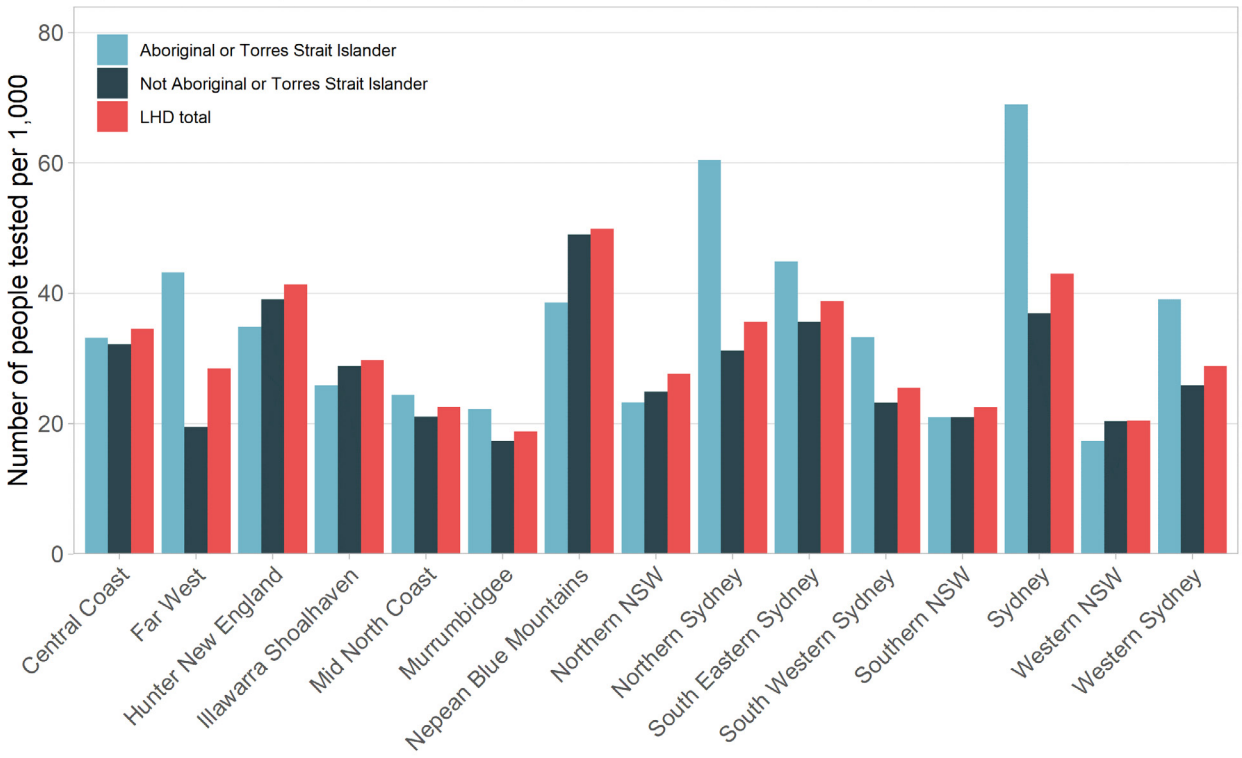
Interpretation: While testing rates are lower in children, so is the test positivity, suggesting that there may be lower rates of COVID-19 illness in children than adults. It is possible that children experience less severe illness than adults and consequently may be less likely to be tested.

Cases and testing in Aboriginal people

Thirteen locally acquired infections have been reported in Aboriginal people since 1 April. Of these, the source of infection was identified for 10 people including eight people who shared a house with known COVID-19 cases and two people who acquired their infection from contact with a known case outside the home. No common links or source of infection was identified for each of the remaining three cases. There have been no deaths from COVID-19 in Aboriginal people in NSW.

While 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 has been 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 16 May 2020. Aboriginal status was ascertained for approximately 90% of all COVID-19 records.

Figure 17. Testing rate by Aboriginality and LHD - 01 April to 16 May 2020, NSW



*Total rates include people with unknown Aboriginality status.

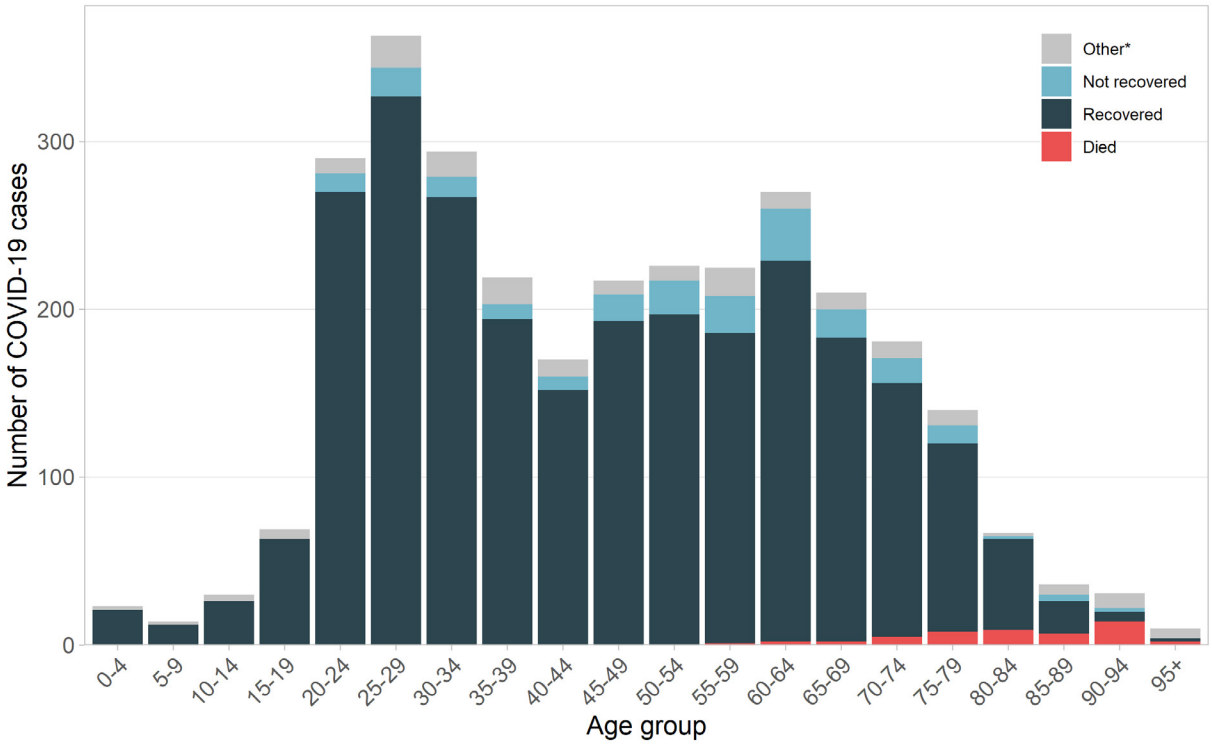
Interpretation: Since 1 April to 16 May highest rates of testing amongst Aboriginal people were reported in Sydney Local Health District. Across Local Health Districts rates of testing amongst Aboriginal people were similar or higher than non-Aboriginal people. While it appears transmission amongst Aboriginal people is limited, continued high rates of testing are important to understand the true extent of illness in the community and enable public health action to limit the spread of infection.

SECTION 4: RECOVERY AND DEATHS

How many cases have recovered?

In NSW, recovery status for COVID-19 is assessed three weeks after the onset of illness by interviewing the case. Cases reporting resolution of all COVID-19 symptoms are considered to have recovered. Cases who have not recovered at three weeks are called in the following weeks until recovery. At the time of interview, the date of recovery is collected to understand the duration of symptoms. The bars on the figure below show the total number of cases acquired by age group and health status up to 23 May. This includes all cases reported in NSW (acquired locally and overseas).

Figure 18. Total number of COVID-19 cases by age group and health status, NSW, 2020



*Less than 3 weeks from symptom onset and/or recovery data not available

Interpretation: Overall, more than 85% of cases have recovered.

How long does it take to recover from COVID-19?

Analysis on information collected from over 2,800 case interviews found that 50% of cases had recovered after 16 days, 75% had recovered after 23 days and 95% had recovered after six weeks. Time to recovery by age group is shown in the table below.

Table 7. Time to recovery by age group

Age group	Time taken for 50% of cases to recover	Time taken for 75% of cases to recover
	Days	Days
≤ 40 years	14	20
41–70 years	17	24
71+ years	19	27
Total	**16**	**23**

Interpretation: Older people take longer to recover than younger people.

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

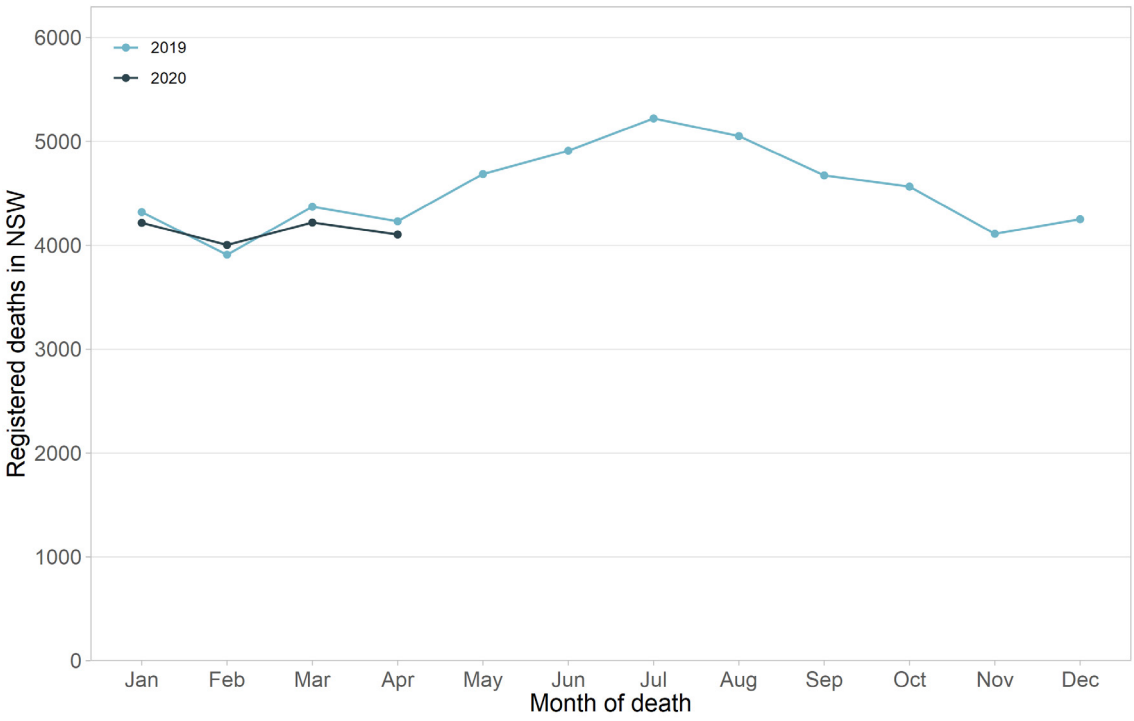
In total, 1.6% of cases (50 people) have died as a result of COVID-19 infection, most of whom were 70 years of age or older. Of these 50, 27 were residents of aged care facilities with known COVID-19 outbreaks. Approximately one-quarter of the deaths were in people who acquired COVID-19 overseas.

Internationally it is estimated that 6.4% of COVID-19 cases are reported to have died as a result of their infection.[1] Countries such as Italy, the United Kingdom and Spain have reported higher rates (14.2%, 14.2% and 12.2%), while NSW reports similar rates to South Korea (2.4%) and New Zealand (1.8%).

How many people have died in NSW from all causes of death?

NSW Health receives notifications of all deaths notified to the NSW Registry of Births Deaths and Marriages. Deaths from all cause are seasonal, increasing in winter and decreasing in summer. On average there is a delay of about 14 days for a death to be registered and notified to NSW Health, and deaths referred to a coroner may take longer to register.

Figure 19. Deaths from any cause registered in NSW up to 21 May, 2020



Interpretation: In March and April 2020, the numbers of deaths registered to date are lower compared to the same period in 2019. Similar to 2019, most deaths this year (83% in April 2020) are in people aged 65 years and over. While there is a lag in notification of deaths, there is no indication to date that the COVID-19 pandemic in NSW is causing an overall increase in mortality.

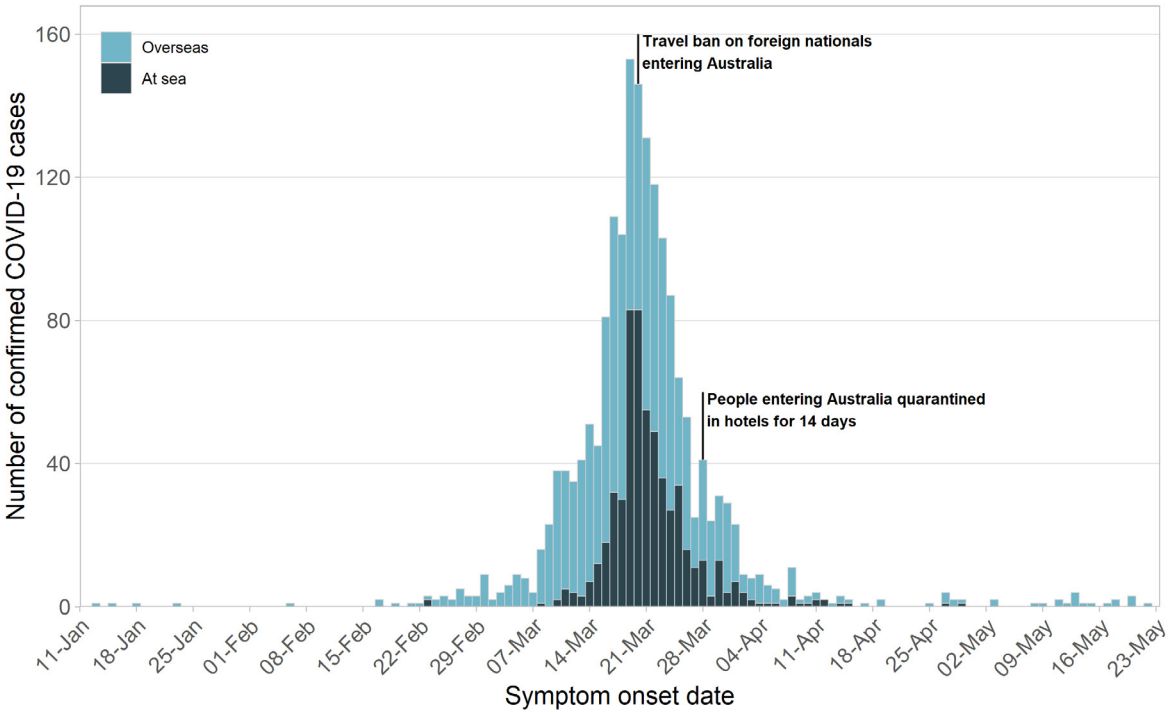
[1] WHO Coronavirus disease (COVID-19) Situation Report – 126
https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200525-covid-19-sitrep-126.pdf?sfvrsn=887dbd66_2

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 addition, since 28 March returned travellers have been quarantined in hotels for a 14-day period and travellers who develop symptoms are isolated until no longer infectious.

The graph below shows the number of cases in returned travellers by the date of symptom onset. Cases acquired at sea refers to those cruise ship passengers who acquired their infection on board prior to disembarking in NSW.

Figure 20. Number of overseas acquired COVID-19 cases reported per day, NSW, 2020



Note: For asymptomatic cases or where symptom onset is unavailable, the onset date is calculated from the earliest specimen collection date.

Interpretation: The number of new cases in returned travellers has decreased markedly in line with travel restrictions. Among cases notified since 1 April, returned travellers account for 39% (n=369) of cases reported in NSW. Cruise ship passengers (including cruises which disembarked outside Australia) accounted for the largest number of overseas acquired infections (96 cases) in this period. Following this, cases were most commonly returning from the United States (49 cases), United Kingdom (45 cases), and Chile (27 cases).

Airport screening

Health screening of returning travellers was introduced for people returning from particular countries early in the outbreak but was expanded to all returning travellers (on 21 March 2020). As part of the health screening passengers are asked to complete a questionnaire about their health upon arrival into Sydney International Airport. People with symptoms are assessed by an onsite health team and tested for COVID-19.

During the week of Sunday 17 May to Saturday 23 May, 3,584 people were screened at Sydney International Airport and 70 were referred for testing. Since screening began on 2 February, a total of 68,497 people have been screened and 747 were referred for onsite health assessment and testing.

IN FOCUS
COVID-19 IN CHILDREN

Reporting period: 1 January to 23 May 2020

A review of COVID-19 cases in children up to 23 May found:

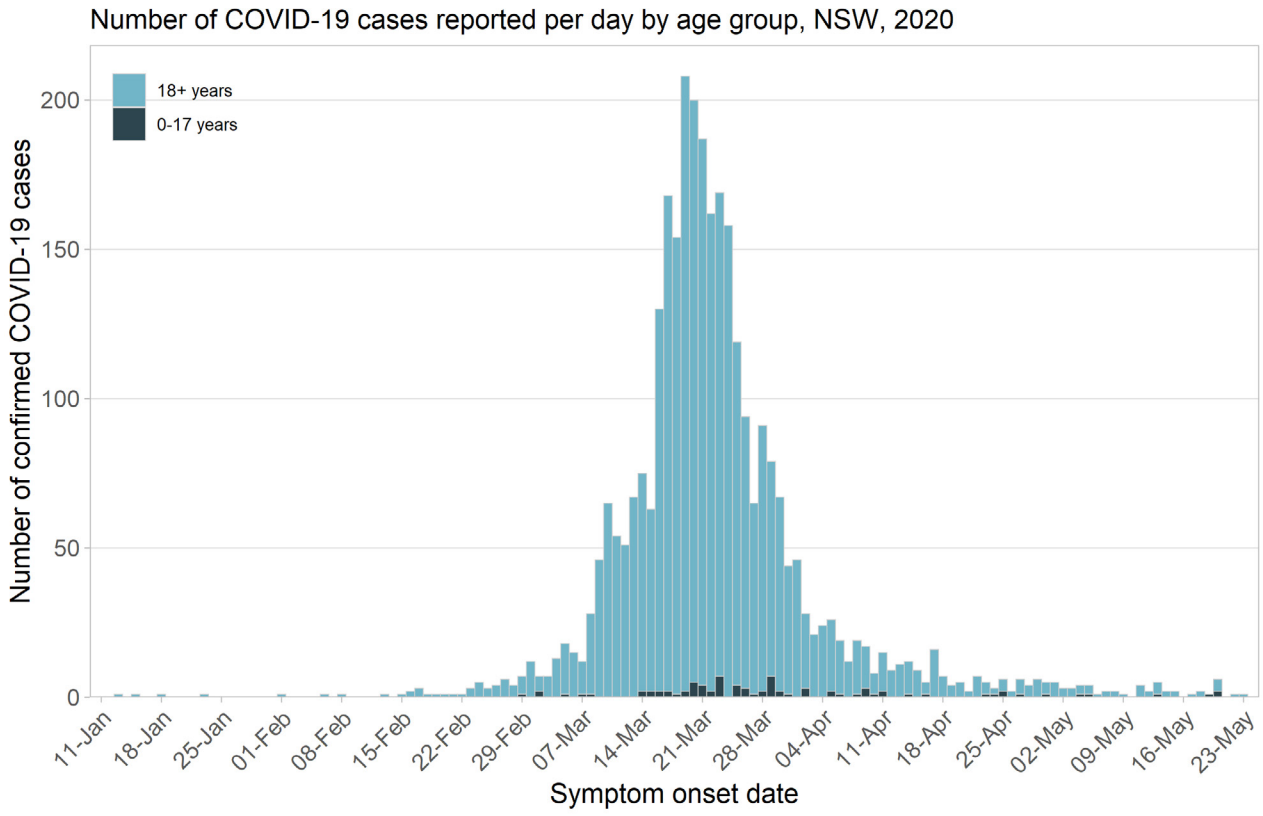
- Eighty-one children were diagnosed with COVID-19 including 59 (73%) locally acquired infections and 22 (23%) overseas acquired infections.
- The rate of diagnosed COVID-19 infection in adults was approximately 10 times the rate reported in children (0.05 per 1,000 in those aged 0-17 years compared with 0.48 per 1,000 people in those aged 18 and over).
- While testing rates were lower in children compared with adults, so was the proportion positive of tests that were positive, indicating limited spread of COVID-19 among children. The proportion of tests that were positive ranged from 0.1% in children aged 0-4 years up to 0.3% in children aged 12 to 17 years compared with 0.6% to 1% in adult age groups.
- Of the 59 locally acquired cases, 44 (75%) had a likely source of infection identified. Where known, the majority of children (34 cases) were infected by a household member, typically a parent who had a known exposure to COVID-19 outside the home. No child (diagnosed by PCR) was found to have been infected by another child.
- While children are known to spread other respiratory diseases within households, this was not observed for COVID-19. There were nine households (total of 21 people) in which a child was the first in the family known to have COVID-19 and the family members had no known previous exposure to COVID-19. Child-to-adult transmission was likely in only one household involving a 17 year-old and his father. No additional cases were identified among the remaining 20 household members.

This is a summary of all COVID-19 infections in children diagnosed in NSW (including those who were infected overseas and returned to NSW and those infected in NSW) in the period 1 January to 23 May 2020. Excluded from this report are cases diagnosed by serology as part of an enhanced investigation in the schools setting. Refer to Sections 2 and 3 for a review of recent local transmission in all age groups.

How many children have been diagnosed with COVID-19 in NSW?

In total, 81 children (aged 0 to 17 years) were diagnosed with COVID-19 in NSW. Of these 81 children, 23 (28%) were aged 0 to 4 years, 25 (31%) aged 5 to 11 years and 33 (41%) were aged 12 to 17 years.

Each bar in the graph below represents the number of new cases based on the date the person started to feel unwell (date of symptom onset) from January to 23 May 2020.[1] During this period the date of symptom onset for children ranged from 29 February to 19 May 2020.



Note: For asymptomatic cases or where symptom onset date is not available, the onset date is calculated from the earliest specimen collection date.

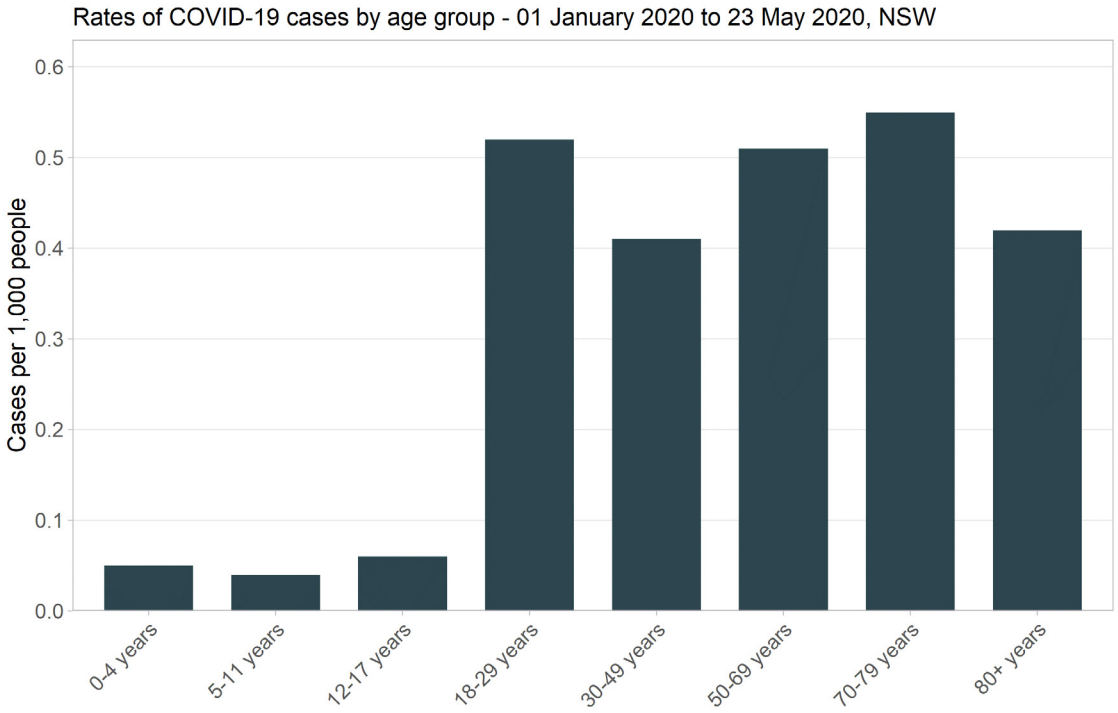
Interpretation: Children were a very small proportion (3%) of all COVID-19 cases diagnosed in NSW to 23 May 2020.

[1] Information collected by public health staff on interview with the case or case's guardian at the time of diagnosis.

How do infection rates in children compare with adults?

The rate of COVID-19 in each age group takes into account the different number of people in the population in each age group so is a better way to compare infections than the number of cases in each age group.

The rate of COVID-19 cases in adults was approximately 10 times the rate reported in children (0.05 per 1,000 in those aged 0-17 years compared with 0.48 per 1,000 people in those aged 18 and over).

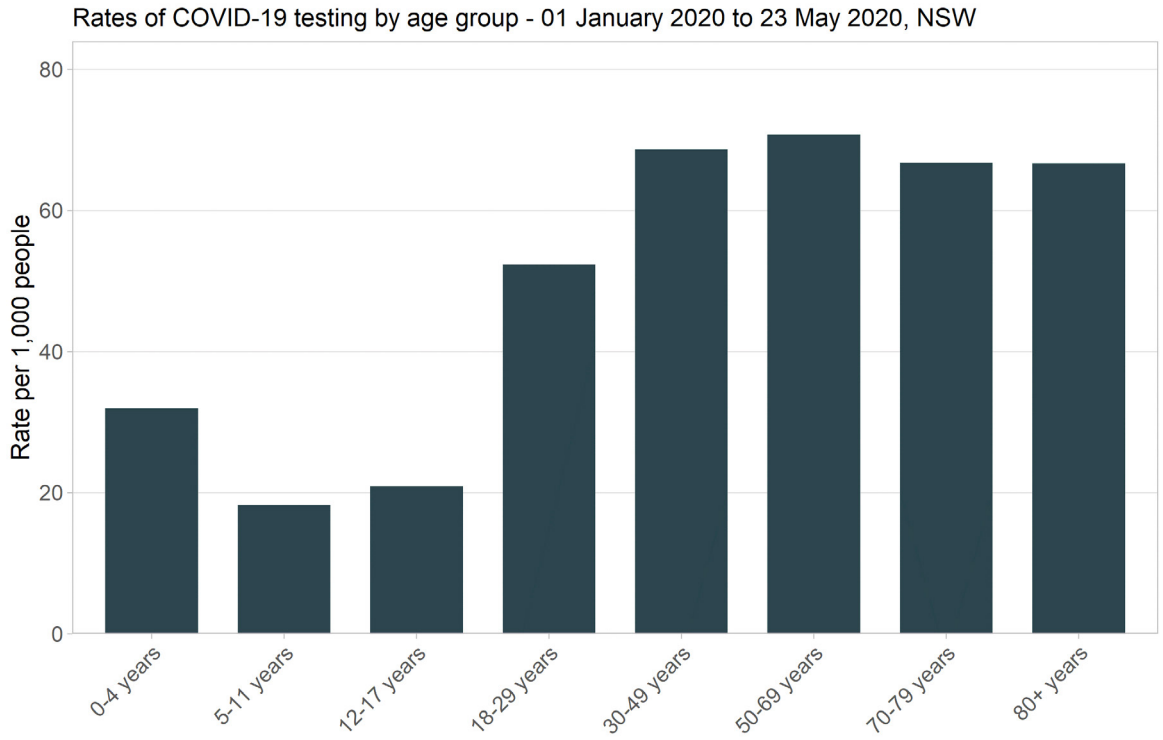


Interpretation: Rates of diagnosed COVID-19 infection in children were similar across all age groups (ranged from 0.04 per 1,000 children aged 5-11 years to 0.06 per 1,000 children aged 12 to 17 years). Rates were significantly lower when compared to those in older age groups (ranged from 0.41 per 1,000 people aged 30 to 49 years to 0.55 per 1,000 people aged 70 to 79 years). This is likely to reflect, at least in part, the higher number of adults who returned to NSW from countries with widespread COVID-19 transmission. It is also possible that children are more likely to experience mild symptoms and so are less likely to be tested.

A review of local transmission in Section 3 also shows lower rates of diagnosed COVID-19 infection in children when compared with adults.

How much testing is happening in children?

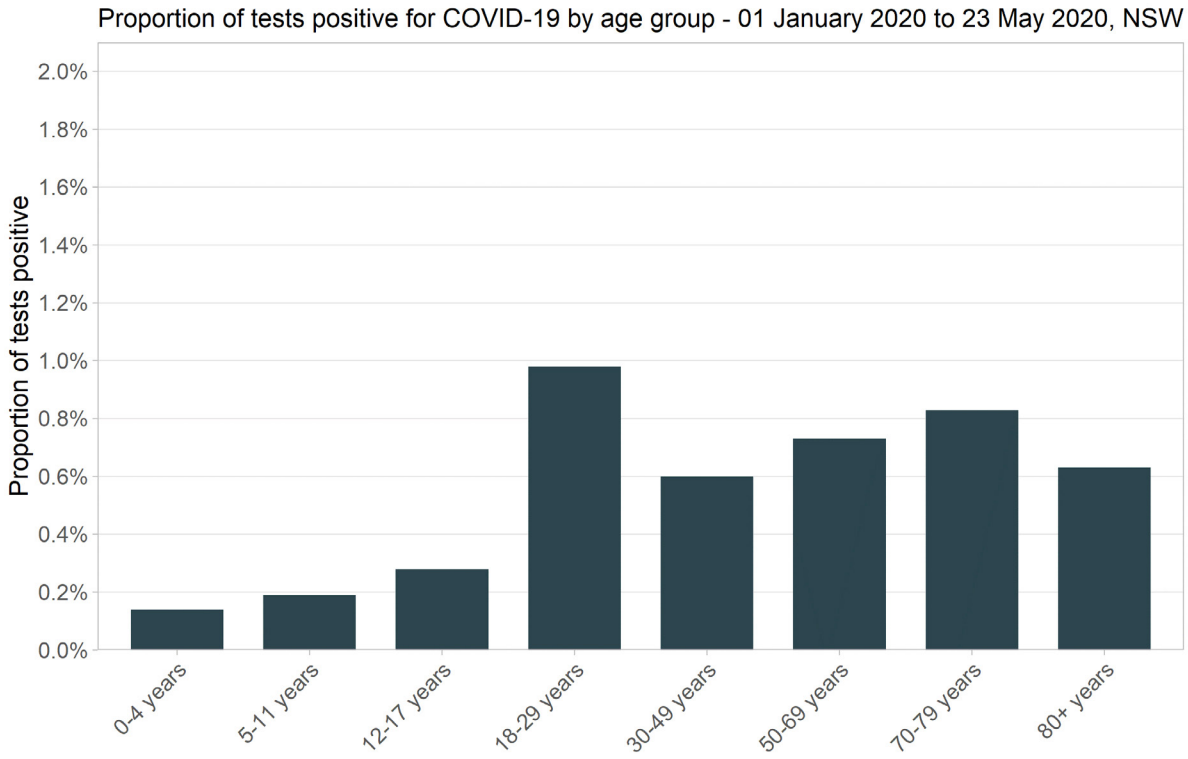
In total, 40,694 COVID-19 tests on 39,166 different children have been conducted in children up to 23 May – 9% of all tests.[2] As reported in Section 1, testing rates have increased across all age groups since the criteria for testing were expanded in April. While initially restricted to returned travellers and close contacts, testing is now recommended for anyone with respiratory symptoms (even if mild) or unexplained fever.



Interpretation: Among children, testing rates were highest in those aged 0 to 4 years (32 per 1,000 compared with 18 per 1,000 children aged 5-11 years and 21 per 1,000 children aged 12 to 17 years). These rates were substantially lower when compared to adult age groups (ranged from 52 per 1,000 people aged 18 to 29 years to 71 per 1,000 people aged 50 to 69 years).

[2] https://www.health.nsw.gov.au/Infectious/covid-19/Pages/counting-tests.aspx

What proportion of children tested are diagnosed with COVID-19?



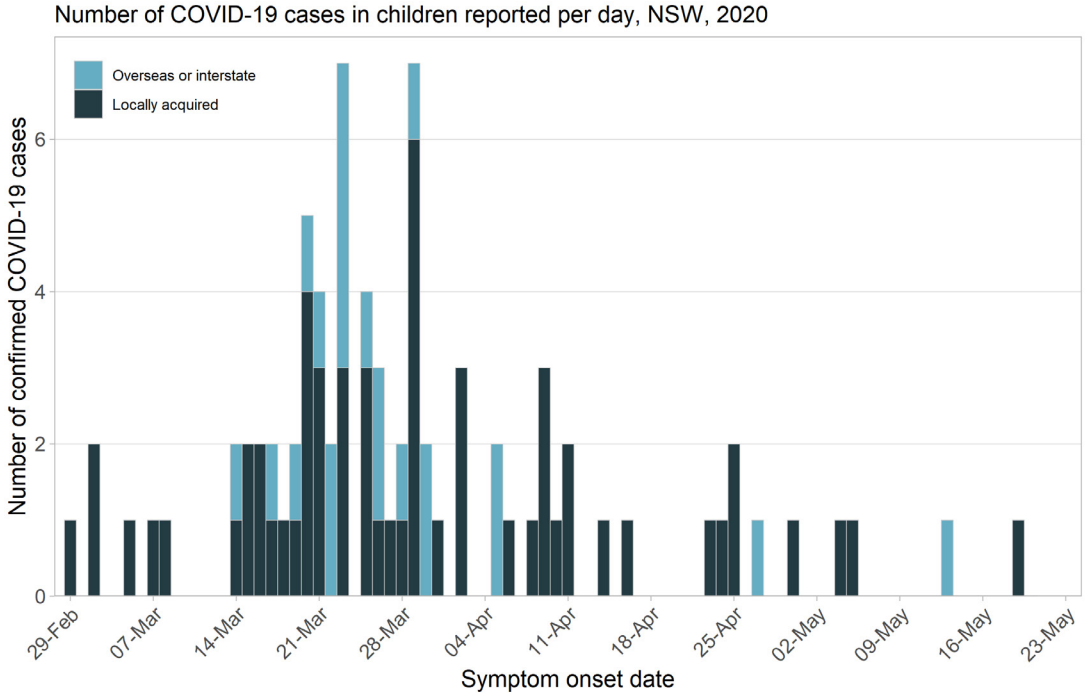
Interpretation: The proportion of tests that were positive for COVID-19 was less than 1% across all age groups indicating low rates of COVID-19 infection in NSW. Among children, the proportion of tests that were positive ranged from 0.1% to 0.3%. While testing rates were lower in children compared with adults, the low proportion of tests found to be positive indicates low rates of COVID-19 in younger age groups.

Is it more common for boys or girls to get infected?

As seen in adults in NSW, infections were evenly distributed amongst boys and girls.

How are children getting infected?

All cases of COVID-19 are investigated by public health staff to understand the source of the infection. The figure below shows where children have been infected (overseas or in NSW).



Note: For asymptomatic cases or where symptom onset date is not available, the onset date is calculated from the earliest specimen collection date.

Interpretation: The majority of children (73%, 59 cases) have been infected with COVID-19 while in NSW. The remaining 27% (22 cases) acquired their infection overseas.

Locally acquired cases

Source of infection for 59 locally acquired COVID-19 cases in children to 23 May 2020

Source of infection	Number of cases	Proportion of locally acquired cases
Household member/s	34	58%
Confirmed cases outside the home	10	17%
Source not identified	15	25%
Total	59	100%

Interpretation: Children were most commonly infected by a household member.

Children infected in the home

Of the 34 children (comprising 28 different households) who likely contracted their infection at home, all lived with at least one COVID-19 positive adult who experienced symptoms prior to the child. The COVID-19 positive adult was one or both parents for 30 children, an adult sibling for two children, a grandmother for one child and a non-related adult household member for the remaining child.

Of the children infected at home, six (18%) were aged 0 to 4 years, 12 (35%) were aged 5 to 11 years and 16 (47%) were aged 12 to 17 years.

Children infected outside the home

Transmission likely occurred outside the home for 10 children including six children from a single child care centre (source of the outbreak identified as an adult), two with COVID-19 positive carers, one child likely infected by a teacher at a primary school (refer to the National Centre for Immunisation Research and Surveillance Report COVID-19 in schools – the experience in NSW) and one teenager who likely contracted COVID-19 from an adult colleague at work.[3]

Children with an unknown source of infection

The source of the infection was unable to be determined for 15 children with locally acquired infections (comprising 12 households) including a mother and two sons with similar dates of symptom onset (suggesting they shared the same source) and a family cluster of four cases (three adults and one child) with no obvious source of infection. The two most recently reported cases in children are undergoing further investigation.

Of the 12 households, 10 were located in different suburbs across greater metropolitan Sydney with the remaining two located in separate regional towns.

Are children with COVID-19 infecting household members?

In order to prevent the spread of infection in the community, all household members of a COVID-19 infected person are isolated for 14 days from their last contact with the case and advised to seek COVID-19 testing if symptoms develop. As it is difficult for children to be isolated within a household, all those who live with a child with COVID-19 must remain in isolation for a further 14 days after the child is considered no longer infectious.

Excluding the two most recent cases under investigation, there were nine households in which a child was the first in the family known to have COVID-19 and the family members had no known previous exposure to COVID-19. The age of these cases ranged from 2 to 17 years with five children aged 0 to 4 years. The date the child first developed symptoms ranged from 8 March to 30 April 2020. In total, across the nine households, there were 16 adults and five children who shared the same house as a child known to have COVID-19. Child-to-adult transmission was likely in only one household involving a 17 year-old son and his father. There was no evidence of COVID-19 spreading to the remaining 20 family members.

In no case was a child identified as introducing COVID-19 into the household.

Overseas acquired cases

In total, 22 children diagnosed with COVID-19 in NSW were infected overseas. This includes eight cruise ship passengers, six travellers from Western Europe, four from the USA, and one each from Indonesia, India, Pakistan and Brazil.

[3] This includes children who test positive to a validated specific SARS-CoV-2 nucleic acid test or have the virus identified by electron microscopy or viral culture. One child in NSW has been diagnosed by a positive antibody test four weeks after their exposure (PCR negative) as part of an investigation following a confirmed case in a school but is not included in this report.

Have Aboriginal children been infected?

In total, seven Aboriginal children have been diagnosed with COVID-19 up to 23 May. Of these, six children (in three separate familes) acquired their infection in NSW through household contact with an adult who had a known exposure to COVID-19. The remaining child was infected overseas.

What are the symptoms in children?

The majority of symptomatic children had respiratory symptoms (with or without fever) at the time of case interview.[4] The most commonly reported symptoms are shown in table below.

Fourteen children (17% including six aged 0 to 4 years, four aged 5 to 11 years and four aged 12 to 17 years) diagnosed with COVID-19 were reported to not have any symptoms. With the exception of the child who was tested as part of a family group and is pending further laboratory investigation, all of the asymptomatic cases were tested as they were known to have been at risk of exposure to COVID-19. Eight children had a known exposure outside the home and the remaining five children had an adult household member with a known exposure to COVID-19 outside the home. Testing is not recommended for those without symptoms except in special settings such as schools when a case has been identified.

Frequency of symptoms reported in children with COVID-19 by age group

Symptom	0-4 years (17 cases)		5-11 years* (20 cases)		12-17 years (29 cases)		Total (66 cases)	
	No.	%	No.	%	No.	%	No.	%
Cough	11	65%	7	35%	16	55%	34	52%
Fever	8	47%	7	35%	15	52%	30	45%
Runny/blocked nose	8	47%	9	45%	14	48%	31	47%
Sore throat	1	6%	5	25%	15	52%	21	32%
Fatigue	4	24%	6	30%	11	38%	21	32%
Diarrhoea	6	35%	1	5%	2	7%	9	14%
Vomiting	3	18%	5	25%	1	3%	9	14%

*Excluding a single case known to have symptoms but with information unavailable.

Interpretation: Cough, fever and runny/blocked nose were commonly reported in children across all age groups. Approximately half of the older children (aged 12 to 17) also experienced a sore throat.

How many children have recovered?

Recovery information was available for 71 children in NSW, all of whom had recovered. No admissions to critical care and no deaths have been reported.

While Paediatric Inflammatory Multisystem Syndrome Temporally associated with SARS-COV-2 (PIMS TS) has been reported internationally, no cases have been identified in NSW. Refer to Paediatric Active Enhanced Disease Surveillance (PAEDS) network for further information.

[4] Information collected by public health staff on interview with the case or case's guardian at the time of diagnosis.