COVID-19 WEEKLY SURVEILLANCE IN NSW

EPIDEMIOLOGICAL WEEK 42, ENDING 17 OCTOBER 2020

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SUMMARY FOR THE WEEK ENDING 17 OCTOBER

- There were 31 locally-acquired cases in NSW this week – an increase of 63%.
- The majority of locally-acquired cases (28/31, 90%) were linked to known cases or clusters.
- Seven cases were reported in a new cluster associated with a GP clinic in Lakemba.
- More than half of the cases reported this week were tested more than three days after symptom onset.
- The majority of locally-acquired cases reported in the two weeks up to 17 October were residents of South Western Sydney LHD (56%, 28/50) and Western Sydney LHD (24%, 12/50).
- Testing numbers have increased compared to the previous week (up 23%).
- The NSW Sewage Surveillance Program reported six detections of SARS-CoV-2. These samples were taken from the Bondi, Malabar, Liverpool, West Camden and Quakers Hill treatment plants. Detections from these catchment areas are associated with reported cases.

In Focus – COVID-19 in older adults: 1 January to 17 October 2020

For people aged 70 years and over:

- Most cases acquired their infection while overseas (64%). A large portion had been on cruise ships where there was known transmission.
- Most common settings of exposure for locally-acquired cases were aged care facilities (38%) and households (33%).
- Illness is more severe and 91% of COVID-related deaths in NSW have been in people aged 70 years and over.
- Testing rates are higher in Aboriginal people than non-Aboriginal people.
- There is a higher rate of infection in men than women.

SECTION 1: PREVENTING THE SPREAD OF COVID-19 – WE ALL PLAY A ROLE

Everyone has an important role to play to prevent the spread of COVID-19. For the public health response to be effective, members of the community, laboratories, clinicians and public health staff all have to play their part.

The sooner we can diagnose cases, the faster we can identify other people who may have been infected, and the better we can limit the spread of infection across our community.

The roles we all play are outlined below.

Everyone

- Seek medical attention and get tested quickly every time you develop respiratory symptoms (even if mild) or unexplained fever.
- Stay at home to avoid spreading infection to others as soon as you:
    - develop symptoms and until you are told that you do not have COVID-19 and you are well
    - are told that you are a close contact of a COVID-19 case and until your quarantine period has ended (even if you test negative before then).
- Follow the advice given in public health alerts regarding the need to self-isolate and seek testing if you attended a location at a time where a cluster has been identified.

People who are diagnosed with COVID-19

- Provide information to public health staff at the time of interview on the locations visited and people you have been in contact with in your **incubation period** and while infectious.
- Stay at home until you are told your isolation period has ended.

Clinicians

- Promote COVID-19 testing amongst symptomatic people to ensure a COVID-19 diagnosis as close as possible to the time symptoms start.
- Encourage testing in people without symptoms when advised to do so for public health purposes.
- Support cases to self-isolate until their isolation period has ended.
- Be vigilant in the use of personal protective equipment.

Laboratories

- Notify NSW Health of new diagnoses promptly so public health staff can interview cases and identify people potentially infected by a case (close contacts).

Public health staff

- Interview cases as quickly as possible after diagnosis and collect information from cases to detect new clusters and enable contact tracing.
- Quarantine close contacts as quickly as possible.

Indicators of effective prevention measure for COVID-19 in NSW in the past two weeks

	Week ending 17 Oct	Week ending 10 Oct
Number of cases with symptoms at diagnosis	74% (23/31)	68% (13/19)
Proportion of cases in isolation at least 48 hours before symptoms	9% (2/23)	0% (0/13)
Cases not in isolation at symptom onset		
Proportion tested (swabbed) within:		
• 1 day of symptom onset	29% (6/21)	38% (5/13)
• 2 days of symptom onset	38% (8/21)	54% (7/13)
• 3 days of symptom onset	38% (8/21)	69% (9/13)
Proportion tested more than 3 days after symptom onset	62% (13/21)	31% (4/13)
Proportion who entered isolation within:		
• 1 day of symptom onset	24% (5/21)	38% (5/13)
• 2 days of symptom onset	38% (8/21)	54% (7/13)
• 3 days of symptom onset	38% (8/21)	62% (8/13)
Proportion who entered isolation more than 3 days after symptom onset	62% (13/21)	38% (5/13)
Number of tests conducted	88,636	71,821
Proportion notified to NSW Health by the laboratory within:		
• 1 day of swab collection	81% (25/31)	95% (18/19)
• 2 days of swab collection	100% (31/31)	95% (18/19)
• 3 days of swab collection	100% (31/31)	95% (18/19)
Proportion notified to NSW Health by the laboratory more than 3 days after the swab collection	0% (0/31)	5% (1/19)*
Proportion of locally-acquired cases interviewed by public health staff within 1 day of notification to NSW Health	100% (31/31)	100% (19/19)
Proportion of close contacts (identified by the case) contacted by public health within 48 hours of case notification	100%	100%

*Includes a past infection.

Interpretation: Eight cases this week did not report symptoms at the time of diagnosis and sought testing as they were identified as household or close contacts of confirmed cases. Of 23 cases in the last week who reported symptoms at diagnosis, two were in isolation at the time of diagnosis or before developing symptoms. Of the remaining 21 cases, eight (38%) had begun isolation within two days of their onset of symptoms. There were 13 cases (62%) reported this week who went into isolation more than three days after symptom onset. It is important that people seek testing immediately if mild symptoms develop. One case was tested more than 15 days after symptom onset as part of a source investigation.

The time taken to notify cases has slightly decreased, with 81% of new cases in the week ending 17 October notified to NSW Health within one day of swab collection. Public health staff are responding quickly, with all cases interviewed within one day of notification.

SECTION 2: HOW IS THE OUTBREAK TRACKING IN NSW?

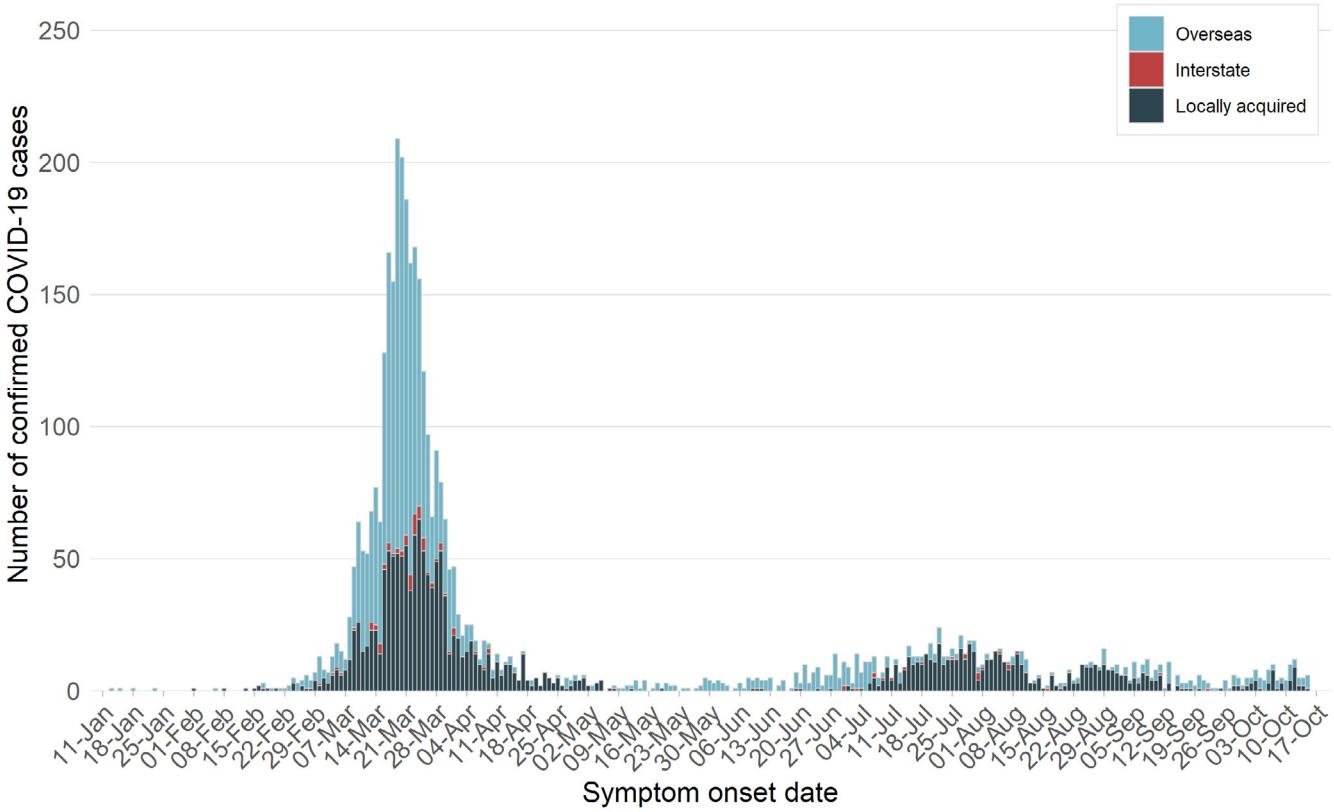
Table 1. COVID-19 cases and tests reported in NSW, up to 17 October 2020

	Week ending 17 Oct	Week ending 10 Oct	% change	Total to 17 Oct
Number of cases	58	46	↑ 26%	4,150
Overseas acquired	27	27	-	2,212
Interstate acquired	0	0	-	91
Locally acquired	31	19*	↑ 63%	1,847
No links to other cases or clusters	3	2	↑ 50%	432
Number of deaths	0	0	-	55
Number of tests	88,636	71,821	↑ 23%	2,913,299

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

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, 2020



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

Interpretation: Approximately half (52%) of COVID-19 infections diagnosed in the last two weeks in NSW have been overseas acquired.

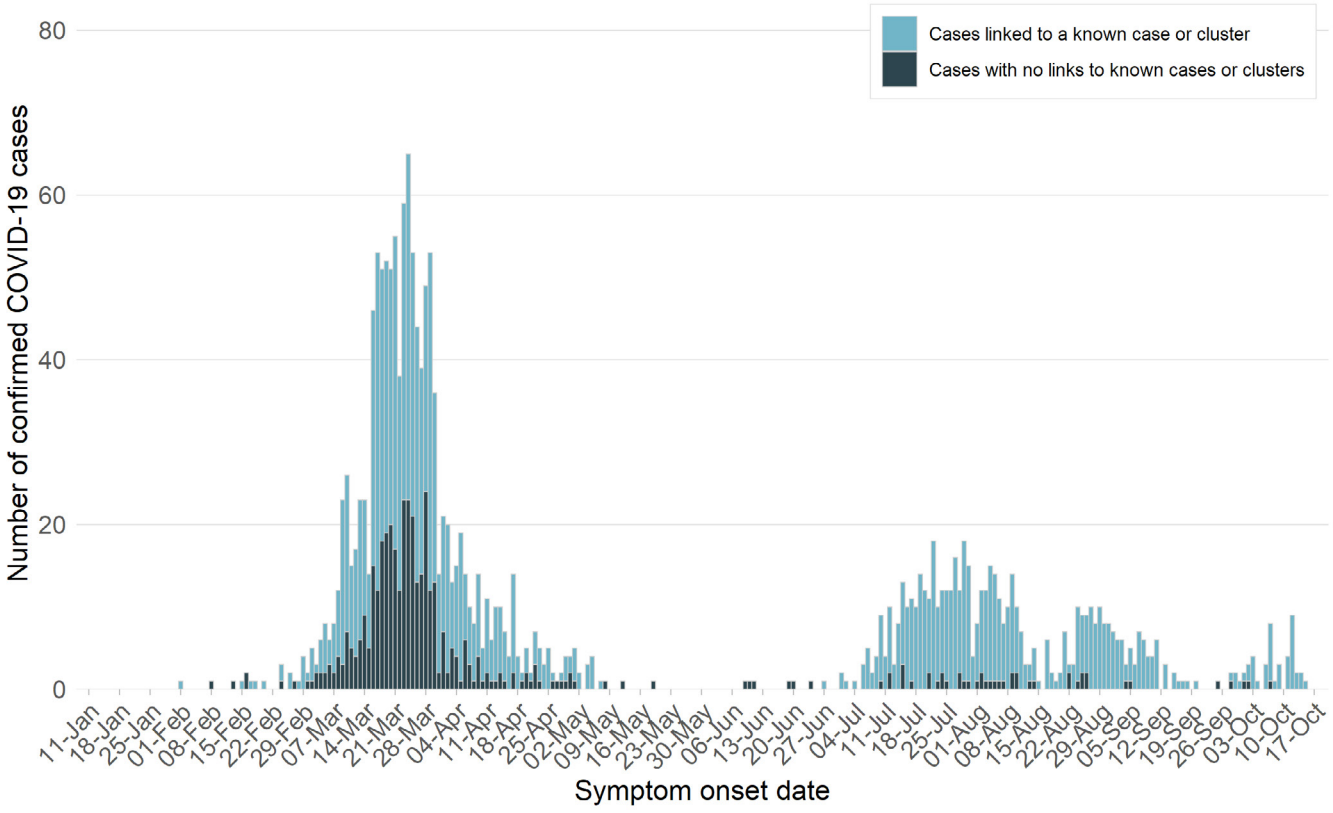
How many NSW cases were infected in Victoria?

In response to the continued community transmission in Victoria, border measures were introduced to limit the spread of infection into NSW. From 8 July, under the Public Health (COVID-19 Border Control) Order 2020, a person who has been in Victoria within the last 14 days must not travel to NSW without a permit. The Order was last updated on 28 September. Recent changes included expansions to the border region and changes to permitted activities. The last case acquired in Victoria was reported on 1 October.

How much transmission is occurring in NSW?

All new cases are investigated by public health staff to determine the likely source of infection and to identify **clusters**. To understand the extent of community transmission, locally-acquired cases who have had contact with a case or who are part of a known cluster are considered separately to those with an unidentified source of infection. Cases with no links to other cases or clusters suggest that there are people infected with COVID-19 in the community who have not been diagnosed. Currently, public health efforts are focused on contact tracing to limit further spread in the community, and identifying the source of infection for every case.

Figure 2. Locally acquired COVID-19 cases by likely infection source and illness onset, NSW, 2020



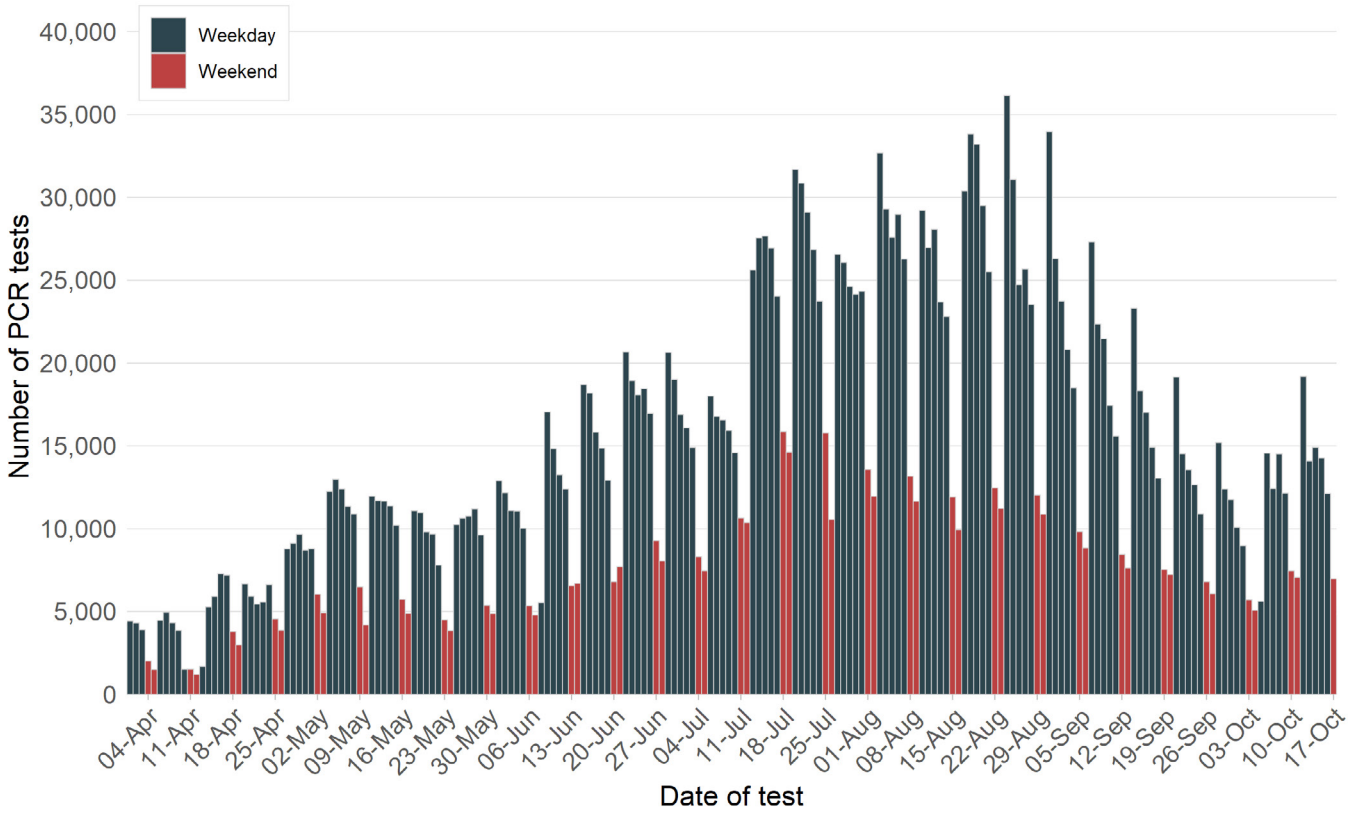
The date of the first positive test is used for cases who did not report symptoms.

Interpretation: Of the locally-acquired cases with an onset in the last four weeks, 90% (45/50) were linked to known cases or clusters.

How much testing is happening?

The bars on the graph below show the number of tests by the date a person presented for the test.[1] While public health facilities are 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 PCR tests per day, NSW, 2020



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

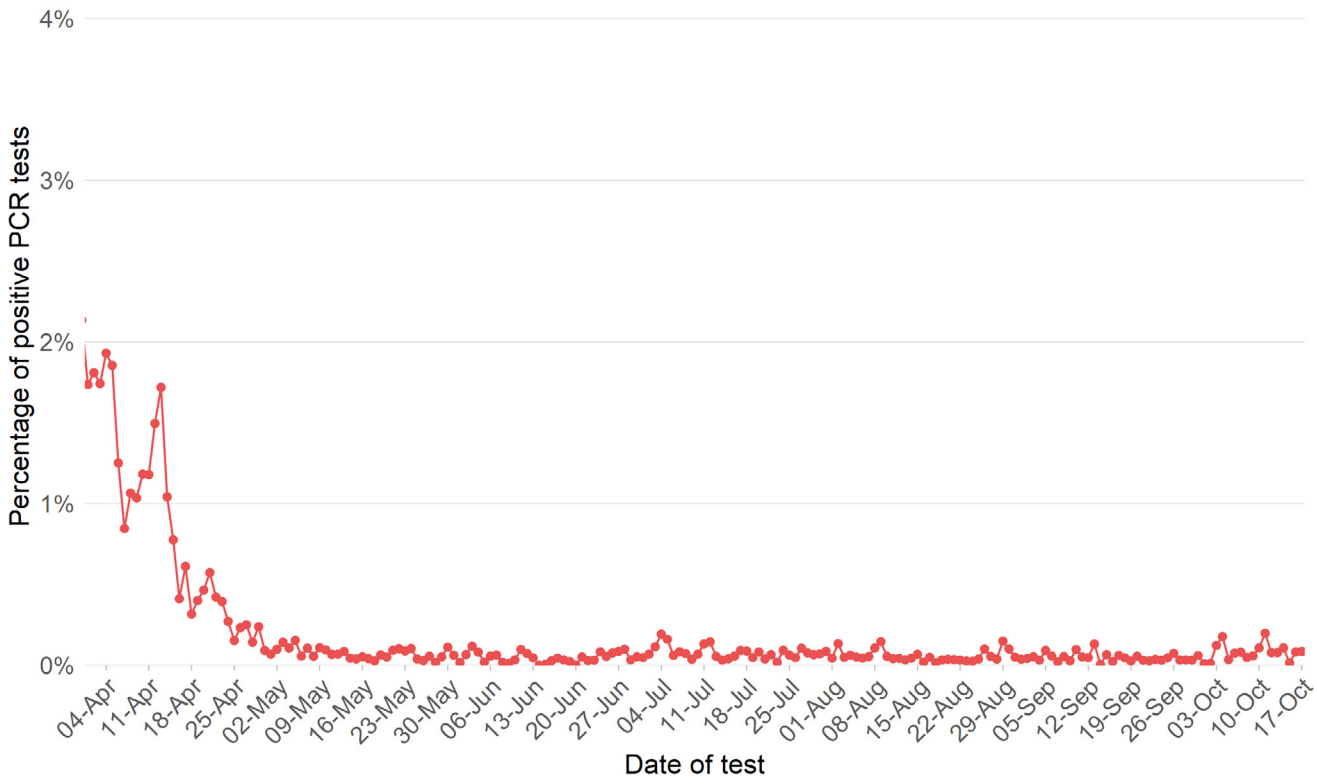
Interpretation: Early in the outbreak the focus of testing was on returned travellers and close contacts of confirmed cases, whereas now testing is recommended for anyone with even mild respiratory symptoms or unexplained fever.

Testing numbers in the week ending 17 October were higher compared with the previous week. An average of 1.6 tests were conducted per 1,000 people in NSW each day in the past week, compared to an average of 1.3 tests per 1,000 people in the previous week.

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

What proportion of tests are positive?

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

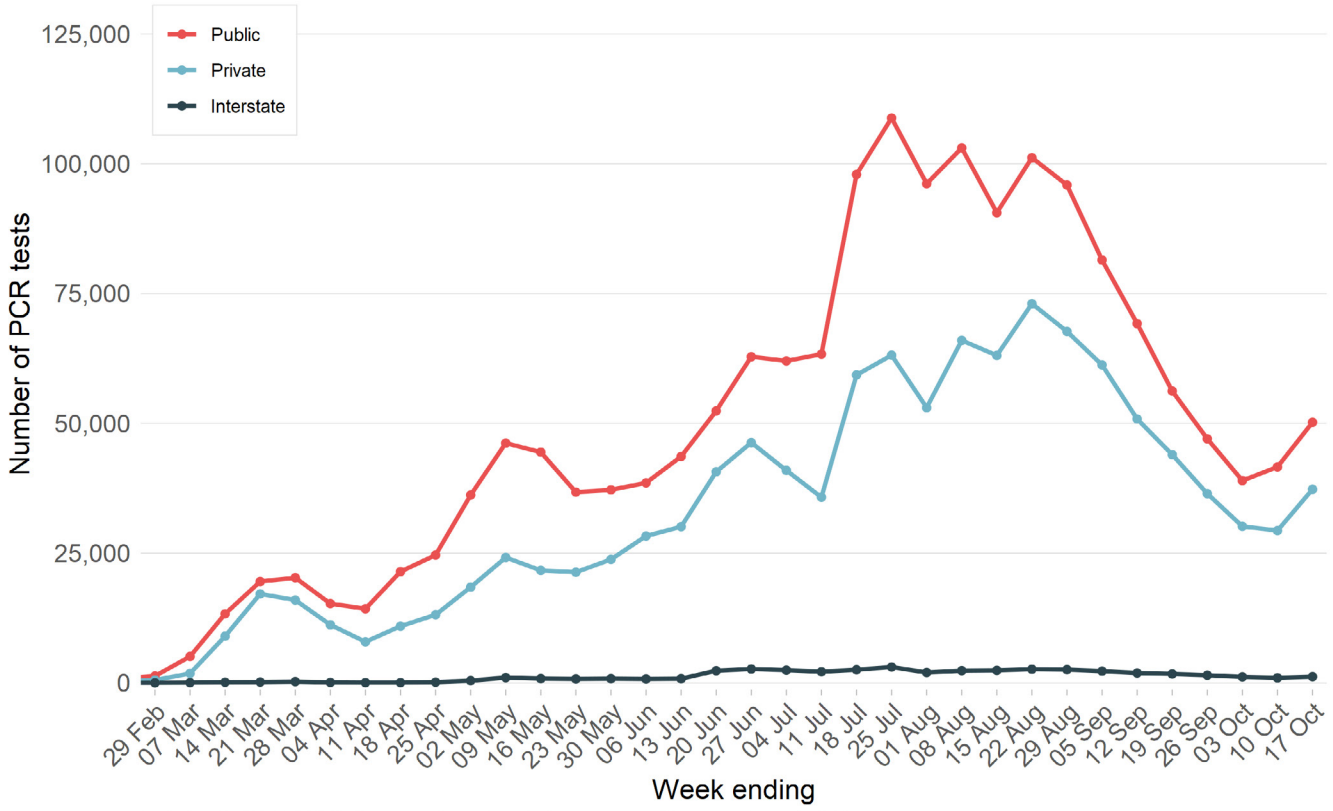


Includes SARS-CoV-2 PCR tests only and excludes repeat positive tests for an individual.

Interpretation: The proportion of tests positive for COVID-19 in NSW declined in mid-March to early May, and then stabilised at very low levels. Despite high rates of testing, the overall proportion of tests found to be positive indicate low levels of transmission in the community.

Which laboratories are doing the testing?

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



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

Interpretation: In the week ending 17 October, testing in both public and private facilities increased compared to the previous week. Approximately 57% of PCR tests were conducted at public laboratories during this period.

SECTION 3: 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.

Table 2. Locally-acquired COVID-19 cases in NSW, by week and source of infection, 20 September to 17 October 2020

Locally-acquired cases	Week ending				Total
	17 Oct	10 Oct	3 Oct	26 Sep	
Cases who are linked to a known case or cluster	28	17	0	2	**47**
Cases with no links to other cases or clusters	3	2	1	0	**6**
Total	**31**	**19***	**1***	**2**	**53**

*Includes a past infection.

Interpretation: The majority (89%) of cases in the four weeks ending 17 October were linked to known cases or clusters. There were three cases reported in the last week with no links to cases or clusters.

Table 3. Locally-acquired COVID-19 cases by LHD of residence, 20 September to 17 October 2020

Local Health District	Week ending				Total	Days since last case
	17 Oct	10 Oct	3 Oct	26 Sep		
Central Coast	0	0	0	0	**0**	**47**
Illawarra Shoalhaven	0	0	0	0	**0**	**43**
Nepean Blue Mountains	0	0	0	0	**0**	**32**
Northern Sydney	1	2	0	0	**3**	**4**
South Eastern Sydney	1	0	0	1	**2**	**3**
South Western Sydney	16	12	1	1	**30**	**0**
Sydney	5	1	0	0	**6**	**3**
Western Sydney	8	4	0	0	**12**	**3**
Far West	0	0	0	0	**0**	**198**
Hunter New England	0	0	0	0	**0**	**72**
Mid North Coast	0	0	0	0	**0**	**179**
Murrumbidgee	0	0	0	0	**0**	**40**
Northern NSW	0	0	0	0	**0**	**84**
Southern NSW	0	0	0	0	**0**	**68**
Western NSW	0	0	0	0	**0**	**46**
Total	**31**	**19***	**1***	**2**	**53**	

*Includes a past infection.

Interpretation: The majority of locally-acquired cases reported in the two weeks up to 17 October were residents of South Western Sydney LHD (56%, 28/50) and Western Sydney LHD (24%, 12/50).

COVID-19 cases with no links to known cases or clusters

Cases with no identified links to known cases or clusters suggest that there are people infected with COVID-19 in the community who have not been diagnosed. Testing of people with whom they have been in contact in the 14 days prior to symptom onset, and more broadly in the local community, is important to identify the source of the infection, detect other cases and prevent further transmission in the community.

Table 4. Locally-acquired COVID-19 cases with no identified links to known cases or clusters by LHD of residence, 20 September to 17 October 2020

Local Health District	Week ending				Total
	17 Oct	10 Oct	3 Oct	26 Sep	
Central Coast	0	0	0	0	**0**
Illawarra Shoalhaven	0	0	0	0	**0**
Nepean Blue Mountains	0	0	0	0	**0**
Northern Sydney	0	0	0	0	**0**
South Eastern Sydney	1	0	0	0	**1**
South Western Sydney	1	2	1	0	**4**
Sydney	0	0	0	0	**0**
Western Sydney	1	0	0	0	**1**
Far West	0	0	0	0	**0**
Hunter New England	0	0	0	0	**0**
Mid North Coast	0	0	0	0	**0**
Murrumbidgee	0	0	0	0	**0**
Northern NSW	0	0	0	0	**0**
Southern NSW	0	0	0	0	**0**
Western NSW	0	0	0	0	**0**
Total	**3**	**2**	**1***	**0**	**6**

*Includes a past infection.

Interpretation: Extensive public health investigations were unable to identify a source of infection for three cases in the week ending 17 October. This indicates that there were at least three transmission events not linked to a known case or cluster in the past week.

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 (two days prior to symptom onset until the time of isolation). Close contacts are quarantined to limit the spread of infection to others and encouraged to seek testing.

Cases in community settings

In total, 28 cases were reported in the last week that were linked to a known case or cluster. Of these, seven cases were associated with a general practice in Lakemba, three cases were linked to a private health clinic in Liverpool, four cases were linked to a childcare centre in South Western Sydney, six cases were linked to a community cluster in Oran Park, one case was a household contact of a known case, and an additional seven cases were social and household contacts of a case who was the source for the Lakemba cluster.

Oran Park community cluster

On 6 October, South Western Sydney Public Health Unit was notified of a case in an Oran Park resident. The case did not report any contact with a known case of COVID-19. A public health investigation was undertaken to identify a possible source for the case, including testing among friends and family. The investigation led to the diagnosis of COVID-19 in the likely source case, an asymptomatic family friend who was likely exposed at work at Liverpool Hospital in early September.

In the week ending 17 October there were six cases reported who were linked to the Oran Park community cluster. In total, excluding the source, there are 14 cases associated with this cluster. Transmission occurred within households and between family groups at social gatherings and at a childcare centre, which is further described below.

Oran Park childcare centre cluster

On 12 October, the Public Health Unit was notified of a case from the Oran Park community cluster who had attended a childcare centre while infectious. In response, NSW Health issued a Public Health Alert classifying all staff and children who attended the childcare centre between 2 and 13 October inclusive as close contacts. All close contacts were advised to get tested immediately and self-isolate (for their full isolation period regardless of their test result) for 14 days from when they last attended.

In the week ending 17 October there were four cases linked to the childcare centre, including an educator, two children who attended the centre, and one household contact.

Lakemba cluster

On 10 October, a person living in the Sydney Local Health District tested positive for COVID-19. The case did not report any links to a known case. This case reported visiting three medical practices before diagnosis and a public health investigation was undertaken to identify a possible source for the case. On 11 October, a healthcare worker who provided direct care to the case tested positive. Testing of the healthcare worker's close contacts identified a household member as the probable source of their infection. This household member was also a healthcare worker in South Western Sydney – the source of their infection is under further investigation.

In the week ending 17 October there were seven cases linked to the Lakemba GP cluster including a healthcare worker, two patients that attended the clinic, and four household contacts from two separate families. A further six cases were reported among household and social contacts of the source case for the healthcare worker of the clinic.

Table 5. Cases linked to Lakemba GP cluster by setting of exposure

Setting of exposure	Exposure site	Exposure site	No. cases	Cases in household setting	Total cases
		Local area			
Primary exposure location					
Healthcare	GP clinic	Lakemba	3	5	8
Total			**3**	**5**	**8**

Interpretation: Excluding the source, a healthcare worker that is linked to a known case, there are eight cases linked to this cluster.

Private health clinic cluster

On 7 October, Western Sydney Public Health Unit was notified of a case in a healthcare worker at a private health clinic in Bella Vista. On the same day, a second case was reported in a resident of South Western Sydney. The second case was a household contact of another staff member (who subsequently tested positive) who worked at both the clinic in Bella Vista and a related private clinic in Liverpool. Close contacts among staff and patients were placed in isolation and recommended for testing, and both clinics were closed for cleaning.

In the week ending 17 October there were three new cases linked to this cluster, including a healthcare worker and a patient who were exposed at the Liverpool clinic, and a close contact of the patient. Two of the three cases were asymptomatic and in isolation more than 48 hours prior to being tested and one case was not in isolation until after symptom onset and while considered infectious.

Table 6. Cases linked to private health clinic cluster by setting of exposure

Setting of exposure	Exposure site	Exposure site	No. cases	Cases in household setting	Total cases
		Local area			
Primary exposure locations					
Healthcare	Private health clinic	Liverpool	4	0	4
Healthcare	Private health clinic	Bella Vista	1	4	5
Total			**5**	**4**	**9**

Interpretation: Excluding the source, a healthcare worker that worked at both clinics, there are nine cases linked to this cluster: three healthcare workers, one patient, one visitor accompanying a patient who attended the Liverpool clinic, one social contact and three household contacts.

Previously reported active clusters with no new cases identified this week

Concord Hospital

The last case associated with this cluster was notified on 20 September in a household contact of a staff member at Concord Hospital. In total, there are 22 cases (excluding the source who was a healthcare worker at both Liverpool and Concord Hospitals) linked to this cluster. There are eight healthcare workers, including seven at Concord Hospital and one at Liverpool Hospital. There were 10 cases exposed in residential settings who were from six separate households.

Table 7. Previously reported clusters with no new cases identified in the week ending 17 October 2020

Date cluster first identified	Cluster	Cases linked in the week ending 17 Oct	Date of last case
6 Sep	Concord Hospital	0	20 Sep

Clusters with no ongoing public health risk

There have been no new cases linked to the City Tattersalls gym, Liverpool Hospital and Eastern Suburbs Legion Club clusters for more than four weeks. Two or more incubation periods have now passed since the last case and there is no ongoing public health risk. These clusters are now closed.

SECTION 5: COVID-19 IN SPECIFIC POPULATIONS

COVID-19 in healthcare workers

The following describes infections of COVID-19 in healthcare workers (HCWs) and those that were potentially acquired in healthcare settings in NSW. 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 cases of COVID-19 infections in healthcare to identify ongoing risks in healthcare settings.

There were four new COVID-19 cases in HCWs reported in the last week. Of these, two HCWs were potentially infected in healthcare settings – both were from private health clinic settings; one was a household contact of a confirmed case, and one case has a source that remains under investigation.

In total, there have been 37 cases of COVID-19 in HCWs since 1 August. Of these, 23 HCWs were potentially infected in healthcare settings. A further seven cases were household contacts of a known case, four were exposed in community settings, and for three cases the source of infection is unknown.

Table 8. Potential healthcare-acquired infections for HCWs by healthcare setting in the past four weeks

Healthcare setting	Week ending				Total
	17 Oct	10 Oct	3 Oct	26 Sep	
NSW public health setting	0	1	0	0	**1**
Private health setting	2	2	0	0	**4**
Total	**2**	**3**	**0**	**0**	**5**

Interpretation: The majority (80%; 4/5) of potentially healthcare-acquired cases in the last four weeks were reported in private health settings in NSW.

Clusters in healthcare settings

Of the 23 potentially healthcare-acquired infections in HCWs reported since 1 August, 21 were associated with five clusters in healthcare settings: two from Hornsby Hospital, eight from Liverpool Hospital, seven from Concord Hospital, three from two related private health clinics in Bella Vista and Liverpool, and one case from a GP clinic in Lakemba.

Aboriginal people

Aboriginal people are considered to be a vulnerable group for serious COVID-19 disease due to their high burden of chronic disease. Additionally, transmission within Aboriginal communities is likely to be high due to factors such as high number of people per household and barriers to accessing healthcare.

In total, 45 Aboriginal people have been diagnosed with COVID-19, representing 1% of all cases in NSW. The last case of COVID-19 in an Aboriginal person was reported on 6 September.

Pregnant women

Two cases in pregnant women were reported in the week ending 17 October, both of which were locally-acquired infections linked to known cases or clusters. As those who test negative are not interviewed, testing rates among pregnant women are not available.

SECTION 6: DEATHS

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

In total, 1.3% of cases (55 people) have died as a result of COVID-19 infection, most of whom were 70 years of age or older, including 28 residents of aged care facilities with known COVID-19 outbreaks. Approximately 22% (12/55) of the deaths were in overseas-acquired cases.

Table 9. Deaths as a result of COVID-19, by age group, NSW, 2020

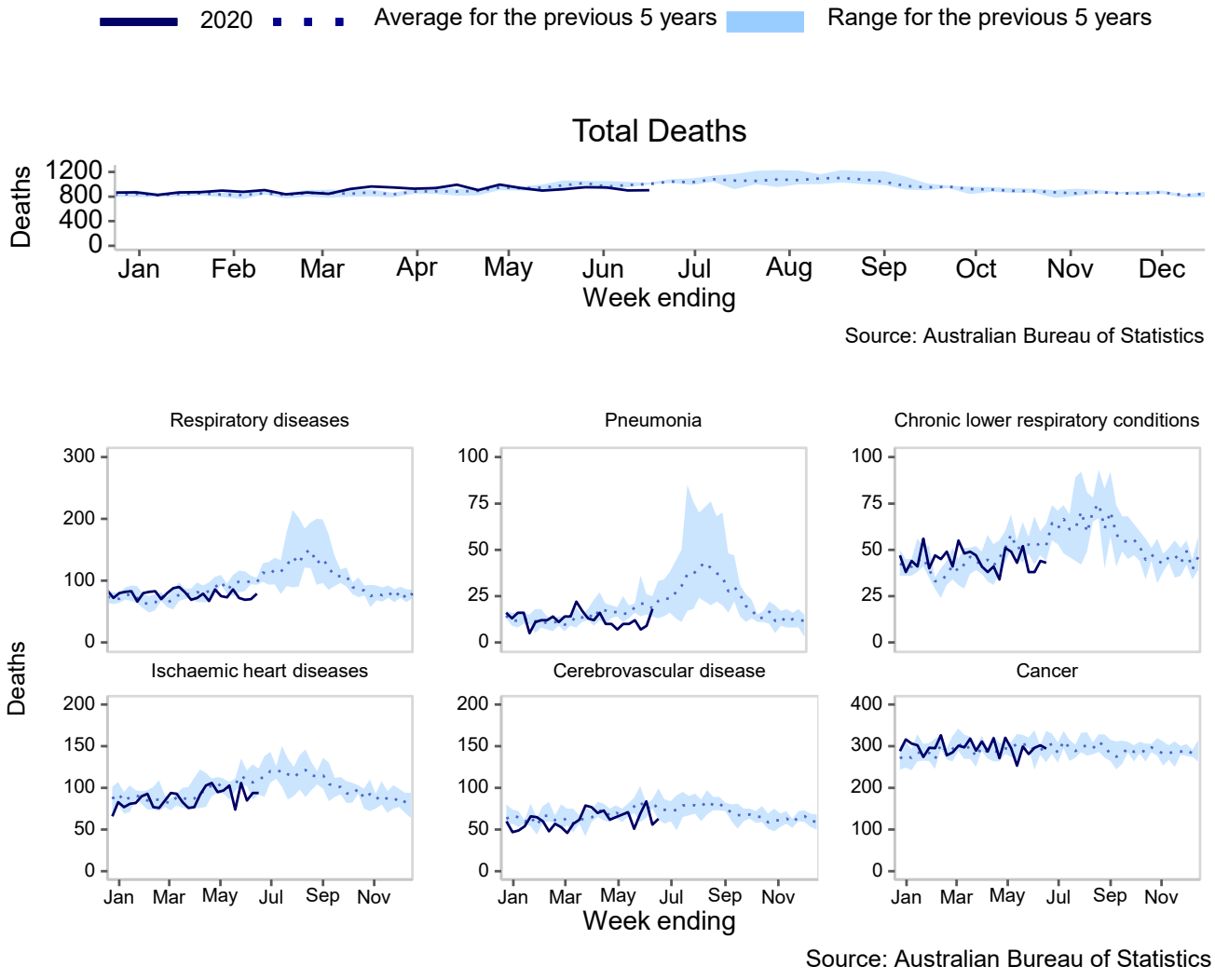
Age group	Number of deaths	Number of cases	Case fatality rate
0-4 years	0	71	0%
5-11 years	0	72	0%
12-17 years	0	120	0%
18-29 years	0	945	0%
30-49 years	0	1264	0%
50-59 years	1	591	0.2%
60-69 years	4	566	0.7%
70-79 years	14	361	3.9%
80+ years	36	160	22.5%
Total	**55**	**4150**	**1.3%**

Interpretation: Cases older than 80 years of age had both the highest number of deaths and the highest case fatality rate. No cases below the 50-59 age group have died as a result of COVID-19.

How many people have died in NSW from any cause of death?

The Australian Bureau of Statistics (ABS) has published Provisional Mortality Statistics for all of Australia for January to June 2020 (https://www.abs.gov.au/ausstats/abs@.nsf/mf/3303.0.55.004) and provides data for NSW-registered deaths to NSW Health on a monthly basis around three months after the close of the month. The reported data includes only doctor-certified deaths, which include most deaths registered. This report excludes deaths referred to a coroner, such as suicides, accidents and assaults. Many causes of death are seasonal, with more deaths occurring in winter. The ABS includes COVID-19 deaths in total deaths, but not in the more specific causes shown here.

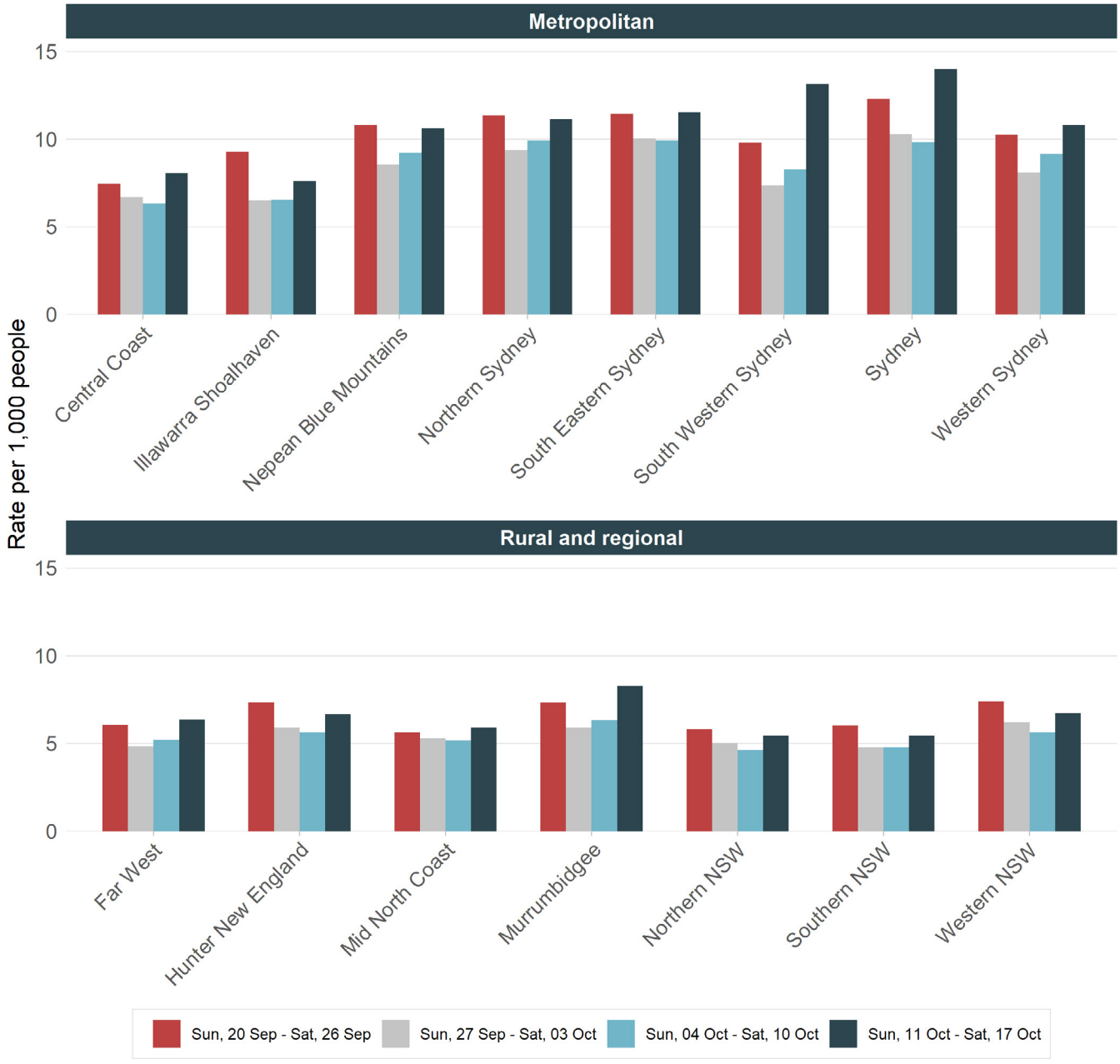
Figure 6. Deaths from any cause in NSW from January to 30 June 2020, by week



Interpretation: When compared with previous years, there have been fewer deaths due to respiratory diseases to date in 2020. This is likely to be due, at least in part, to the physical distancing and hand hygiene measures that have been put in place to help control the pandemic. These measures have reduced transmission of many infectious diseases that are transmitted person-to-person. The patterns of deaths from heart attack, stroke and cancer are similar to previous years.

SECTION 7: COVID-19 TESTING IN NSW

Figure 7. Rates of COVID-19 testing by LHD of residence and week

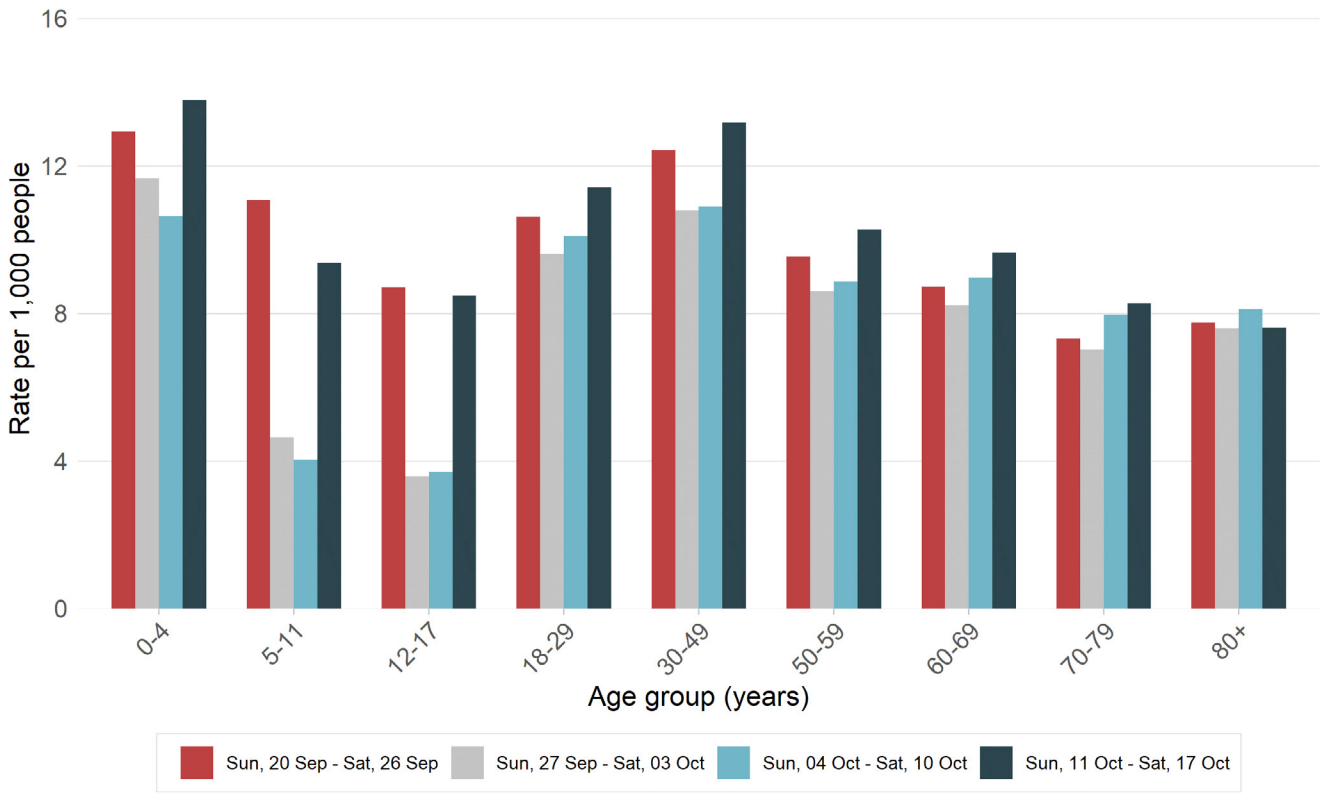


Includes SARS-CoV-2 PCR tests only and excludes notifications with missing postcode of residence.

Interpretation: Statewide testing rates in the week ending 17 October were higher compared to the previous week (11 per 1,000 vs 9 per 1,000). The greatest increase in testing – across all age groups – occurred in South Western Sydney LHD where more than half (52%) of cases were reported in the past week.

Testing by age group

Figure 8. Rates of COVID-19 testing by age group and week

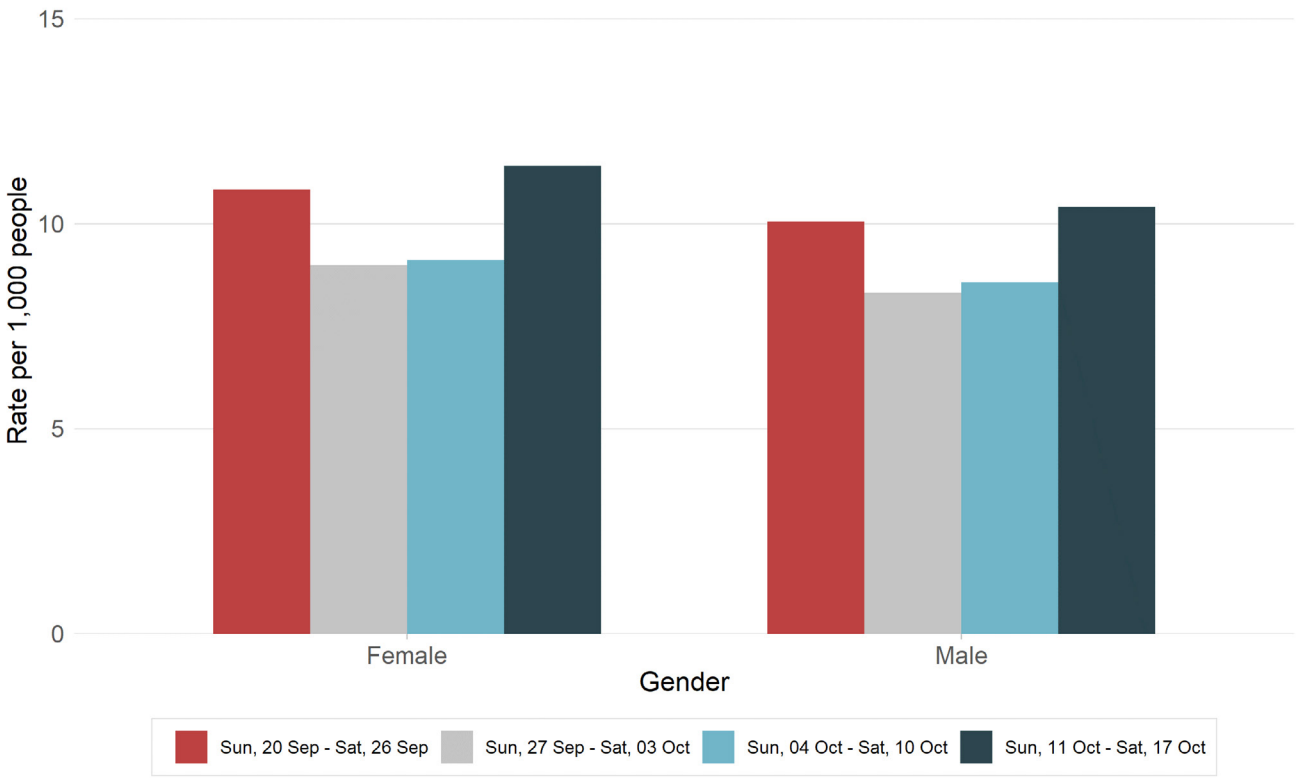


Includes SARS-CoV-2 PCR tests only and excludes notifications with age missing.

Interpretation: Testing rates increased across all age groups except the 80+ group across all LHDs for the week ending 17 October. The greatest increase in testing occurred for school-aged children, which may be due to the return of children to school for Term 4.

Testing by gender

Figure 9. Rates of COVID-19 testing by gender and week



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

Interpretation: Testing rates are consistently higher in females compared with males, although this difference has narrowed in the past few weeks. In both groups, testing rates increased in both males and females in the week ending 17 October compared to the previous week.

NSW Sewage Surveillance Program

The NSW Sewage Surveillance Program tests untreated sewage for fragments of the COVID-19 (SARS-CoV-2) virus at sewage treatment plant locations across NSW. Testing sewage can help to 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 any 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 how many cases can be detected per population. 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.

To date there have been detections of the virus fragments in samples from multiple sewage treatment plants in NSW including Perisher, Newcastle, Byron Bay, Blue Mountains and Metropolitan Sydney sites.

In the week ending 17 October, six of 55 sewage samples detected SARS-CoV-2. These samples were taken from the Bondi, Malabar, Liverpool, West Camden and Quakers Hill treatment plants which serve over 2 million people, including Sydney city and quarantine hotels. The West Camden catchment in South Western Sydney includes suburbs around Narellan where recent cases have been identified after a call for increased testing was issued. The table below shows results for previous weeks from various sites across NSW. Bathurst has been added as a new site.

Table 10. Locations with positive SARS-CoV-2 detections in sewerage samples since August, for the week ending 17 October 2020

			8 Aug	15 Aug	22 Aug	29 Aug	5 Sep	12 Sep	19 Sep	26 Sep	3 Oct	10 Oct	17 Oct
			Week										
Pop.	**Sewage treatment plant**	**LHD**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**
60,514	Blue Mountains (Winmalee)	NBMLHD											
4,681	North Richmond	NBMLHD											
13,052	Richmond	NBMLHD											
110,114	Penrith	NBMLHD											
69,245	Warriewood	NSLHD											
1,241	Brooklyn	NSLHD											
31,924	Hornsby Heights	NSLHD											
57,933	West Hornsby	NSLHD											
318,810	Bondi	S&SESLHD											
233,176	Cronulla	SESLHD											
1,857,740	Malabar 1	S&SES& SWSLHD											
	Malabar 2	S&SES& SWSLHD											
181,005	Liverpool	SWSLHD											
98,743	West Camden	SWSLHD											

			8 Aug	15 Aug	22 Aug	29 Aug	5 Sep	12 Sep	19 Sep	26 Sep	3 Oct	10 Oct	17 Oct
			Week										
Pop.	**Sewage treatment plant**	**LHD**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**
6,882	Wallacia	SWSLHD											
14,600	Picton	SWSLHD											
161,200	Glenfield	SWSLHD											
1,341,986	North Head	NS&WSLHD											
26,997	Castle Hill Cattai	WSLHD											
	Castle Hill Glenhaven	WSLHD											
163,374	Quakers Hill	WSLHD											
119,309	Rouse Hill	WSLHD											
37,061	Riverstone	WSLHD											
163,147	St Marys	NBM&WSLHD											
16,068	Bombo	ISHLHD											
73,686	Shellharbour	ISHLHD											
196,488	Wollongong	ISHLHD											
147,500	Gosford-Kincumber	CCLHD											
-	Wyong-Toukley	CCLHD											
5,000	Perisher	M&SLHD											
8,400	Thredbo	M&SLHD											
3,000	Jindabyne	M&SLHD											
8,000	Cooma	M&SLHD											
500	Charlottes Pass	M&SLHD											
51,750	Albury composite	M&SLHD								C	C	C	C
22,419	Goulburn	M&SLHD											
21,000	Batemans Bay	M&SLHD											
8,000	Eden	M&SLHD											
15,500	Merimbula	M&SLHD											
5,000	Bermagui	M&SLHD											
7,800	Deniliquin	M&SLHD											
48,000	Queanbeyan	M&SLHD											
50,000	Wagga Wagga composite	M&SLHD								C	C	C	C
2,050	Bourke	W&FWLHD											
36,603	Bathurst	W&FWLHD											
19,000	Broken Hill	W&FWLHD											
500	Dareton	W&FWLHD											
11,600	Parkes	W&FWLHD											
37,000	Dubbo	W&FWLHD											
24,000	Armidale	HNELHD											
45,000	Tamworth	HNELHD											
10,000	Moree	HNELHD											
12,000	Forster	HNELHD											
225,834	Hunter - Burwood Beach	HNELHD											

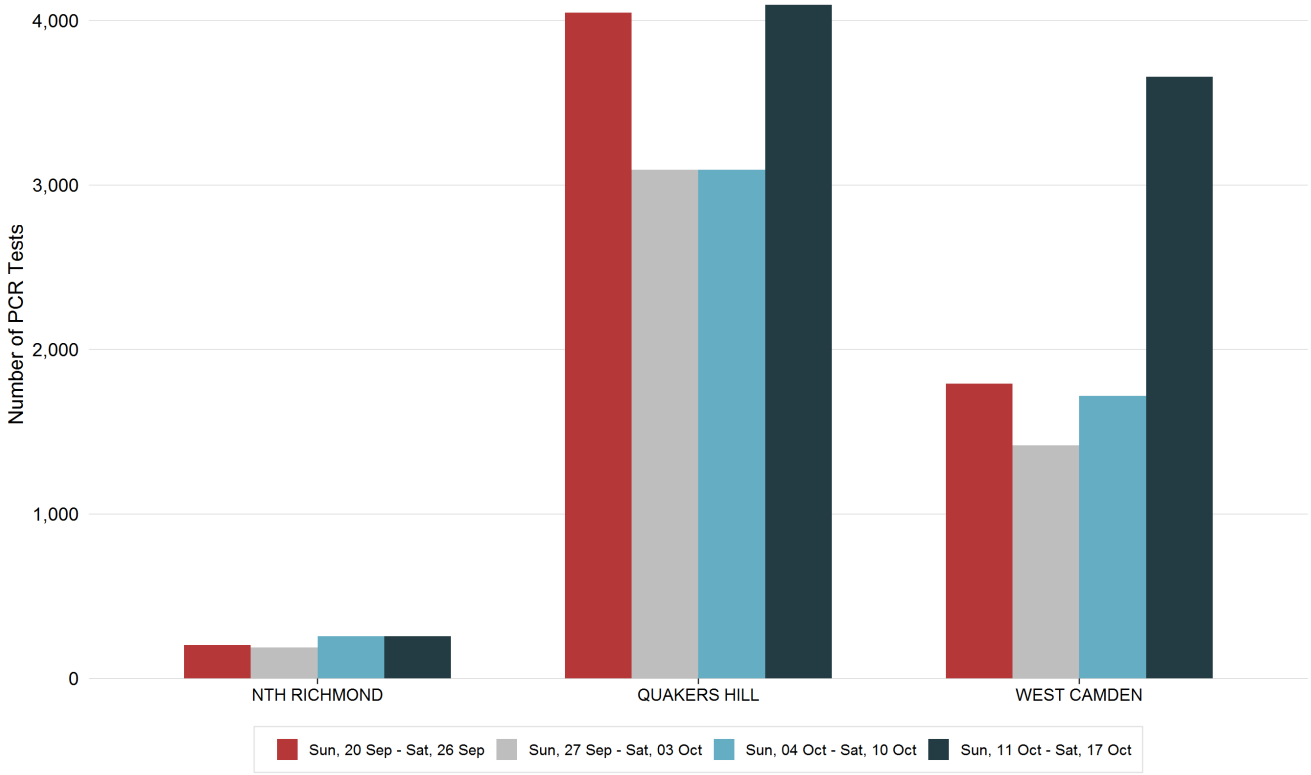
			8 Aug	15 Aug	22 Aug	29 Aug	5 Sep	12 Sep	19 Sep	26 Sep	3 Oct	10 Oct	17 Oct
			Week										
Pop.	**Sewage treatment plant**	**LHD**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**
60,000	Hunter - Shortland	HNELHD											
115,000	Hunter - Belmont	HNELHD											
60,000	Hunter - Morpeth	HNELHD											
58,300	Hunter - Boulder Bay	HNELHD											
35,000	Hunter - Raymond Terrace	HNELHD											
2,500	Hunter - Karuah	HNELHD											
18,958 (both plants total)	Byron Bay - Ocean Shores	N&MNCLHD											
	Byron Bay	N&MNCLHD											
31,104	Ballina	N&MNCLHD											
72,000 (Tweed District)	Tweed - Kingscliff	N&MNCLHD											
	Tweed - Hastings Point	N&MNCLHD											
54,370	Port Macquarie	N&MNCLHD											
50,000	Coffs Harbour	N&MNCLHD											

not sampled
SARS-CoV-2 not detected
SARS-CoV-2 detected
sampling commenced in week 29 (week ending 18 July 2020)
c composite of the separate influent samples

Interpretation: In the last week there were six detections of SARS-CoV-2. Detections from these catchment areas are associated with previously reported cases.

Testing in Sewage Networks with recent SARS-CoV-2 detections

Figure 10. COVID-19 testing by sewage network with recent SARS-CoV-2 detections, NSW, 2020



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

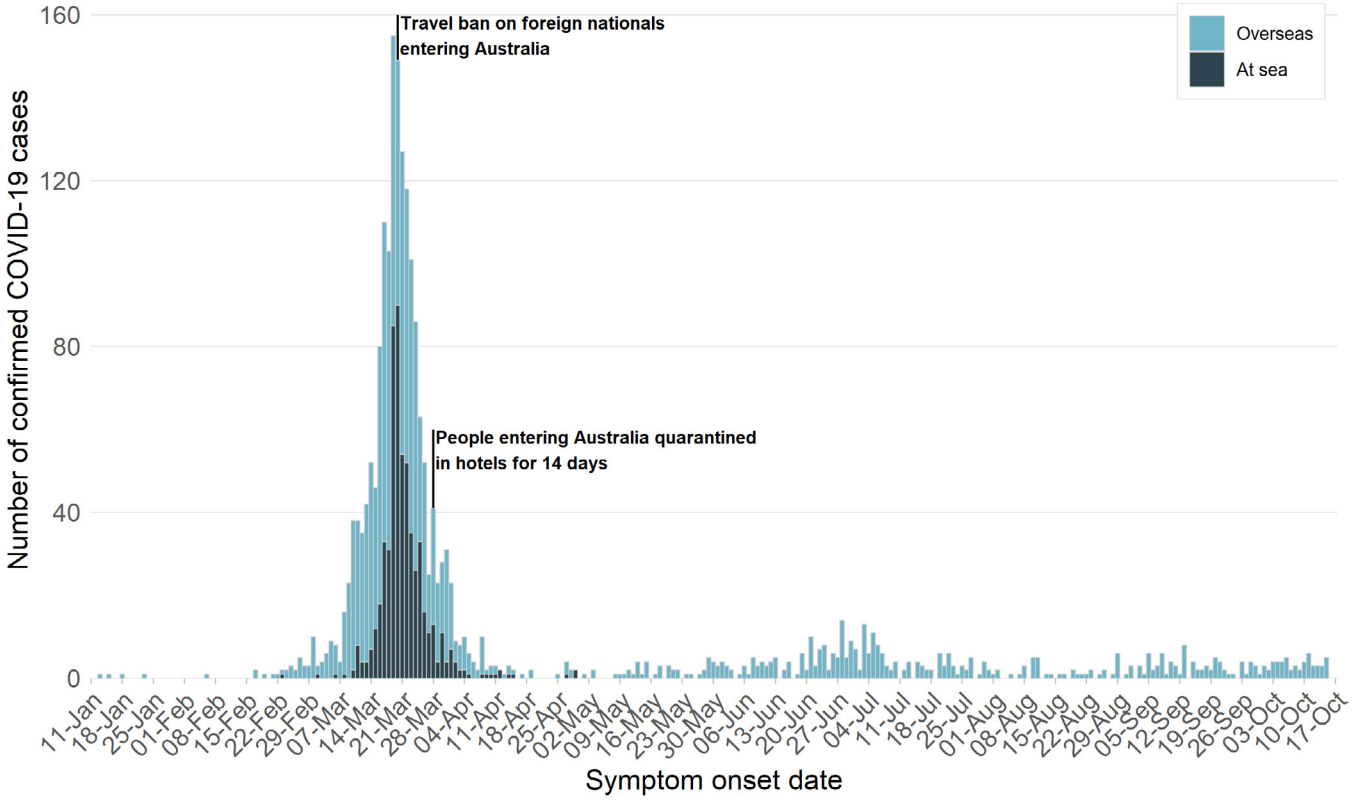
Interpretation: A subsequent increase in testing has occurred in catchment areas with recent positive SARS-CoV-2 detections. This increase is likely also in response to the recent cases being detected in these areas.

SECTION 8: 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 29 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 prior to disembarking in NSW.

Figure 11. Overseas acquired COVID-19 cases by infection source and illness onset, NSW, 2020



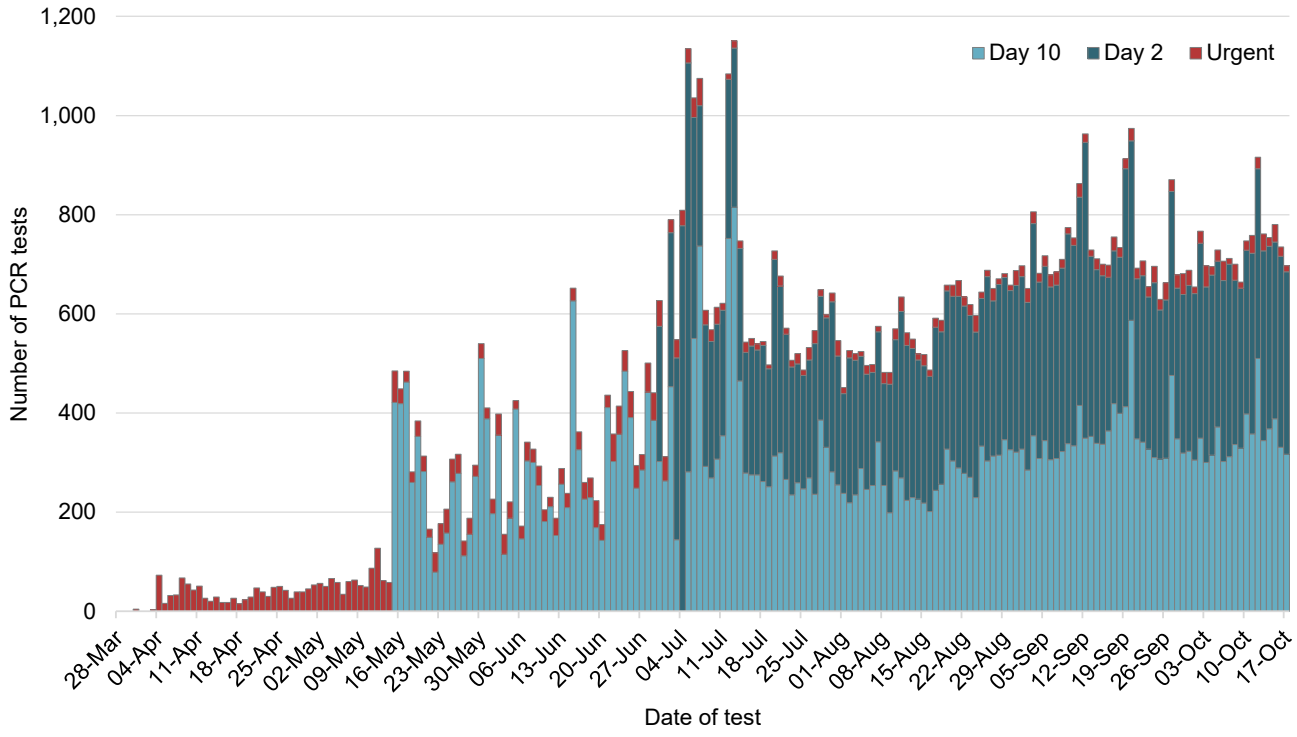
The date of the first positive test is used for cases who did not report symptoms.

Interpretation: The number of new cases in returned travellers has decreased markedly since March in line with travel restrictions and declined further again since mid-July. As per the previous week, there were 27 overseas-acquired cases reported in the week ending 17 October.

Hotel quarantine

The program of screening all overseas travellers after arrival in NSW commenced on 15 May 2020. From 30 June 2020, the program was extended to include screening on both day two and day 10 after arrival.

Figure 12. COVID-19 testing in returned travellers in hotel quarantine, reported from 29 March to 17 October, NSW, 2020



Interpretation: In the week ending 17 October, there were 5,401 tests conducted through the hotel quarantine screening programs. Of these, 11% were screening tests for domestic travellers from Victoria. Since hotel quarantine began on 29 March, a total of 90,627 PCR tests have been conducted with 448 overseas-acquired cases and four interstate-acquired COVID-19 cases detected while in hotel quarantine.

SECTION 9: OTHER RESPIRATORY INFECTIONS IN NSW

Influenza and other respiratory virus cases and tests reported in NSW, up to 11 October 2020

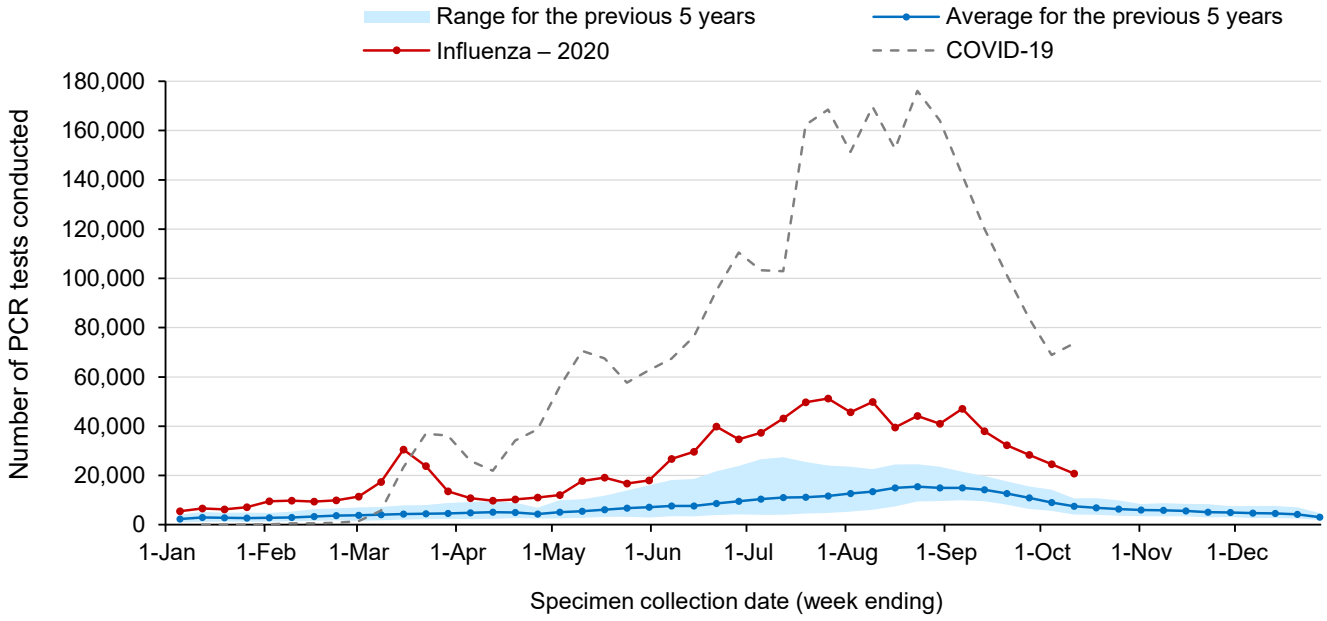
In NSW, routine surveillance for influenza and other respiratory viruses is conducted through sentinel laboratories. The number of all PCR tests (positive and negative) are provided to NSW Health by participating laboratories each week. Testing counts reflect the number of influenza PCR tests conducted;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

The most recent data available is for testing carried out to 11 October. A total of 1,009,923 influenza tests have been performed at participating laboratories to 11 October, with 20,808 tests conducted in the most recent week. 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. The blue line shows the average number of tests carried out for the same week in the last five years and the shaded area shows the range of counts reported in the previous five years. The grey line shows the number of COVID-19 tests.

Figure 13. Testing for influenza and COVID-19 by week, to 11 October 2020

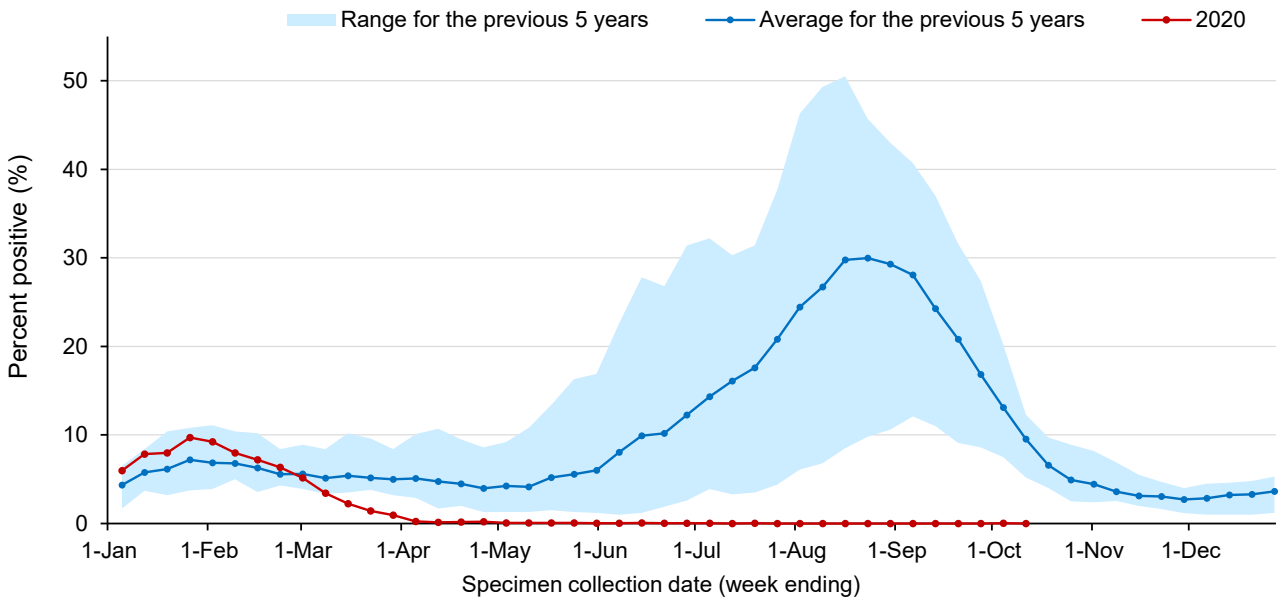


Interpretation: In every week this year, the number of influenza tests performed has exceeded the previous five-year average, however, over the past five weeks there has been a steady decrease in testing reported.

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 2020, the blue line showing the average for the past five years and the shaded area showing the range recorded in the previous five years.

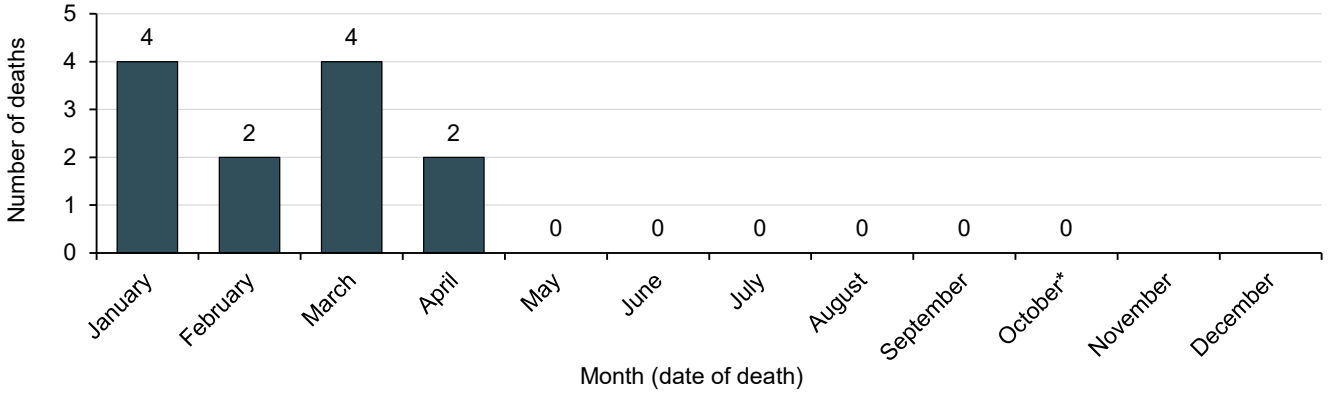
Figure 14. Proportion of tests positive for influenza, to 11 October 2020



Interpretation: In the week ending 11 October, the percent of influenza tests that were positive continued to be very low (less than 0.1%), indicating limited influenza transmission in the community. Since early March, this percentage has remained far lower than the usual range for the time of year.

How many people have died as a result of influenza?

Figure 15. Laboratory-confirmed influenza deaths by month of death, to 11 October 2020



Note: *month to date.

Interpretation: No influenza deaths were reported in the week ending 11 October. The number of influenza-related deaths identified via coroner's reports and death registrations from 1 January to 11 October 2020 is lower than the same period last year (12 deaths in 2020 compared with 305 in 2019).[2] Two-thirds of the deaths were in people aged 65 years and over.

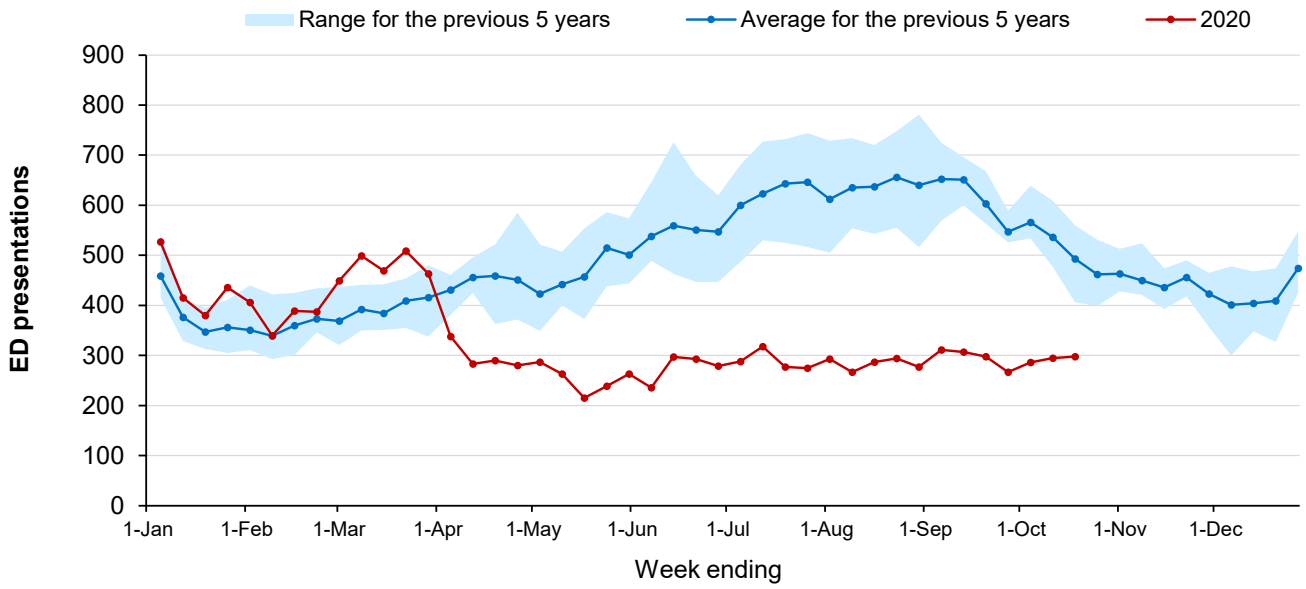
[2] Includes deaths in people with laboratory-confirmed influenza.

How are emergency department presentations for respiratory infections tracking?

The two figures below show weekly pneumonia and bronchiolitis presentations to Emergency Departments in NSW, using PHREDSS.[3] The red line shows the weekly counts for 2020, the blue line shows the average for the same week for the past five years, and the shaded area shows the range recorded in the previous five years.

The red line shows the weekly counts for 2020, the blue line shows the average for the same week for the past five years and the shaded area shows the range recorded in the previous five years.

Figure 16. Emergency Department pneumonia presentations in NSW by week, to 18 October 2020

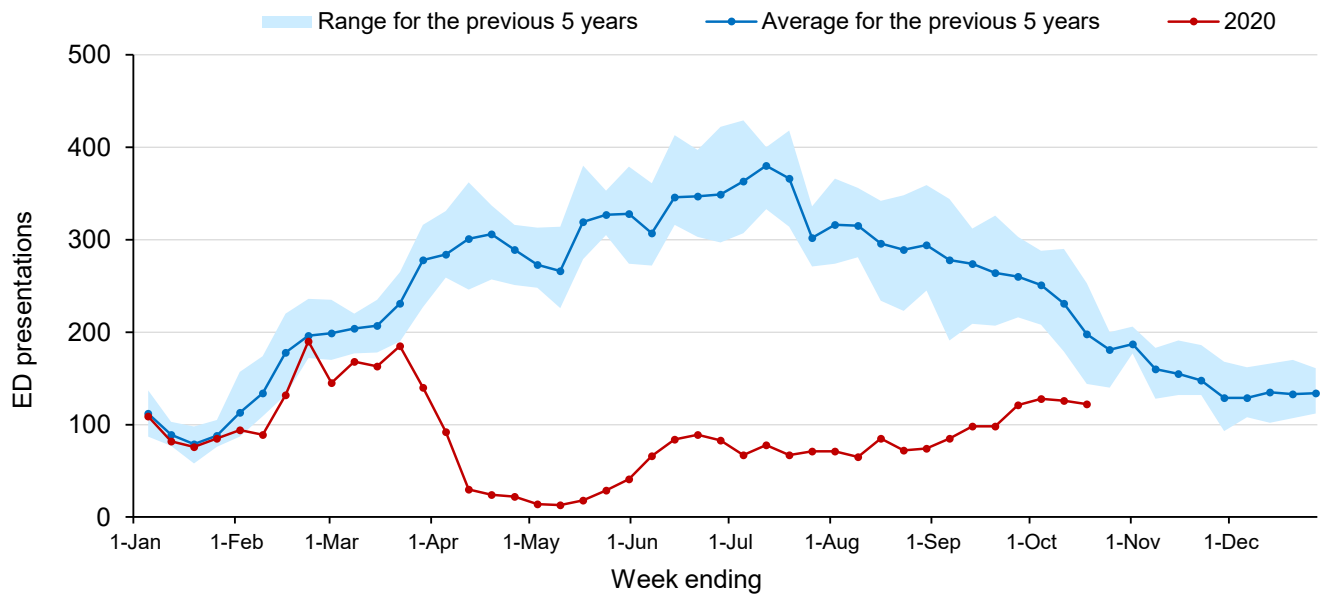


Interpretation: Pneumonia presentations include people with diagnoses of viral, bacterial, atypical or unspecified pneumonia, and Legionnaires' disease, but excludes 'pneumonia with influenza' and provides an indicator of more severe respiratory conditions.

Pneumonia presentations decreased from the end of March and have continued to remain well below the usual range for this time of year.

[3] 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 five years. Includes unplanned presentations to 67 NSW emergency departments (accounts for 87% of total public ED activity).

Figure 17. Emergency Department bronchiolitis presentations in NSW by week, to 18 October 2020

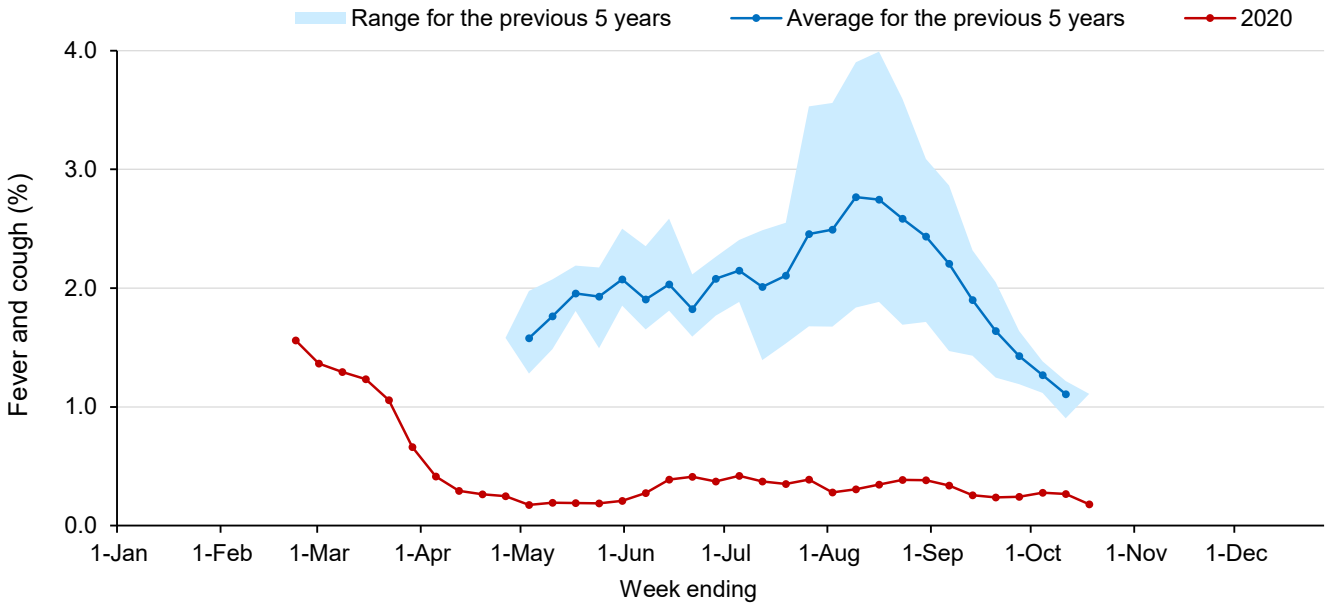


Interpretation: Bronchiolitis is a common disease of infants often caused by respiratory syncytial virus (RSV). Bronchiolitis presentations remain below the usual range for this time of year but have increased since early September. This increase corresponds to an increase in RSV detections.

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 18. Proportion of FluTracker participants in NSW reporting influenza-like illness, to 18 October 2020



Interpretation: In NSW in the week ending 18 October, of the 21,027 people surveyed, 38 people (0.18%) reported flu-like symptoms. The proportion of people reporting symptoms remains well below the usual range for this time of year.

IN FOCUS
COVID-19 IN OLDER ADULTS IN NSW

Reporting period: 1 January to 17 October 2020

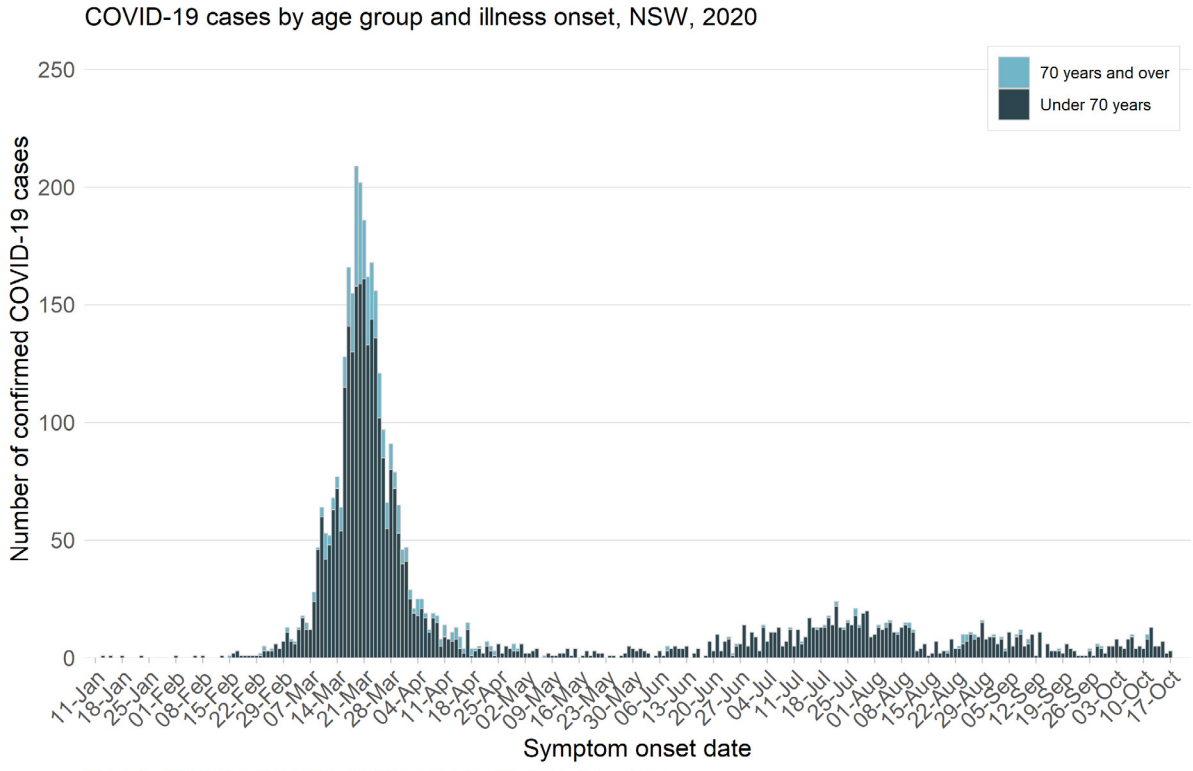
People aged 70 years and older are a vulnerable population, with studies showing a much higher proportion of cases in this age group have severe illness and COVID-19-related deaths. The following report is a summary of all COVID-19 infections in adults aged 70 years and older in NSW. It includes cases who acquired their infection overseas, interstate and in NSW in the period 1 January to 17 October 2020.

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

The below graph shows the number of COVID-19 cases by the week in which they began to feel unwell (symptom onset date) and age. In total, there have been 521 confirmed cases of COVID-19 in people aged 70 years and older, accounting for nearly 13% of all confirmed cases in NSW.

Most cases in this age group (88%) were diagnosed between 1 January and 30 April 2020. Of the cases diagnosed prior to 30 April 2020, 69% acquired their infection overseas, 29% locally and 2% interstate. Since 1 May, most cases (75%) have acquired their infection locally, compared to overseas (25%).

There have been fewer than five cases aged 70 years and older in people who identify as Aboriginal, which is less than 0.1% of all cases diagnosed in NSW. This represents about 23 cases per 100,000 Aboriginal population aged 70 years and older in NSW and is less than the case rate of 56 cases per 100,000 population for all people 70 years and older in NSW.



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

Interpretation: The number of cases in older adults peaked in mid-March prior to the implementation of international border restrictions and strict social distancing measures locally. Since then, the number of cases has decreased significantly in older adults and in all other age groups. Most cases in older adults diagnosed up to 30 April 2020 acquired their infection overseas or while travelling on cruise ships with known outbreaks, while most cases since 1 May 2020 acquired their infection locally in NSW. There have been fewer than five cases diagnosed in older people who are Aboriginal.

Is infection more common in males or females aged 70 years and older?

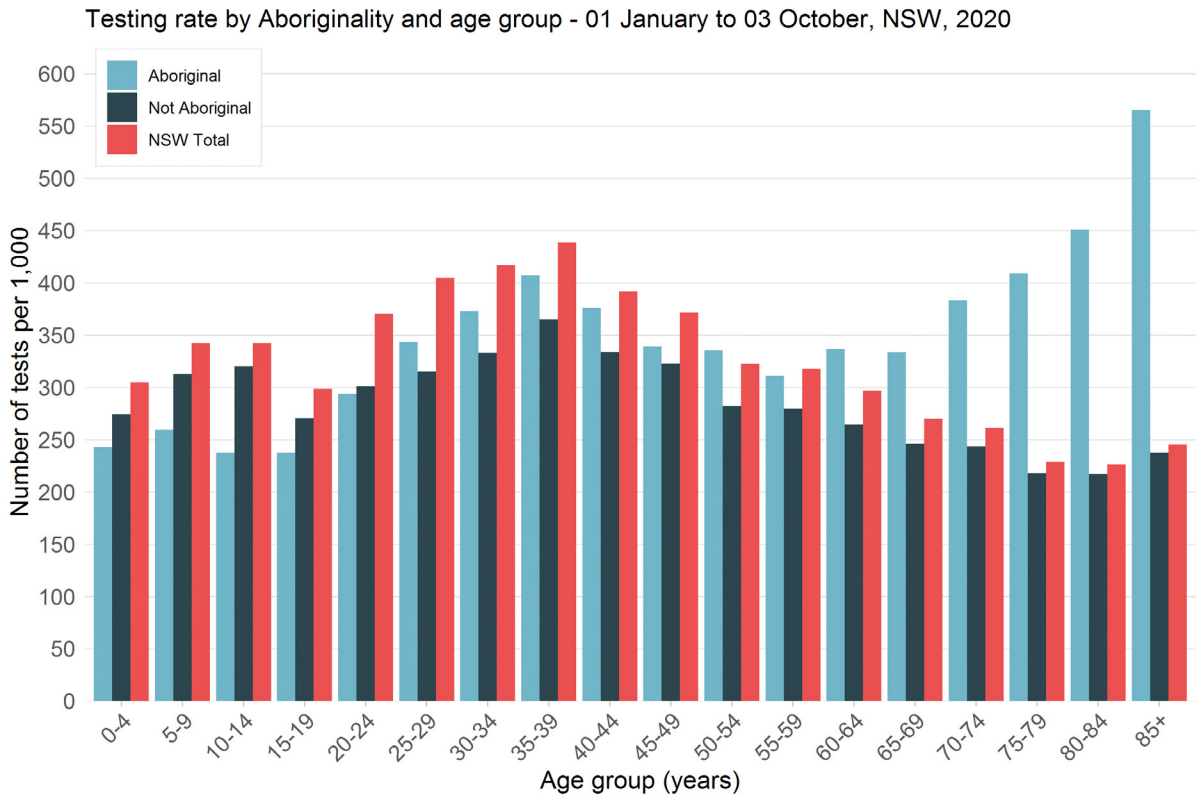
There has been a higher number of infections diagnosed in older males (n=274, 53%) compared with females (n=247, 47%). This represents 64 cases diagnosed in older males per 100,000 population compared to 49 cases in older females per 100,000 population. Most of the cases in people aged 70 years and older were in their seventies (69%) or their eighties (23%) at the time of diagnosis.

COVID-19 cases by age group and gender, 1 January to 17 October 2020, NSW

Age group	Males		Females	
	Number of cases	Rate per 100,000 population	Number of cases	Rate per 100,000 population
70-74	104	61.9	102	50.3
75-79	88	76.5	67	53.3
80-84	44	58.2	35	37.7
85-89	20	45.8	19	30.5
90+	18	76.3	24	52.4
Total	**274**	**73.1**	**247**	**49.3**

What do COVID-19 testing rates in older adults look like in NSW?

Each bar in the below figure shows the number of tests by age group and Aboriginal status per 1,000 population. Testing rates for Aboriginal people need to be derived through data linkage with other health information systems, resulting in a reporting delay compared to data on confirmed cases, and is available for testing up to 3 October.

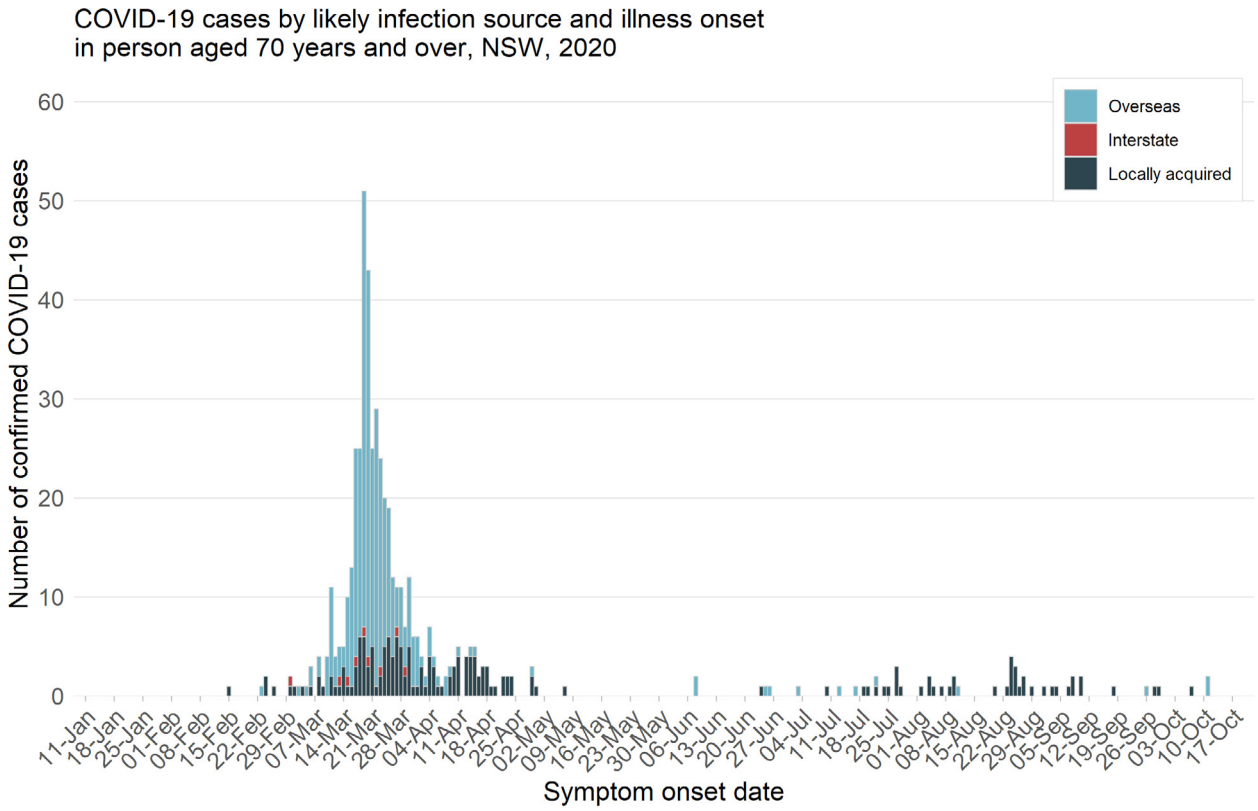


Interpretation: The figure shows that testing rates are lower among older people compared to younger people in the general population. However, testing rates are higher in older Aboriginal people than older non-Aboriginal people and rise with increasing age.

How are older adults getting infected?

All cases of COVID-19 are investigated by public health staff to understand the source of their infection. The below figure and table show the number of locally-acquired cases in older adults by their likely source of infection and the date of symptom onset (when cases began to feel unwell).

Most cases diagnosed in adults aged 70 years and older to 17 October (n=333, 64%) were in travellers returning from overseas. Of these, 71% acquired their infection on cruise ships with known COVID-19 outbreaks. Nine cases acquired their infection interstate. Among the 179 cases who acquired their infection locally, 48 were household contacts of confirmed cases and 96 were linked to confirmed cases outside the home. There were 33 locally-acquired cases with no links to known cases or clusters, and the source of investigation is ongoing for two locally-acquired cases.



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

COVID-19 cases by source of infection in people aged 70 years and older, 1 January to 17 October 2020, NSW

Source of infection	Number of cases	Percentage
Acquired locally	179	
Household member/s	48	
Confirmed case/s outside the home	96	34%
Source not identified	33	
Investigation ongoing	2	
Acquired interstate	9	2%
Acquired overseas	333	64%
Total	**521**	**100%**

Interpretation: Most cases in older adults (64%) acquired their infection overseas, including on cruise ships. Among cases who acquired their infection locally in NSW, around 80% are linked to known cases or clusters.

What have been the most common settings of exposure for locally-acquired cases?

The below table shows the most common settings of exposure for locally-acquired cases.

Among 144 locally-acquired cases linked to a known case or cluster, the most common settings of possible exposure were aged care facilities (38%) and people's own home (33%) or social/family contacts outside the home (9%). Only 8% were linked to healthcare facilities. One of the cases linked to an aged care facility acquired their infection after visiting an aged care facility but did not live there. Of the 33 locally-acquired cases with no links to known cases or clusters, five cases lived in aged care facilities, but their source of exposure has not been linked to these facilities.

Among the cases who acquired their infection in their own home or through social/family contacts outside the home, most acquired their infection from a spouse or life partner (40%), from children (30%), or from friends/social contacts (13%). The remaining acquired their infection from extended family members such as grandchildren, siblings, children-in-law or parents.

Settings of exposure for locally-acquired cases in people aged 70 years and older, NSW, 2020

Settings of exposure for locally-acquired cases	Percent
Aged care facilities	38%
Own home	33%
Social/family contact (outside the home or in other people's homes)	9%
Healthcare (hospitals and GP)	8%
Gym	4%
Restaurants/pubs	4%
Place of worship	1%
Workplace	1%
Transport (taxi)	1%

Interpretation: Of older adults who acquired COVID-19 locally, where it was known, the most common exposure setting was an aged care facility. This was followed by contacts in the home and family and social contacts outside the home. Healthcare facilities were the setting of infection for 8% of cases in this population.

How severe has COVID-19 infection been for older people?

All COVID-19 cases diagnosed from 1 January to 31 May 2020 were linked to admitted patient hospital records. This supplementary data shows the percentages of cases hospitalised for COVID-19 up to six weeks after their diagnosis. Of the 465 cases aged 70 years and older diagnosed during this period, 30% were hospitalised, 10% were admitted to intensive care units (ICU), and 5% received respiratory support in ICU.

Of the 521 COVID-19 cases in people aged 70 years and older diagnosed between 1 January and 17 October 2020, there have been 50 COVID-19-related deaths. This accounts for 10% of all diagnosed cases in this age group, and 91% of all COVID-19-related deaths in NSW. There was a higher proportion of deaths in cases over 90 years old (38%) than in cases aged between 70 and 89 years old (7%). Most deaths occurred prior to 1 July 2020.

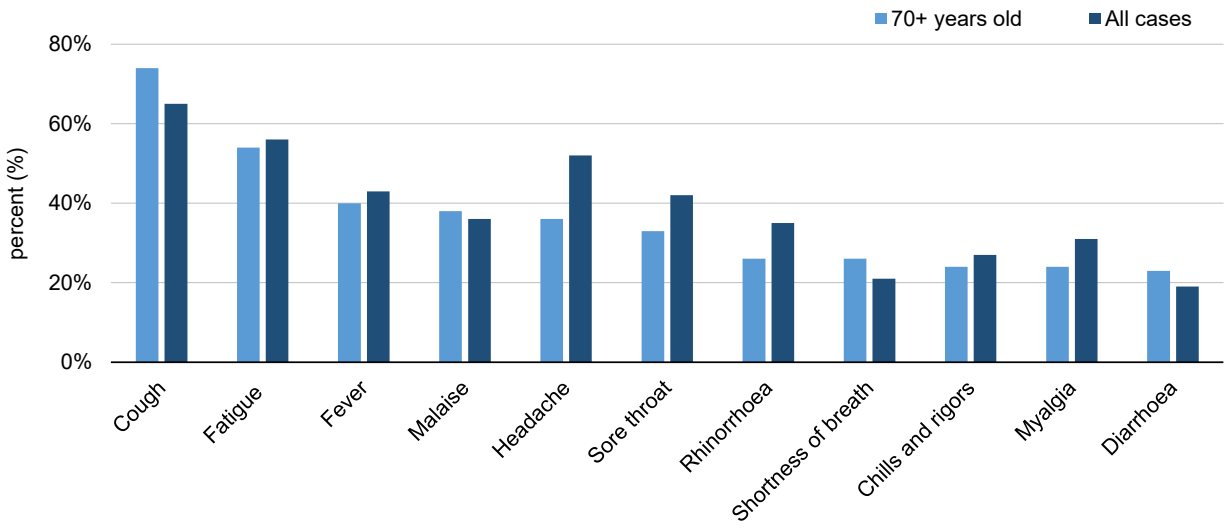
Percentage of cases aged 70 years and older who were hospitalised, admitted to ICU and died due to COVID-19, NSW, 2020

Age group	Hospitalised	ICU admission	Received respiratory support	Died
70-79	24%	11%	6%	4%
80-89	47%	10%	5%	17%
90+	37%	0%	0%	38%
70+	**30%**	**10%**	**5%**	**10%**

What are the common symptoms reported in older people with COVID-19?

Of the 514 cases whose symptoms status is known, 468 (91%) reported having symptoms and 46 (9%) were asymptomatic. This is comparable to all cases in NSW, with 9% reporting no symptoms. The below figure shows symptoms data for cases where symptoms status is known. The most common symptoms reported by cases aged 70 years and older were cough, fatigue, fever, malaise, headache, and sore throat, which are also generally consistent with the most common symptoms that have been reported for the rest of the population in NSW. Compared to all cases in NSW, a higher percentage of older people have reported cough as a symptom (74% in older people vs 65% in all cases in NSW).

Most common symptoms in older cases (aged 70 years and over) who reported symptoms, 1 January to 17 October 2020, NSW



APPENDIX A: COVID-19 PCR TESTS IN NSW

Local Health District	Local Government Area	Week ending				Total	
		17 October		10 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Central Coast	Central Coast / LHD Total[2]	2839	8.1	2238	6.3	108311	307.0
Far West	Balranald	11	4.7	12	5.1	417	178.4
	Broken Hill	93	5.3	79	4.5	4316	246.9
	Central Darling	11	6.0	0	0.0	317	172.4
	Wentworth	77	10.9	66	9.4	1898	269.1
	LHD Total[2]	192	6.4	157	5.2	6948	230.5
Hunter New England	Armidale Regional	227	7.4	157	5.1	8382	272.3
	Cessnock	300	5.0	201	3.4	13954	232.6
	Dungog	47	5.0	33	3.5	2111	224.0
	Glen Innes Severn	29	3.3	22	2.5	1644	185.3
	Gunnedah	65	5.1	57	4.5	2898	228.5
	Gwydir	15	2.8	8	1.5	607	113.4
	Inverell	64	3.8	55	3.3	3770	223.2
	Lake Macquarie	1614	7.8	1408	6.8	73695	357.9
	Liverpool Plains	46	5.8	31	3.9	1872	236.9
	Maitland	718	8.4	558	6.6	33964	398.8
	Mid-Coast	387	4.1	361	3.9	20122	214.4
	Moree Plains	34	2.6	48	3.6	2687	202.6
	Muswellbrook	86	5.3	79	4.8	4055	247.6
	Narrabri	48	3.7	45	3.4	2457	187.1
	Newcastle	1512	9.1	1323	8.0	73739	445.4
	Port Stephens	439	6.0	361	4.9	25325	344.7
	Singleton	182	7.8	140	6.0	8248	351.6
	Tamworth Regional	429	6.9	371	5.9	19374	309.8
	Tenterfield	17	2.6	16	2.4	972	147.4
	Upper Hunter Shire	71	5.0	60	4.2	3587	253.0
	Uralla	22	3.7	23	3.8	1078	179.3
	Walcha	12	3.8	6	1.9	778	248.3
	LHD Total[2]	6362	6.7	5358	5.6	305068	320.3
Illawarra Shoalhaven	Kiama	188	8.0	181	7.7	8020	342.9
	Shellharbour	653	8.9	545	7.4	24904	340.1
	Shoalhaven	648	6.1	553	5.2	28478	269.6
	Wollongong	1709	7.8	1472	6.8	66267	303.8
	LHD Total[2]	3198	7.6	2751	6.6	127669	304.3
Mid North Coast	Bellingen	80	6.2	57	4.4	3015	232.0
	Coffs Harbour	408	5.3	411	5.3	17048	220.6
	Kempsey	196	6.6	162	5.5	7726	259.7
	Nambucca	88	4.4	72	3.6	4172	210.7
	Port Macquarie-Hastings	557	6.6	468	5.5	21786	257.8
	LHD Total[2]	1329	5.9	1170	5.2	53747	238.2

Local Health District	Local Government Area	Week ending				Total	
		17 October		10 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Murrumbidgee	Albury	612	11.3	449	8.3	13855	254.9
	Berrigan	168	19.2	37	4.2	1710	195.4
	Bland	36	6.0	33	5.5	1333	223.2
	Carrathool	6	2.1	8	2.9	277	99.0
	Coolamon	26	6.0	22	5.1	1050	241.9
	Cootamundra-Gundagai Regional	73	6.5	55	4.9	2434	216.6
	Edward River	76	8.4	45	5.0	2209	243.2
	Federation	110	8.8	94	7.6	2294	184.5
	Greater Hume Shire	95	8.8	59	5.5	2615	242.9
	Griffith	174	6.4	187	6.9	7157	264.8
	Hay	16	5.4	7	2.4	445	150.9
	Hilltops	131	7.0	90	4.8	4313	230.6
	Junee	25	3.7	16	2.4	1065	159.4
	Lachlan[1]	21	3.5	13	2.1	829	136.5
	Leeton	59	5.2	55	4.8	2163	189.0
	Lockhart	16	4.9	18	5.5	679	206.7
	Murray River	40	3.3	28	2.3	686	56.6
	Murrumbidgee	22	5.6	12	3.1	671	171.3
	Narrandera	30	5.1	21	3.6	941	159.5
	Snowy Valleys	69	4.8	81	5.6	3711	256.3
	Temora	30	4.8	24	3.8	1108	175.7
	Wagga Wagga	648	9.9	539	8.3	20743	317.9
	LHD Total[2]	2465	8.3	1886	6.3	71734	240.6
Nepean Blue Mountains	Blue Mountains	967	12.2	786	9.9	35247	445.5
	Hawkesbury	718	10.7	644	9.6	25161	373.9
	Lithgow	103	4.8	102	4.7	5414	250.6
	Penrith	2406	11.3	2096	9.8	89318	419.4
	LHD Total[2]	4154	10.6	3603	9.2	153870	393.5
Northern NSW	Ballina	271	6.1	186	4.2	12011	269.1
	Byron	257	7.3	257	7.3	11042	314.8
	Clarence Valley	209	4.1	188	3.6	9552	184.9
	Kyogle	40	4.6	28	3.2	1482	168.5
	Lismore	271	6.2	194	4.4	12349	282.6
	Richmond Valley	125	5.3	112	4.8	5829	248.4
	Tenterfield	17	2.6	16	2.4	972	147.4
	Tweed	517	5.3	471	4.9	20613	212.5
	LHD Total[2]	1692	5.5	1441	4.6	73118	235.6

Local Health District	Local Government Area	Week ending				Total	
		17 October		10 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Northern Sydney	Hornsby	1326	8.7	1282	8.4	47890	314.9
	Hunters Hill	317	21.2	297	19.8	11353	757.9
	Ku-ring-gai	1766	13.9	1521	12.0	58897	463.2
	Lane Cove	851	21.2	756	18.8	31042	773.1
	Mosman	315	10.2	303	9.8	12057	389.2
	North Sydney	672	9.0	644	8.6	22882	305.0
	Northern Beaches	2659	9.7	2115	7.7	96265	352.0
	Parramatta[1]	2642	10.3	2487	9.7	73100	284.2
	Ryde	1493	11.4	1431	10.9	43375	330.4
	Willoughby	732	9.0	636	7.8	23191	285.6
	LHD Total[2]	10663	11.2	9507	10.0	360738	377.4
South Eastern Sydney	Bayside	1757	9.9	1344	7.5	49674	278.5
	Georges River	1496	9.4	1201	7.5	43556	273.1
	Randwick	1971	12.7	1813	11.7	69274	445.1
	Sutherland Shire	2514	10.9	2032	8.8	93054	403.5
	Sydney[1]	3649	14.8	3284	13.3	105306	427.5
	Waverley	1027	13.8	903	12.2	39656	533.8
	Woollahra	839	14.1	788	13.3	32466	546.7
	LHD Total[2]	11065	11.5	9536	9.9	365137	380.7
South Western Sydney	Camden	3220	31.7	1437	14.2	51796	510.6
	Campbelltown	2945	17.2	1854	10.9	70602	413.0
	Canterbury-Bankstown[1]	4991	13.2	2707	7.2	114690	303.5
	Fairfield	1308	6.2	1177	5.6	59981	283.3
	Liverpool	2878	12.7	1953	8.6	88105	387.1
	Wingecarribee	573	11.2	474	9.3	20056	392.2
	Wollondilly	724	13.6	367	6.9	15461	290.9
	LHD Total[2]	13667	13.2	8591	8.3	363645	350.2
Southern NSW	Bega Valley	202	5.9	195	5.7	7940	230.3
	Eurobodalla	224	5.8	195	5.1	13305	345.8
	Goulburn Mulwaree	244	7.8	218	7.0	8293	266.4
	Queanbeyan-Palerang Regional	288	4.7	257	4.2	11573	189.4
	Snowy Monaro Regional	115	5.5	83	4.0	5078	244.2
	Upper Lachlan Shire	46	5.7	46	5.7	1782	221.1
	Yass Valley	61	3.6	41	2.4	2861	167.4
	LHD Total[2]	1180	5.4	1035	4.8	50859	234.3
Sydney	Burwood	283	7.0	269	6.6	9335	229.9
	Canada Bay	1068	11.1	789	8.2	38481	400.5
	Canterbury-Bankstown[1]	4991	13.2	2707	7.2	114690	303.5
	Inner West	2715	13.5	2057	10.2	91947	457.9
	Strathfield	572	12.2	551	11.7	17388	370.5
	Sydney[1]	3649	14.8	3284	13.3	105306	427.5
	LHD Total[2]	9747	14.0	6846	9.8	280799	403.0

Local Health District	Local Government Area	Week ending				Total	
		17 October		10 October			
		No.	Tests per 1,000 population	No.	Tests per 1,000 population	No.	Tests per 1,000 population
Western NSW	Bathurst Regional	377	8.6	300	6.9	13576	311.3
	Blayney	46	6.2	39	5.3	2326	315.2
	Bogan	15	5.8	11	4.3	509	197.3
	Bourke	7	2.7	6	2.3	394	152.1
	Brewarrina	3	1.9	8	5.0	271	168.2
	Cabonne	69	5.1	58	4.3	2357	172.9
	Cobar	17	3.7	14	3.0	728	156.3
	Coonamble	23	5.8	20	5.1	761	192.3
	Cowra	73	5.7	54	4.2	2551	200.2
	Dubbo Regional	422	7.9	326	6.1	13702	255.1
	Forbes	37	3.7	26	2.6	1664	168.0
	Gilgandra	16	3.8	16	3.8	757	178.6
	Lachlan[1]	21	3.5	13	2.1	829	136.5
	Mid-Western Regional	156	6.2	148	5.9	6215	246.1
	Narromine	29	4.5	19	2.9	1314	201.6
	Oberon	19	3.5	23	4.3	1308	241.7
	Orange	443	10.4	402	9.5	15098	355.7
	Parkes	63	4.3	47	3.2	3321	223.8
	Walgett	12	2.0	29	4.9	1321	221.9
	Warren	13	4.8	10	3.7	1017	377.1
	Warrumbungle Shire	45	4.9	33	3.6	2155	232.3
	Weddin	16	4.4	8	2.2	659	182.4
	LHD Total[2]	1919	6.7	1605	5.6	72588	254.7
Western Sydney	Blacktown	4095	10.9	3129	8.4	130567	348.7
	Cumberland	2466	10.2	2104	8.7	77577	321.2
	Parramatta[1]	2642	10.3	2487	9.7	73100	284.2
	The Hills Shire	2634	14.8	2382	13.4	79020	444.0
	LHD Total[2]	11403	10.8	9634	9.2	349040	331.3
NSW Total[3]		**88,636**	**11.0**	**71,821**	**8.9**	**2,913,299**	**360.1**

[1]Local Government Area (LGA) spans multiple Local Health Districts.
[2]Local Health District total counts and rates includes tests for LHD residents only. Murrumbidgee includes Albury LGA residents.
[3]NSW Total counts and rates 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, 1 JANUARY TO 11 OCTOBER 2020

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.

Specimen collection date	Total PCR tests conducted	Influenza A		Influenza B		Adeno-virus	Para-influenza	RSV	Rhinovirus	HMPV	Enterovirus
		No.	%Pos.	No.	%Pos.						
1 Jan—11 Oct 2020											
Total	1,009,928	6,620	0.66%	952	0.09%	7,273	9,046	6,785	121,515	2,062	4,506
Month ending											
3 February*	34,953	2,508	7.18%	401	1.15%	846	1,900	752	5,036	599	335
1 March	40,575	2,363	5.82%	315	0.78%	798	2,435	1,118	8,245	437	1,007
29 March	85,238	1,549	1.82%	200	0.23%	898	4,117	1,977	18,088	664	1,502
3 May*	54,128	70	0.13%	13	0.02%	175	273	410	2,250	48	210
31 May	71,525	35	0.05%	6	0.01%	237	62	115	3,511	27	112
28 June	130,922	42	0.03%	11	0.01%	629	83	178	28,321	112	246
2 August*	227,152	34	0.01%	2	0.01%	1,251	89	209	31,589	79	427
30 August	174,594	9	0.01%	2	0.01%	1,137	37	299	13,926	14	235
27 September	145,489	6	0.004%	1	0.00%	938	35	866	8,416	61	259
Week ending											
4 October	24,539	4	0.02%	1	0.00%	203	9	426	1,229	10	89
11 October	20,808	0	0.00%	0	0.00%	161	6	435	904	11	84

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

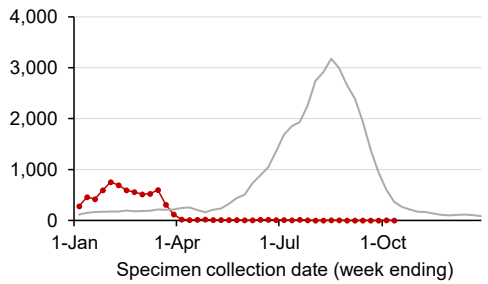
RSV - Respiratory syncytial virus

*Five-week period

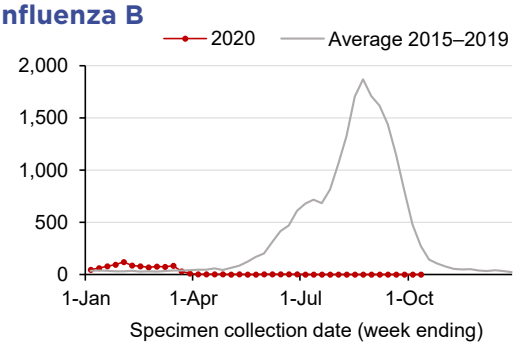
APPENDIX C: NUMBER OF POSITIVE PCR TEST RESULTS FOR INFLUENZA AND OTHER RESPIRATORY VIRUSES AT SENTINEL NSW LABORATORIES, 1 JANUARY TO 11 OCTOBER 2020

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.

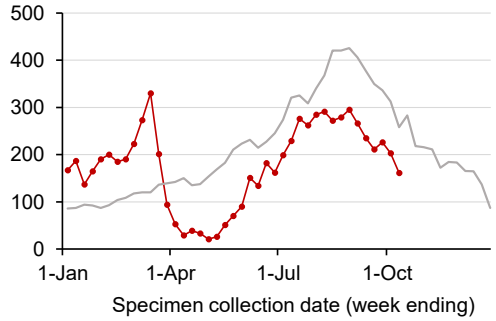
Influenza A



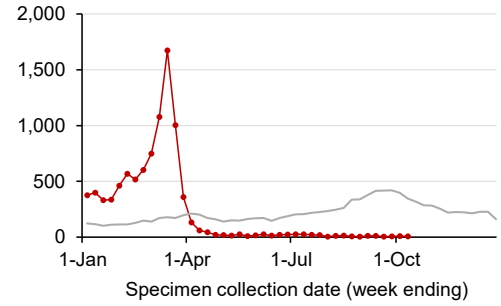
Influenza B



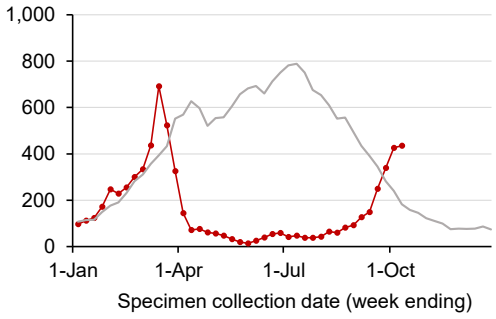
Adenovirus



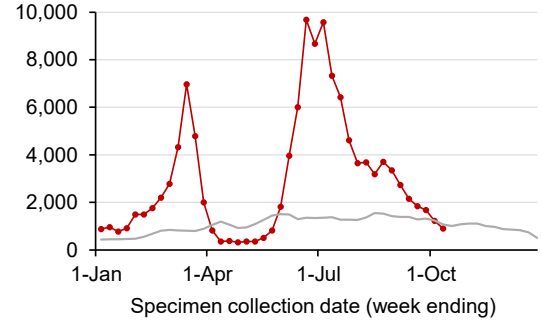
Parainfluenza



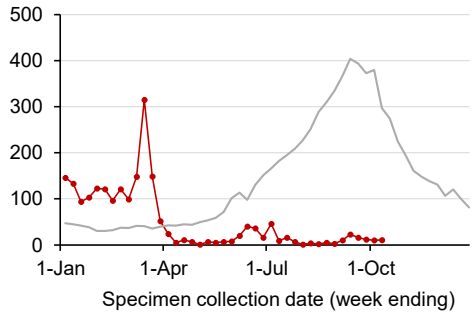
Respiratory syncytial virus (RSV)



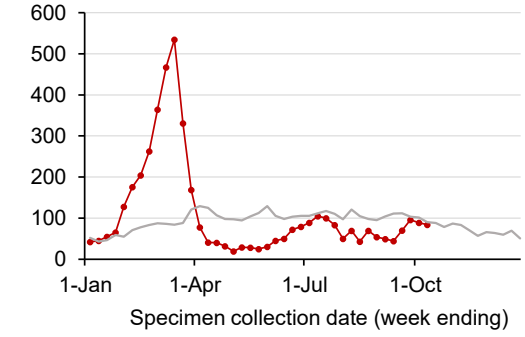
Rhinovirus



Human metapneumovirus (HPMV)



Enterovirus



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

GLOSSARY

Term	Description
Case	A person infected who has tested positive to a validated specific SARS-CoV-2 nucleic acid test or has had the virus identified by electron microscopy or viral culture. Blood tests (serology) is only used in special situations following a public health investigation and require other criteria to be met in addition to the positive serology result (related to timing of symptoms and contact with known COVID-19 cases). Case counts include: - NSW residents diagnosed in NSW who were infected overseas or in Australia (in NSW or interstate), and - interstate or international visitors diagnosed in NSW who were under the care of NSW Health at the time of diagnosis.
Healthcare 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 linked to each other in some way.

Dates used in COVID-19 reporting

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